



**Carleton**  
UNIVERSITY

Canada's Capital University

# Undergraduate Calendar



**2007/2008**

**carleton.ca**







**Carleton**  
UNIVERSITY

## **Canada's Capital University**

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# **Undergraduate Calendar for the Academic Year 2007-2008**

### **About this Calendar**

The Web edition of the Carleton University Undergraduate Calendar at **[carleton.ca/cuuc](http://carleton.ca/cuuc)** is the University's official statement. Consult the Web edition for the authoritative and most up-to-date version.

This Calendar is published 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**

## The Academic Year 2007-2008

### 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 2007

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#### March 1, 2007

- Last day for receipt of applications for admission to a degree program for the 2007 summer term.

#### May 1

- Last day for receipt of applications for degree program transfers for the 2007 summer term.

#### May 16

- Full summer and early summer courses begin.

#### May 21

- Statutory holiday, University closed. Missed classes may meet May 25.

#### May 25

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

#### June 8

- Last day to withdraw from early summer courses.
- Last day to submit, to the Paul Menton Centre for Students with Disabilities, Formal Examination Accommodation Forms for June examinations.

#### June 14-26

- Fall-winter final deferred examinations will be held.

#### June 26

- Last day of classes for early summer. (Note: Full Summer courses resume July 3)
- Last day for handing in term assignments, subject to any earlier course deadline.

#### June 27-30

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

#### July 2

- Statutory holiday, University closed. Missed classes may meet July 13.

#### July 3

- Late summer courses begin. Full summer courses resume.

#### July 6

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

#### July 27

- Last day to withdraw from full summer, late summer courses and any other courses that end this term.
- Last day to submit, to the Paul Menton Centre for Students with Disabilities, Formal Examination Accommodation Forms for August examinations.

#### August 6

- Civic holiday, University closed. Missed classes may meet August 10.

#### August 13

- Last day of summer term classes.
- Last day for handing in term assignments, subject to any earlier course deadline.

#### August 14-18

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

#### September 30

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

#### October 12-13

- Summer term deferred final examinations will be held.

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### Fall Term 2007

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#### September 1, 2007

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

#### September 1-8

- Academic and social orientation to the campus.

#### September 3

- Statutory holiday, University closed.

#### September 4

- Fall term begins. All students are expected to be on campus.

#### September 5

- Academic Orientation. Class and laboratory preparations, departmental introductions for students, and other academic preparation activities will be held.

- Orientation for Teaching Assistants.

#### September 6

- Fall and fall/winter classes begin.

#### September 21

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

#### September 30

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

#### October 5

- University Day at Carleton. Undergraduate classes suspended.

#### October 8

- Statutory holiday, University closed.



**October 15**

- Last day for receipt of applications for admission to a degree program for the 2008 winter term from applicants whose documents originate from outside Canada or the United States.

**November 9**

- Last day to withdraw from fall term courses and any other courses that end this term.
- Last day to submit, to the Paul Menton Centre for Students with Disabilities, Formal Examination Accommodation Forms for December examinations.

**November 15**

- Last day for receipt of applications for admission to a degree program for the 2008 winter term.

**November 19**

- 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**

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

**December 3**

- Last day of fall-term classes.
- Fall term ends.
- Last day for receipt of applications for degree program transfers for winter term of fall/winter session.
- Last day for handing in term assignments for fall term courses, subject to any earlier course deadline.

**December 6-22 (including Saturdays)**

- Final examinations in fall term courses and mid-term examinations in fall/winter courses will be held. It may be necessary to schedule examinations during the day for classes held in the evening and vice versa.

**December 24 - January 1**

- University closed.

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**Winter Term 2008**


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**January 2, 2008**

- Winter term begins.

**January 7**

- Winter-term classes begin.

**January 18**

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

**January 30**

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

**February 1**

- Last day for receipt of applications from potential Spring graduates.
- Last day for receipt of applications for admission to the Bachelor of Architectural Studies and the Bachelor of Social Work degree programs for the 2008-09 fall-winter session.

**February 15-23****(may include evenings and Saturdays)**

- Fall-term deferred examinations will be written.

**February 18-22**

- Winter Break, classes suspended.

**March 1**

- Last day for receipt of applications to the Bachelor of Humanities, Bachelor of Industrial Design and the Bachelor of Music degree program for the 2008-2009 fall/winter session.

**March 14**

- Last day to withdraw from fall/winter, winter-term courses and any other courses that end this term.
- Last day to submit, to the Paul Menton Centre for Students with Disabilities, Formal Examination Accommodation Forms for April examinations.

**March 21**

- Statutory holiday, university closed. Classes missed will meet on Monday, April 7 on a Friday schedule.

**March 24**

- 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**

- Last day for receipt of applications for admission to a program (except Bachelor of Architectural Studies, Bachelor of Humanities, Bachelor of Industrial Design, Bachelor of Music, and Bachelor of Social Work), for the 2008-2009 fall/winter session, from candidates whose documents originate outside Canada or the United States.

**April 7**

- Last day of fall/winter and winter-term classes. All classes follow a FRIDAY schedule. Some lectures, laboratories, review tutorials, etc. may take place in Review Period until the end of Winter term on April 9.

**April 8-9**

- Review Period. Some lectures, laboratories, review tutorials, etc. may take place.

**April 9**

- Winter term ends.

- Last day for handing in term assignments, subject to any earlier course deadline.

**April 11-29 (including Saturdays)**

- Final examinations in winter term and fall/winter courses will be held. It may be necessary to schedule examinations during the day for classes held in the evening and vice versa.

**May 1**

- Last day for receipt of applications for admission to the Bachelor of Journalism program and the Child Studies program for the 2008-2009 fall/winter session.

**June 1**

- Last day for receipt of applications for admission to a program (except Bachelor of Architectural Studies, Bachelor of Humanities, Bachelor of Industrial Design, Bachelor of Journalism, Bachelor of Music, Bachelor of Social Work and Child Studies program) for the 2008-2009 fall/winter session from mature applicants, from those presenting post-secondary education qualifications and from those transferring from other universities in Canada or the United States.

## The University

- Last day for receipt of applications for admission to a program (except Bachelor of Architectural Studies, Bachelor of Humanities, Bachelor of Industrial Design, Bachelor of Journalism, Bachelor of Music, Bachelor of Social Work and Child Studies program) from applicants with high school qualifications from Canada or the United States.

**June 12-24**

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

**June 15**

- Last day for receipt of applications for internal degree transfers to allow for registration for the 2008-2009 fall/winter session.

**June 30**

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

**Summer Term 2008****March 1, 2008**

- Last day for receipt of applications for admission to a degree program for the 2008 summer term.

**May 1**

- Last day for receipt of applications for degree program transfers for the 2008 summer term.

**May 12**

- Full summer and early summer courses begin.

**May 19**

- Statutory holiday, University closed.

**May 23**

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

**June 13**

- Last day to withdraw from early summer courses.
- Last day to submit, to the Paul Menton Centre for Students with Disabilities, Formal Examination Accommodation Forms for June examinations.

**June 12-24**

- Fall-winter final deferred examinations will be held.

**June 23**

- Last day of classes for early summer. (Note: Full summer courses resume July 2)
- Last day for handing in term assignments, subject to any earlier course deadline.

**June 25-30 (including Saturday)**

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

**July 1**

- Statutory holiday, University closed.

**July 2**

- Late summer courses begin. Full summer courses resume

**July 11**

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

**July 25**

- Last day to withdraw from full summer, late summer courses and any other courses that end this term.
- Last day to submit, to the Paul Menton Centre for Students with Disabilities, Formal Examination Accommodation Forms for August examinations.

**August 4**

- Civic holiday, University closed. Missed classes may meet August 13.

**August 13**

- Last day of summer term classes. All classes follow a MONDAY schedule.
- Last day for handing in term assignments, subject to any earlier course deadline.

**August 14-19 (including Saturday)**

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

**September 30**

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

**October 3-4 (including Saturday)**

- Summer term deferred final examinations will be held.

2007

JANUARY							FEBRUARY							MARCH							APRIL						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
	1	2	3	4	5	6				1	2	3				1	2	3	1	2	3	4	5	6	7		
7	8	9	10	11	12	13	4	5	6	7	8	9	10	4	5	6	7	8	9	10	8	9	10	11	12	13	14
14	15	16	17	18	19	20	11	12	13	14	15	16	17	11	12	13	14	15	16	17	15	16	17	18	19	20	21
21	22	23	24	25	26	27	18	19	20	21	22	23	24	18	19	20	21	22	23	24	22	23	24	25	26	27	28
28	29	30	31				25	26	27	28			25	26	27	28	29	30	31	29	30						

  

MAY							JUNE							JULY							AUGUST						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
	1	2	3	4	5					1	2		1	2	3	4	5	6	7				1	2	3	4	
6	7	8	9	10	11	12	3	4	5	6	7	8	9	8	9	10	11	12	13	14	5	6	7	8	9	10	11
13	14	15	16	17	18	19	10	11	12	13	14	15	16	15	16	17	18	19	20	21	12	13	14	15	16	17	18
20	21	22	23	24	25	26	17	18	19	20	21	22	23	22	23	24	25	26	27	28	19	20	21	22	23	24	25
27	28	29	30	31			24	25	26	27	28	29	30	29	30	31				26	27	28	29	30	31		

  

SEPTEMBER							OCTOBER							NOVEMBER							DECEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
					1			1	2	3	4	5	6				1	2	3						1		
2	3	4	5	6	7	8	7	8	9	10	11	12	13	4	5	6	7	8	9	10	2	3	4	5	6	7	8
9	10	11	12	13	14	15	14	15	16	17	18	19	20	11	12	13	14	15	16	17	9	10	11	12	13	14	15
16	17	18	19	20	21	22	21	22	23	24	25	26	27	18	19	20	21	22	23	24	16	17	18	19	20	21	22
23	24	25	26	27	28	29	28	29	30	31			25	26	27	28	29	30	23	24	25	26	27	28	29		
30																			30	31							

2008

JANUARY							FEBRUARY							MARCH							APRIL						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
	1	2	3	4	5					1	2					1	2	3				1	2	3	4	5	
6	7	8	9	10	11	12	3	4	5	6	7	8	9	2	3	4	5	6	7	8	6	7	8	9	10	11	12
13	14	15	16	17	18	19	10	11	12	13	14	15	16	9	10	11	12	13	14	15	13	14	15	16	17	18	19
20	21	22	23	24	25	26	17	18	19	20	21	22	23	16	17	18	19	20	21	22	20	21	22	23	24	25	26
27	28	29	30	31			24	25	26	27	28	29	23	24	25	26	27	28	29	27	28	29	30				
													30	31													

  

MAY							JUNE							JULY							AUGUST									
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S			
			1	2	3			1	2	3	4	5	6	7				1	2	3	4	5				1	2	3	4	5
4	5	6	7	8	9	10	8	9	10	11	12	13	14	6	7	8	9	10	11	12	3	4	5	6	7	8	9			
11	12	13	14	15	16	17	15	16	17	18	19	20	21	13	14	15	16	17	18	19	10	11	12	13	14	15	16			
18	19	20	21	22	23	24	22	23	24	25	26	27	28	20	21	22	23	24	25	26	17	18	19	20	21	22	23			
25	26	27	28	29	30	31	29	30					27	28	29	30	31	24	25	26	27	28	29	30						
																			31											

  

SEPTEMBER							OCTOBER							NOVEMBER							DECEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
	1	2	3	4	5	6		1	2	3	4					1	2	3				1	2	3	4	5	6
7	8	9	10	11	12	13	5	6	7	8	9	10	11	2	3	4	5	6	7	8	7	8	9	10	11	12	13
14	15	16	17	18	19	20	12	13	14	15	16	17	18	9	10	11	12	13	14	15	14	15	16	17	18	19	20
21	22	23	24	25	26	27	19	20	21	22	23	24	25	16	17	18	19	20	21	22	21	22	23	24	25	26	27
28	29	30					26	27	28	29	30	31	23	24	25	26	27	28	29	28	29	30	31				
													30														



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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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## Electronic Access to the Undergraduate Calendar

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An electronic version of the Undergraduate Calendar is available at the Carleton University Web site, at [carleton.ca/cuuc](http://carleton.ca/cuuc)

Every effort has been made to ensure the accuracy of both the online and printed versions of the Undergraduate

Calendar. In the case of any discrepancy the online version shall be considered to be the University's official statement.

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## Fees

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### Tuition Fees and Charges 2007-2008

Tuition fees, late charges, and other fees and charges are reviewed in the spring of each year. At the time of printing, tuition fees and charges for 2007-2008 were not yet decided.

Once fees and charges have been set, specific details will be published on Carleton's Web site by May 1 ([carleton.ca/fees](http://carleton.ca/fees)) and in the Registration Instructions and Class Schedule booklet which is made available to all incoming and returning students during the month of 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 2007-2008 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 them 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 2007-2008 academic year only. Students wishing to apply for 2008-2009 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 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 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 a minimum 70 band score on the Canadian Academic English Language (CAEL) Assessment, or
- to present a 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 a minimum score of 6.5 overall on the International English Language Testing System (IELTS), with a minimum score of 6.0 on each band.
- e) to present a minimum score of 85 with a minimum of 80 in each band on the Michigan English Language Assessment Battery (MELAB).

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 with an English as a Second Language Requirement (ESLR). These applicants are required to complete the CAEL Assessment, an approved assessment of English as a Second Language administered by the University's School of Linguistics and Applied Language Studies (SLALS), and receive their CAEL results prior to registering in any credit courses. Applicants who receive an overall band score of 70 or above on the CAEL Assessment have satisfied the ESLR. Depending on the results of the CAEL Assessment, and based on the placement criteria of the School, applicants whose CAEL results do not satisfy the ESLR may be:

- a) permitted to register only in non-credit intensive courses in English as a Second Language offered by SLALS, or
- b) permitted to begin their studies by registering in credit ESLA courses(s) and a limited number of credit courses from their degree program 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 degree 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 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 the CAEL Assessment 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 the CAEL Assessment 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 courses and placement, contact the School of Linguistics and Applied 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 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.

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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.

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## 8. Admission to Certificate and Diploma Programs

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In addition to offering nineteen undergraduate degree programs, for which the admission requirements are stated on the following pages, Carleton offers six 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 Quebec 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 Quebec 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

### 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 Mathematics MATH 0007 (Introductory Calculus) as an extra half-credit beyond the normal degree program requirements.

It is recognized that the curriculum of some provinces does not include an equivalent to Geometry and Discrete Mathematics. In instances where no equivalent 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 Mathematics MATH 0107 (Algebra and Geometry). In some degree programs, this will be an extra half credit beyond the normal degree 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, an average of A is required. In either case, the applicants must be ranked in the first quarter of their class.
3. Applicants are encouraged to submit SAT or ACT scores to supplement their application for admission to the University.

### Advanced Placement

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

Students applying on the basis of having completed the IB diploma must possess a minimum score of 28 credits. 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.

### 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.

## 10. Special Requirements for Overseas Students

### 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.

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

### 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.

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

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.)

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

### 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 Bachelor of Arts\* 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 Applied Arts and Science 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 Applied Arts and Science diploma program and the admission requirements of the B.A. degree program.
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 Applied Arts and Science Diploma Program or a two year General Arts and Science 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 and the admission requirements of the B.A. degree program.
3. Applicants who present a minimum 3.0 G.P.A. and who have completed two years of a three year Applied Arts and Science 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 Applied Arts and Science diploma program and the admission requirements of the B.A. degree program.
4. Applicants who present a minimum 3.0 G.P.A. after the first year of a two or three year Applied Arts and



Science Diploma program or a two year General Arts and Science Diploma Program will be considered for admission to first year of a B.A. degree program.

### CAAT Graduate Applicants

#### • B.A.(Honours) and B.A. Degrees

Students from Ontario Colleges of Applied Arts and Technology who have successfully graduated in a two- or three-year Applied Arts and Science Diploma Program or a two-year General Arts and Science 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 Bachelor of Arts\* degree program based on the following guidelines:

1. Graduates of a two-year Applied Arts and Science Diploma Program or a two-year General Arts and Science 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 and the admission requirements of the B.A. degree program.
2. Graduates of a three-year Applied Arts and Science 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 Applied Arts and Science diploma program and the admission requirements of the B.A. degree program.

\*These conditions apply only to CAAT students who apply for admission to Bachelor of Arts Programs.

#### • Other Degrees

CAAT In-Program applicants and CAAT Graduate applicants are eligible to apply for all other undergraduate degree programs. Such persons may inquire about the possibilities of admission by contacting Admissions Services and consulting the information below.

Students from Ontario Colleges of Applied Arts and Technology who present a minimum Second-Class Honours standing will be considered for admission to the University and may receive advanced standing to a maximum of the equivalence of first year. Assessments regarding admission and advanced standing will be based on the following guidelines:

1. Applicants who have achieved an overall Second-Class standing or better, or who have Second-Class standing or better in the last two semesters in a three-year CAAT 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 CAAT program, the course concentration and the achievement in relevant courses.
2. Applicants who have achieved an overall Second-Class standing or better, or who have Second-Class standing or better in the last two semesters of a two-year program, will be considered for admission. While such applicants will not normally receive advanced standing, exceptional applicants can receive advanced standing on the recommendation of the appropriate academic department(s).
3. Applicants who have completed two years of a three-year program and who have achieved an overall Second-Class standing or better, or who have Second-Class standing or better in the last two semesters, will be considered for admission. While such applicants will not normally receive advanced standing, exceptional applicants can receive advanced standing on the recommendation of the appropriate academic department(s).

4. Applicants who have completed the first year of a three-year CAAT program with an overall First-Class standing will be considered for admission to first year of an appropriate University program.
5. Graduates of a two-year or a three-year CAAT program or applicants who have completed two years of a three-year CAAT program who do not meet the minimum published requirements but who are presenting Third-Class standing may receive special consideration on an individual basis.

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 is 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 is dependent upon the degree or program for which the student is applying.
3. CEGEP applicants from a three-year program who have successfully completed more than 12 "General" or pre-university courses will be considered for admission to first year. The overall average required is dependent upon the degree or program for which the student is applying. They may receive advanced standing for courses taken in addition to these 12 provided they correspond to those in the program to which they were admitted. The number of advanced standing credits will not exceed those of first year.

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**

None specified.

**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 Science (Honours in Physics or Applied Physics)**

Mathematics, physics, one experimental science

**Bachelor of Social Work**

None specified.

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

3. do not meet the normal admission requirements as published in this Calendar, and
4. have been away from full-time studies for a minimum of two calendar years, and
5. 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 proof of age, 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 an OAC or 4U course in Chemistry. Applicants to B.A. Economics must present an OAC or 4U calculus and one additional mathematics course.

Mature Applicants are not usually considered for admission to Honours programs in Arts and Social Sciences, Public Affairs and Management and to the 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.

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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 21 years of age or over by December 31 of the year in which they wish to enrol, and
2. are Canadian citizens or permanent residents of Canada, and

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 Major 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:

- a) secondary school graduation in an academic program (the overall average is dependent upon the 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.

#### 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:

- a) 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
- b) they are eligible to continue as Special students at Carleton University, and
- c) 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.

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## 17. Special Studies (Non-Degree)

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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 who meet the age requirement for Mature Applicants can normally be considered for admission on this basis only if they meet all admission requirements for Mature Applicants.

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## 18. Prerequisite Subjects

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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 and Introductory Calculus

### Architectural Studies

English

Physics

Advanced Functions and Introductory Calculus or Geometry and Discrete Mathematics

Note: a portfolio is required.

### Commerce

Advanced Functions and Introductory Calculus Geometry and Discrete Mathematics or Mathematics for Data Management

English

### Computer Science

Advanced Functions and Introductory Calculus, or Geometry and Discrete Mathematics

### Engineering

Advanced Functions and Introductory Calculus

Chemistry

Physics

And one of: Geometry and Discrete Mathematics or Mathematics of Data Management or Biology or Earth and Space Science

### Humanities (combined Honours with Biology)

Chemistry

### Industrial Design

Advanced Functions and Introductory Calculus Geometry and Discrete Mathematics

Physics

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

### Information Technology

#### *Interactive Multimedia and Design*

Advanced Functions and Introductory Calculus or Geometry and Discrete Mathematics

English

One science course.

Note: a portfolio is required.

#### *Network Technology*

Advanced Functions and Introductory Calculus

English

One science course.

### International Business

English

Advanced Functions and Introductory Calculus or Geometry and Discrete Mathematics or Mathematics for Data Management

### Mathematics

Advanced Functions and Introductory Calculus

Geometry and Discrete Mathematics

#### *B.Math (Biostatistics)*

Advanced Functions and Introductory Calculus

Geometry and Discrete Mathematics

Biology

Chemistry

### Science

Advanced Functions and Introductory Calculus and two of: Geometry and Discrete Mathematics, or Biology or Chemistry or earth and space science or Physics

### Science Honours in Physics or in Applied Physics

Advanced Functions and Introductory Calculus

and two of: Geometry and Discrete Mathematics, or Biology or Chemistry or Physics or Earth and Space

Science

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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 must 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) Overseas 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 either by contacting the Application Centre at 170 Research Lane, Guelph, Ontario, Canada N1G 5E2, or the Undergraduate Recruitment Office, 315 Robertson Hall, Carleton University, 1125 Colonel By Drive, Ottawa, Ontario, Canada, K1S 5B6. Applicants can also apply directly online at: [admissions.carleton.ca/ia](http://admissions.carleton.ca/ia)
- c) Other applicants should obtain a common application form from Admissions Services, Carleton University, and submit this completed form to the Application Centre. Applicants can also apply online at: [www.ouac.on.ca](http://www.ouac.on.ca)
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, after being admitted, must take intensive ESL before being allowed to register in their degree program; and
  - d) 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 2007-2008 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) and Bachelor of Music degree programs.

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

**May 1:** Applicants to the Bachelor of Journalism and 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;
  - 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).

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.

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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 2007 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 a non-refundable fee of \$38 CAD 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.

# Admission Requirements

## Undergraduate Degree Programs

Admission Requirements are for the 2007-2008 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/applicant/requirements](http://admissions.carleton.ca/applicant/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 one of Advanced Functions and Introductory Calculus or Geometry and Discrete Mathematics.

**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

#### 1. 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).

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.

#### 2. Continuation Requirements for Students Previously Admitted to the Co-op Option and Admission to the Co-op option after beginning the program

Eligibility will be determined for all Architecture co-op students on the basis of the CGPA at the beginning of the term preceding the first co-op placement.

Students must:

- be registered as a full-time student in the B.A.S. program;
- have obtained and maintained an overall CGPA of 7.00 or better;

- be eligible to work in Canada (for off-campus work placements);
- have successfully completed an interview with the School;

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

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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 and Geomatics, 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 Introductory Calculus and Geometry and Discrete Mathematics or the equivalent (MATH 0107 and MATH 0007) are recommended.

For a major in Economics or Applied Economics, in addition to the 4U English, 4U Advanced Functions and Introductory Calculus is required. Geometry and Discrete Mathematics or equivalent (MATH 0107) is highly recommended.

**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 B.A. in Geography (Carleton)/GIS Technologist Program (Algonquin)**

During their studies at Algonquin College, students will take 5.0 Carleton credits as a Special Student, including 2.5 credits in Geography. After successful completion of the Algonquin College GIS Technologist Diploma, candidates may apply for admission to a B.A. degree in Geography at Carleton University. To be eligible for admission pursuant to this Agreement, students must have completed the GIS Technologist Diploma at Algonquin College with an average of B (CGPA of 3.00) in the courses eligible for transfer to Carleton and have obtained an overall CGPA in their Carleton courses to meet the requirements for continuation in the B.A.

**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 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 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 better 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.

**B.A. in Geography (Carleton)/GIS Technologist Program (Algonquin)**

Students who have obtained the GIS Technologist Program from Algonquin College and are admitted to the

B.A. in Geography, will be granted up to a maximum of 5.0 specific credits on admission to the degree.

**Child Studies**

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

**Co-op Option: Cognitive Science****Admission Requirements****1. 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 – Cognitive 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 may limit enrolment in the co-op option.

**2. Continuation Requirements for Students Previously Admitted to the Co-op Option and Admission to the Co-op option after beginning the program**

Eligibility will be determined for all Bachelor of Arts Cognitive Science co-op students on the basis of the CGPA at the beginning of the term preceding the first co-op placement at the completion of their third year of studies

Students must:

- be registered as a full-time student in the Bachelor of Arts Cognitive Science program;
- have obtained and maintained an overall CGPA of 8.50 or better;
- be eligible to work in Canada (for off-campus work placements);
- have successfully completed CGSC 2001.

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.

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

**Co-op Option: Economics or Applied Economics****Admission Requirements****1. 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 a Bachelor of Arts Honours Economics or Applied Economics program;
- be eligible to work in Canada (for off-campus work placements).

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

## 2. Continuation Requirements for Students Previously Admitted to the Co-op Option and Admission to the Co-op Option After Beginning the Program

Eligibility will be determined for each Bachelor of Arts Economics or Applied Economics co-op student on the basis of the CGPA at the beginning of the term preceding the first co-op placement.

Students must:

- be registered as a full-time student in the second year of a Bachelor of Arts Honours Economics or Applied Economics program;
- have a major CGPA of 8.00 or higher and an overall CGPA of 8.00 or higher;
- have successfully completed all required first- and second-year courses before beginning the first work placement;
- be eligible to work in Canada (for off-campus work placements);

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.

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

### *Co-Op Option: Law*

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

Applicants must:

- meet the 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 - Law (Business Law Concentration or Law, Policy and Government Concentration) 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. Students should also note that hiring priority is given to Canadian citizens for co-op positions with the Federal Public Service Commission.

#### 2. Continuation Requirements for Students Previously Admitted to the Co-op Option and Admission to the Co-op option after beginning the program.

Eligibility will be determined for all Bachelor of Arts Honours - Law (Business Law Concentration or Law, Policy and Government Concentration) co-op students as follows:

Students must:

- be registered as a full-time student in the Bachelor of Arts Honours - Law (Business law Concentration or Laws, Policy & Government Concentration) program;
- have 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;

- have 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;
- have completed 3.5 credits in law, including Laws 3907, 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.

### *Co-op Option: Mass Communication*

#### Admission Requirements

#### 1. 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 – Mass Communication 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. Students should also note that hiring priority is given to Canadian citizens for co-op positions in the Public Service Commission.

#### 2. Continuation Requirements for Students Previously Admitted to the Co-op Option and Admission to the Co-op option after beginning the program

Eligibility will be determined for all Bachelor of Arts – Mass Communication co-op students on the basis of the CGPA at the beginning of the term preceding the first co-op placement.

Students must:

- be registered as a full-time student in the Bachelor of Arts Mass Communication program;
- have obtained and maintained an overall CGPA of 9.00 or better;
- be eligible to work in Canada (for off-campus work placements).

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.

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.

#### *Co-op Option: Political Science*

### Admission Requirements

#### 1. 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 Bachelor of Arts Honours – Political Science program;
- c) 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.

#### 2. Continuation Requirements for Students Previously Admitted to the Co-op Option and Admission to the Co-op option after beginning the program

Eligibility will be determined for all Bachelor of Arts – Political Science co-op students on the basis of the CGPA at the beginning of the term preceding the first co-op placement.

Students must:

- a) be registered as a full-time student in the second year of the Bachelor of Arts – Political Science program;
- b) have obtained and maintained an overall CGPA of 9.00;
- c) be eligible to work in Canada (for off-campus work placements).

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.

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.

#### *Co-op Option: Psychology (Human-Oriented Technology Concentration)*

### Admission Requirements

#### 1. 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 Bachelor of Arts Honours – Psychology (Human-Oriented Technology Concentration) program;

- c) 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.

#### 2. Continuation Requirements for Students Previously Admitted to the Co-op Option and Admission to the Co-op option after beginning the program

Eligibility will be determined for all Bachelor of Arts – Psychology (Human-Oriented Technology Concentration) co-op students on the basis of the CGPA at the beginning of the term preceding the first co-op placement at the completion of their third year of studies

Students must:

- a) be registered as a full-time student in the Bachelor of Arts Psychology (Human-Oriented Technology Concentration) program;
- b) have obtained and maintained an overall CGPA of 8.50 or better;
- c) be eligible to work in Canada (for off-campus work placements);
- d) have successfully completed PSYC 2800 and PSYC 3800.

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.

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

#### *Co-operative Sociology and Anthropology Education Program*

### Admission Requirements

Students interested in admission into the Sociology and Anthropology Co-op Education Option must apply at the beginning of the third year of academic study.

Applicants must:

- a) be 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) have successfully completed, by the start-date of the first work term, the required first-year courses, second-year courses, and SOCI3003 (for undergraduate sociology majors) or ANTH3005 and ANTH 3006 (for undergraduate anthropology majors);
- d) be registered full-time in third-year and all subsequent academic terms of the co-op option;
- e) be eligible to work in Canada (for off-campus work placements).

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.

Meeting the preceding requirements only establishes eligibility for admission to the co-op option-the prevailing job market may limit enrolment in it. Students should also note that hiring priority is given to Canadian citizens for co-op positions under the auspices of the Public Service Commission. Work placements



for Sociology and Anthropology co-op students exist in a variety of public and private sector fields. Every effort will be made to find a work placement for each student admitted into the co-op program, but there are no assurances that a co-op position will be found. Students with high CGPA, enthusiasm, and potential, however, will have a competitive edge in securing co-op employment. Students will be assisted by the Carleton University Co-op Office to find work term positions.

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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 and Introductory Calculus, one of Geometry and Discrete Mathematics or Mathematics of Data Management. 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 better, and an overall CGPA of 8.00 (B) or better. Students will not receive credit for courses graded below C-.

#### *Co-op Option*

#### 1. 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.

#### 2. Continuation Requirements and Eligibility for Placement in the First Work Term of the Co-op Option for all Previously Admitted Students. Admission to the Co-op Option after beginning the program.

To be eligible for placement in the first work term of the Co-op Option a student must meet the following requirements by the end of the term preceding the first job placement process:

- have a major CGPA of 8.00 or better and an overall CGPA of 6.50 or better;
- have 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);

- be registered as a full-time student in the Bachelor of Commerce program;
- be eligible to work in Canada (for off-campus work placements).

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.

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

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## Computer Science

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### Degree

- B.C.S. (General)
- 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 and Introductory Calculus, or Geometry and Discrete Mathematics.

#### *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*

#### 1. 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.

#### 2. Continuation Requirements and Eligibility for Placement in the First Work Term of the Co-op Option for all Previously Admitted Students and Admission to the Co-op Option after starting the program (normally in the second year)

To be eligible for placement in the first work term of the Co-op Option a student must meet the following requirements by the end of the term preceding the first job placement process:

- have a major CGPA of 8.00 or better and an overall CGPA of 8.00 or better;
- have successfully completed 3.0 required credits in Computer Science, including one of COMP 2402 or COMP 2404;
- be registered as a full-time student in the Bachelor of Computer Science program;

- d) be eligible to work in Canada (for off-campus work placements).

Meeting these requirements only establishes eligibility for admission to the Co-op program. Enrolment in the Co-operative Option is limited.

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.

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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 and Introductory Calculus, Chemistry, Physics, and one of Geometry and Discrete Mathematics or Mathematics of Data Management 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.

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 better, 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

#### 1. 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.

#### 2. Continuation Requirements for Students Previously Admitted to the Co-op Option and Admission to the Co-op option after beginning the program

Students may also apply to the co-op option once they have arrived at the University at the beginning of second year, provided they:

- are registered as a full-time student in the Engineering program;
- have an overall CGPA of 8.00 or better;
- successfully completed all required first year courses including ALSS before beginning the first work placement;
- are eligible to work in Canada (for off-campus work placements);
- have obtained permission of the Co-op Faculty Advisor.

Students must be eligible for third-year standing when they return for a study term after their first work placement.

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.

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.

### 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)

### Admission Requirements

#### *First Year*

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

#### **Note:**

Prospective students submit a portfolio consisting of:

- a one-page statement of why they wish to enter the program,
- a 750-word essay based on reflections on a quotation that can be found on the College Web site at: [carleton.ca/chum/admission.html](http://carleton.ca/chum/admission.html),

- 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 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-.

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## Industrial Design

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### 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 Introductory Calculus, Geometry and Discrete Mathematics, and Physics (Design Technology and Visual Arts are strongly recommended).

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*

### Admission Requirements

#### 1. 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.

#### 2. Continuation Requirements for Students Previously Admitted and Admission to the Co-op Option after Starting the Program

Students must:

- a) be registered as a full-time student in the Industrial Design program;
- b) normally have obtained a CGPA of 8.00 or better in industrial design core courses and an overall CGPA of 6.50 or better;
- c) be eligible to work in Canada (for off-campus work placements);

- d) have 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.

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.

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

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## Information Technology

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### 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 Advanced Functions and Introductory Calculus (Geometry and Discrete Mathematics and Physics are recommended).

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 and Introductory Calculus or Geometry and Discrete Mathematics (Physics is recommended). 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 better are eligible to be considered for Advanced Standing.

*Co-op Option***1. 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.

**2. Continuation Requirements for Students Previously Admitted to the Co-op Option and Admission to the Co-op option after beginning the program**

Eligibility for all BIT students will be determined on the basis of the CGPA at the beginning of the term preceding the first Co-op placement. To be eligible for admission to the Co-op option a student must apply by November 1 of Study Term 3, and, by the end of Study Term 3:

- a) have obtained and maintained a Major CGPA of 8.0;
- b) successfully completed all required first-year courses, and
- c) be registered as a full-time student, and
- d) be eligible to work in Canada (for off-campus work placements), and
- e) have obtained the permission of the Faculty Co-op Advisor.

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

**International Business****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 and Introductory Calculus, Geometry and Discrete Mathematics or Mathematics of Data Management.

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 who are admitted with advanced standing may have to delay the third-year abroad requirement until first-and

second-year curricula are completed. Students must present a major CGPA of 6.50 (C+/B-) or better and an overall CGPA of 6.00 (C+) or better. 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.

**Journalism****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. A 4U course in English is recommended but is not required.

**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 better.

**Mathematics and Statistics****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 Introductory Calculus and Geometry and Discrete Mathematics).

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 better, an overall CGPA of 4.50 or better 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 better, an overall CGPA of 5.00 or better 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 better and an overall CGPA of 5.00 or better, 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 Introductory Calculus and Geometry and Discrete Mathematics).

#### *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 4.50 or better and an overall CGPA of 3.50 or better. A student beginning the final 5.0 credits towards a General degree must present a major and core CGPA of 5.00 or better and an overall CGPA of 4.00 or better, 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 and Introductory Calculus; Geometry and Discrete Mathematics; Biology; Chemistry.

In addition, 4U or Min 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 better, 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)*

### Admission Requirements

#### 1. 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.

#### 2. Continuation Requirements and Eligibility for Placement in the First Work Term of the Co-op Option for all Previously Admitted Students and Admission to the Co-op Option after starting the program

To be eligible for placement in the first (regular) work term of the Co-op Option a student must meet the following requirements by the end of the term preceding the first job placement process.

After 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:

- have a major CGPA of 8.00 or better and an overall CGPA of 6.50 or better;
- Students in the Honours Computer Mathematics program must have completed 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;
- have full-time status in each academic term immediately preceding a work term; and
- be eligible to work in Canada (for off-campus work placements).

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.

Meeting the above requirements only establishes eligibility for admission to the Co-op program. Enrolment in the Co-operative Option is limited.

#### *Co-Op Option (Biostatistics)*

#### 1. 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.

#### 2. Continuation Requirements for Students Previously Admitted to the Co-op Option, and Admission to the Co-op Option after Beginning the Program

Students may also apply to the co-op option once they have arrived at the University at the beginning of second year, provided they:

- are registered as a full-time student in the program;
- have an overall CGPA of 8.00 or better;
- have successfully completed all required first year courses before beginning the first work placement;
- are eligible to work in Canada (for off-campus work placements);
- have obtained permission of the Co-op Faculty Advisor.



Students must be eligible for third-year standing when they return for a study term after their first work placement.

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

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.

### The Preliminary Work Term

Students who have been accepted into the Co-operative Option in first year may be given the opportunity to take part in a preliminary work term at the end of their first year. To be eligible for placement in this preliminary work term, at the end of their first term of study students must:

- have a major CGPA of 10.00 or better, and an overall CGPA of 10.00 or better;
- be registered as a full-time student in the Bachelor of Mathematics program;
- be eligible to work in Canada (for off-campus placements).
- students in Honours Computer Mathematics must have successfully completed at least one of Computer Science COMP 1002 or COMP 1005 or COMP 1402 or COMP 1405.

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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 better and an overall CGPA of 5.00 (C) or better. 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 better and an overall CGPA of 5.00 (C) or better.

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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 better and a grade of B- or better in PAMP 1000.

### Co-op Option

#### 1. 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.

#### 2. Continuation Requirements for Students Previously Admitted to the Co-op Option and Admission to the Co-op option after beginning the program

Eligibility will be determined for all B.P.A.P.M. co-op students on the basis of the CGPA at the beginning of the term preceding the first co-op placement.

Students must:

- be registered as a full-time in the B.P.A.P.M. program;
- have obtained an overall CGPA of 9.00 or better calculated on at least 5.0 credits;
- 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.

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## Science

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### Degrees

- B.Sc. (Honours)
- B.Sc. (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 Advanced Functions and Introductory Calculus and two of Geometry and Discrete Mathematics, Biology, Chemistry, Earth and Space Science or Physics (Geometry and Discrete Mathematics is recommended).

Please see section below entitled "Specific Admission Requirements" for specific prerequisite courses required for Combined Honours in Chemistry and Physics, Combined Honours in Chemistry and Computer Science, and Combined Honours in Mathematics and Physics.

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

For Honours in Environmental Science, a 4U course in Biology and Chemistry are 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 better, an overall CGPA of 4.50 or better 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 better, an overall CGPA of 5.00 or better 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 better and an overall CGPA of 5.00 or better, 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 Advanced Functions and Introductory Calculus and two of Geometry and Discrete Mathematics, Biology, Chemistry, Earth and Space Science or Physics (Geometry and Discrete Mathematics is recommended).

##### *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 4.50 or better and an overall CGPA of 3.50 or better. A student beginning the final 5.0 credits towards a General degree must present a major and core CGPA of 5.00 or better and an overall CGPA of 4.00 or better, 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.

#### **Specific Admission Requirements**

##### *Combined Honours in Chemistry and Physics*

Students from Ontario high schools must have 4U Physics, Advanced Functions and Introductory Calculus, and Chemistry.

Entrance after first year and continuation at the end of first year in the program requires: Honours standing and a grade of C+ or better in each of PHYS 1001, PHYS 1002, and CHEM 1000.

##### *Combined Honours in Chemistry and Computer Science*

Students from Ontario high schools must have 4U Advanced Functions and Introductory Calculus, Geometry and Discrete Mathematics, and one of 4U Chemistry, Biology or Physics.

##### *Combined Honours in Mathematics and Physics*

Students from Ontario high schools must have Advanced Functions and Introductory Calculus and Geometry and Discrete Mathematics. They must also have one of 4U Physics, Chemistry or Biology.

#### **Co-op Option: Chemistry, Computational Chemistry, Environmental Science, Applied Physics and Physics**

##### **1. 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.

##### **2. Continuation Requirements for Students Previously Admitted to the Co-op Option and Admission to the Co-op option after beginning the program**

Students in *Good Standing* in the Honours Chemistry, Computational Chemistry, Environmental Science, Applied Physics and Physics program may apply for admission to the Co-operative Option, on completion of 5.0 or more credits at Carleton University. To be eligible for admission, a student must:

- be registered as a full-time student;
- have a major CGPA of 8.00 or better and an overall CGPA of 6.50 or better;
- be eligible to work in Canada (for off-campus work placements).

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.

Meeting the above requirements only establishes eligibility for admission to the Co-op Program. Enrolment in the Co-operative option is limited.

#### **Co-op Option: Biochemistry, Computational Biochemistry, Biology, Biotechnology, Earth Sciences**

##### **1. 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;
- 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).

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

##### **2. Continuation Requirements for Students Previously Admitted to the Co-op Option and Admission to the Co-op option after beginning the program**

Students in good standing in the Honours Biochemistry, Computational Biochemistry, Biology, Computational

Biology, Biotechnology, and Earth Sciences program may apply for admission to the Co-operative Option, on completion of 5.0 or more credits at Carleton University. To be eligible for admission, a student must:

- a) be registered as a full-time student;
- b) have a major CGPA of 8.00 or better and an overall CGPA of 6.50 or better;
- c) be eligible to work in Canada (for off-campus work placements).

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.

Meeting the above requirements only establishes eligibility for admission to the Co-op Program. Enrolment in the Co-operative option is limited.

Application for admission to all Co-operative options is through the Co-op Office web site and should be submitted before November 1, March 1, July 1, for May, September, January work terms, respectively.

### Co-op Option: Bioinformatics, Computational Biology

#### 1. 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 for the Bachelor of Science degree stated above;
- b) be registered as a full-time student in the program;
- c) 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 department.

#### 2. Continuation Requirements for Students Previously Admitted to the Co-op Option and Admission to the Co-op option after beginning the program

Students may also apply to the co-op option once they have arrived at the University at the beginning of second year, provided they:

- a) are registered as a full-time student in the program;
- b) have an overall CGPA of 8.00 or better;
- c) successfully completed all required first year courses before beginning the first work placement;
- d) are eligible to work in Canada (for off-campus work placements);
- e) have obtained permission of the Co-op Faculty Advisor.

Students must be eligible for third-year standing when they return for a study term after their first work placement.

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

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.

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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.

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## Sonic Design

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- Diploma

### Admission Requirements

The Ontario Secondary School Diploma (OSSD) or equivalent including a minimum of six 4U or M courses. Admission may be screened or restricted. The student may complete this diploma in concurrent studies with a B.A. or B.Mus. degree or follow the course independently.

Applicants must complete the Sonic Design Application form and submit a letter to the department of Music. Please contact the School of Music for additional information.

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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 better. Students

registered in the concurrent CTESL program who fail to complete their degree cannot receive the CTESL.

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## Certificate in French Language 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 must take the Self-Assessment Questionnaire For Placement in a French Language Course in the Registration Instructions booklet before entry into the program. Depending on the results of the French Placement procedure, candidates may be required to complete one or more prerequisite French courses before taking any required certificate courses.

Refer to the French program section of this Calendar for program details.

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## Certificate in French Language Teaching and Learning

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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 must take the Self-Assessment Questionnaire For Placement in a French Language Course in the Registration Instructions booklet before entry into the program. Depending on the results of the French Placement procedure, candidates may be required to complete one or more prerequisite French courses before taking any required certificate courses.

Refer to the French program section of this Calendar for program details.

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## Certificate in French Translation 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 Students Admissions in the Admissions Requirements and Procedures section of this Calendar).

Candidates must take the Self-Assessment Questionnaire For Placement in a French Language Course in the Registration Instructions booklet before entry into the program. Depending on the results of the French Placement procedure, candidates may be required to complete one or more prerequisite French courses before taking any required certificate courses.

Refer to the French program section of this Calendar for program details.

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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 better. 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.



# 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  
**Web site:** [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

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- 2.2 The Course Outline
- 2.3 Standing in Courses
- 2.4 Examination Regulations
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- 2.7 Review of Grades
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- 3.2 Record Retention Policy
- 3.3 Disclosure of Information
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## B. Academic Regulations for Degree Students

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- 4.2 Regulations Governing a Student's Program
- 4.3 Absence from the University
- 4.4 Student Categories
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- 4.6 Program Structure
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- 6.1 The Cumulative Grade Point Average
- 6.2 Maximum Number of Credits Below the 2000-level
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- 6.5 Restrictions on Program Elements
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- 7.1 Academic Performance Evaluation for Degree Students
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### 8.0 Graduation

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

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- 11.0 Certificates and Diplomas
- 12.0 Admission to Certificate Programs
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**E. Student Conduct**

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- 14.0 Academic Integrity
  - 14.1 Introduction
  - 14.2 The Policy
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  - 15.1 Carleton University's Human Rights Policy
  - 15.2 Unacceptable Conduct
  - 15.3 Enforcement
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## A. Registration, Evaluation and Records

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### 1.0 Course Registration

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#### 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 fee payment arrangements for a term are not completed according to registration requirements;
- e) if it is determined that the student has not met the additional admission requirements including ESL or CAEL or other English language proficiency requirements;
- f) 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. 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 latter 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 may be retained only for one of the attempts; the remaining attempt(s) will be forfeited. 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 of 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.

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

A petition is the initial request by a student for an accommodation with respect to a regulation. An appeal is a process by which a student may challenge the decision on a petition.

The procedures set out here 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.

A student seeking an accommodation with respect to an academic regulation submits a petition in writing to the Registrar's Office. A student seeking a reconsideration of an admission decision submits an application in writing to the Admissions Services Office.

Students not satisfied with a decision at the petition stage may initiate an appeal in writing, at the Registrar's Office or the Admissions Services Office.

## 2.0 Course Evaluation

### 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.

### 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. The grade of *F* is assigned 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. The grade *FND* is assigned 0.0 grade points.
- ABS** Absent from a required final examination. The notation *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 assigned 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, the notation *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.

**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. *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. This notation is replaced with the appropriate grade for the course as soon as this 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. This notation 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. This notation 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 inform themselves of these latter rules at [www.carleton.ca/cu/programs/exam/](http://www.carleton.ca/cu/programs/exam/) and section 14.0 below in these Academic Regulations of the University.

For those 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 are unable to write or complete a final examination because of illness or other circumstances beyond their control may apply to write a deferred examination. Students who



have completed a final examination but find that their performance was severely impaired by illness or other circumstances beyond their control may petition for special permission to write a deferred examination. In both cases the application 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 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 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. The notation *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. The notation 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 mathematics, physics and statistics courses:

MATH 0007, MATH 0107, MATH 1005, MATH 1007, MATH 1107, MATH 1009, MATH 1119, MATH 2004, MATH 2007, MATH 2008, MATH 2107, PHYS 1001, PHYS 1002, PHYS 1007, PHYS 1008, 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.

If the deferral of the assignment is approved, the student will receive the interim notation *Def*, which will be replaced when the assignment has 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: February 1

Fall/winter- and winter-term courses: June 1

Summer-term courses ending in June: August 1

Summer term courses ending in August: September 15

## 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 official schedule of the University, 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 the front of this Calendar and online 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 has 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, 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 admission 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

The undergraduate students of the University 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:

- students admitted with a deficiency
- students readmitted with conditions
- 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 1.1.0 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 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. Four exceptional General programs (Computer Science, Information Technology, Earth Sciences, Physics and Biochemistry) require 20.0 credits and normally require four years for completion.

#### 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.

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.

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.

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.

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

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 and Requirements for the Bachelor of Arts), concurrent certificates and concurrent diplomas.

### Minors

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 with second year standing (see section 4.7 above) will not be allowed to register in courses. Undeclared students should consult the Student Academic Success Centre for guidance in planning their studies.

## 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 admission, re-admission or re-instatement and permission to register in the following cases:

- a) students who wish to change to a different program or change program elements within the same degree;
- b) students who wish to add a Concentration, Specialization or Minor;
- c) students who, after being admitted, must take intensive ESL before being allowed to register in their degree program.
- d) students who have been away from the University for fewer than nine consecutive terms and wish to register in the same degree.



**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 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;
- c) students who, after completing an 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 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.

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**5.0 Admission and Residency Regulations**

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**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:

- a) the student must have completed successfully at least 4.0 credits at Carleton University;
- b) the student must meet the minimum CGPA requirements for graduation in his or her degree;
- c) 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:

- a) 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.
- b) Only courses to be credited as part of the current degree requirements at Carleton may be taken under the terms of the exchange.
- c) 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.
- d) Courses taken under the Exchange Agreement shall not count as courses taken at Carleton under regulations requiring a minimum number of Carleton credits.
- e) 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. For details on these exchanges, students should consult with the Registrar's Office and 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.

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

To obtain an undergraduate certificate from Carleton University, students must present residency credits including a minimum of 4.0 credits taken at Carleton. In the case of certificates taken concurrently with a Carleton degree, residency for the certificate 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:

- a) For Honours degrees, at least 3.0 credits in the major and at the 3000-level or above;
- b) For Combined Honours degrees, at least 1.5 credits in each major and at the 3000-level or above;
- c) For General degrees, at least 3.0 credits in the major and at the 2000-level or above;
- d) For any Minor, Concentration or Specialization, at least 2.0 credits;
- e) For a certificate or diploma, all required courses.

## 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* from the degree, certificate or diploma. The student is Ineligible to Return if the degree uses this decision in place of *Suspension*. See also Section 7: Academic Performance Evaluation.

## 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. The concentrations and specializations of this type are part of the Bachelor of Commerce, Bachelor of International Business, Bachelor of Arts in Political Science, Bachelor of Arts in Economics and Bachelor of Science in Integrated Science.

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.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 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.A.S., 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, 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 Sprott 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, up to 3.0 credits will be counted toward the degree;
- 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

- 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 and Requirements 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 General*, *Debarment*, or *Ineligible to Return (IR)*.

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 a related 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 status *Ineligible to Return* (ITR) indicates 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 will never be readmissible to this program. The status *Ineligible to Return* is restricted to some professional and limited enrolment programs where there is high demand for the program and limited space in its required courses. The status *ITR* is assigned if any of the conditions for Suspension apply, in addition to any conditions set by the program. The student is eligible to continue at the University and may apply through Admissions Services for admission to another program.

If a student satisfies the conditions for *Suspended* or *Ineligible to Return* at a performance evaluation in the student's current degree and the student has a previous decision of *Suspended* 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 degree 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*, *Ineligible to Return*, 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 program must leave the degree with the status *Ineligible to Return* (ITR) 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 seek admission, through Admissions Services, to other degrees of the University. 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 degree 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 programs	Engineering and Design programs	General programs 15.0 credits	General programs 20.0 credits
0.0 to 5.0	Overall 4.00	Overall 3.00	Overall 3.00	Overall 3.00
5.5 to 10.0	Overall 4.50	Overall 3.50	Overall 3.50	Overall 3.50
	Major 5.50		Major 3.50	Major 3.50
10.5 to 15.0	Overall 5.00	Overall 3.50	Overall 4.00	Overall 3.50
	Major 6.00		Major 4.00	Major 3.50
15.5 or more	Overall 5.00	Overall 4.00		Overall 4.00
	Major 6.50			Major 4.00
Graduation	Overall 5.00	Overall 4.00	Overall 4.00	Overall 4.00
	Major 6.50		Major 4.00	Major 4.00

**Notes:**

- 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.
- The General programs requiring 20.0 credits are Biochemistry, Computer Science, Earth Sciences, Physics and Information Technology.
- 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 Honours programs	All students in Engineering and Design programs	All students in General programs
0.0 to 5.0	5.00	3.00	3.00
5.5 to 10.0	5.50	3.50	3.50
10.5 to 15.0	6.00	3.50	4.00
15.5 or more	6.50	4.00	

**Note:** for the General programs in Biochemistry, Computer Science, Earth Sciences, Information Technology and Physics requiring 20.0 credits, the minimum required CGPA is 3.00, 3.50, 3.50, 4.00 respectively.

## 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.)

The B.A.S. follows the regulations for Academic Performance evaluation for Engineering and Design Programs with the following additions and amendments:

- The Bachelor of Architectural Studies 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;
- The Architecture 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]
- Good Standing* requires a grade of C- or better in each course of the Architecture Core.
- Students in Architectural Studies are either in *Good Standing* or on *Academic Warning*. Students who satisfy the conditions for *Suspension* at an Academic Performance Evaluation must leave the Architectural Studies program with the status *Ineligible to Return (IR)*.
- Students wishing to continue into the professional M.Arch. degree program must have successfully completed the B.A.S. degree program with an Overall CGPA of 7.00 or better.

### Bachelor of Commerce

Note: the University is considering a revision of its policy regarding Academic Performance Evaluation for the Bachelor of Commerce degree programs. It is anticipated that some of the regulations presented here will be superseded, in whole or in part, before or during the academic year covered by this Calendar. Check the Updates section of the Web edition of the Undergraduate Calendar after September 1, 2007 for up-to-date information.

Students in B.Com. are Honours students. Students in programs of the Eric Sprott School of Business who are not in *Good Standing* at any APE will be required to leave the program with the status *Ineligible to Return (IR)*.

### 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 standing *Ineligible to Return* if either:

- 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. Ineligible to Return**

Students satisfying any of the following conditions must leave the Industrial Design program with the status *Ineligible to Return (ITR)*:

- a) have an Overall CGPA that is less than 1.00,
- b) have failed to achieve a *Good Standing* assessment at the next Academic Performance Evaluation while on Academic Warning,
- c) have exceeded the maximum allowable number of discredits for the program,
- d) have failed to satisfy any additional course requirements received on admission,
- e) have received a grade of less than C- in the same Core course twice,
- f) 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

### **Bachelor of International Business**

For purposes of Academic Performance Evaluation students B.I.B. are considered Honours students. Students in programs of the Eric Sprott School of Business who are not in *Good Standing* at any APE will be required to leave the program with the status *Ineligible to Return (ITR)*.

The BIB 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

### **Bachelor of Journalism**

A student who is not in *Good Standing* in the Bachelor of Journalism degree must leave the program with standing *Ineligible to Return*.

#### *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:

- 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.

#### Graduation

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 each reporting course,
- c) a grade of C- or better in each other Journalism course,
- d) an Overall CGPA of at least 5.00, and
- e) 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 MATH 1007, MATH 1107, MATH 2007, MATH 2107 be at least 7.00 for Honours programs and at least 5.00 for General programs.

#### Bachelor of Music

Academic Performance Evaluation for students in the B.Mus. degree is applied as follows:

The minimum requirements for *Good Standing* are:

1. If at most 15.0 credits are included in the Overall CGPA then the Major CGPA must be at least 6.00 and the Overall CGPA must be at least 5.00.
2. If more than 15.0 credits are included in the Overall CGPA then the Major CGPA must be at least 6.50 and the Overall CGPA must be at least 5.00.

#### 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 *Ineligible to Return (IR)* 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 (IR)* within that program of study.

#### 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): February 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 or Majors	Concentration or Specialization	Minor
Honours Degrees	5.00	6.50	6.50	6.50
Engineering and Design	4.00	not used		4.00
General Degrees	4.00	4.00	4.00	4.00

**Note:** some programs have higher requirements.

### 8.4 Recognition of High Academic Achievement

At graduation, students with high academic achievement may have this accomplishment recognized by a special notation on their transcript and Diploma. To be awarded High Honours, Highest Honours, Distinction or High Distinction, students must satisfy the appropriate regulations of their faculty and in addition the following university rules.

Graduating students in Honours degree programs qualify for graduation with High Honours or with Highest Honours if they:

- a) have completed a minimum of 10.0 credits toward the degree at Carleton University;
- b) have achieved the standards for:

**Highest Honours**

Major CGPA of 10.00 or better and an Overall CGPA of 8.00 or better;

**High Honours**

Major CGPA of 9.00 or better and an Overall CGPA of 7.00 or better.

Graduating students in Engineering and Design programs qualify for graduation with Distinction or with High Distinction if they:

- a) have completed a minimum of half the credits for the degree at Carleton University;
- b) have achieved the standards for:

**High Distinction**

Overall CGPA of 9.50 or better;

**Distinction**

Overall CGPA of 8.00 or better.

Graduating students in General degree programs qualify for graduation with Distinction, if they:

- a) have completed a minimum of 10.00 credits toward the degree at Carleton University;
- b) have achieved a Major CGPA of 10.00 or better and an Overall CGPA of 8.00 or better.

## C. Academic Regulations for Special Students

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### 9.0 Regulations

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#### 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. Students who are required by the University to withdraw from a degree or certificate program are eligible to register as Special students immediately, but will not be allowed a course overload.

#### 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.

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 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 appropriate for their level of study at Carleton University.

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### 10.0 Registration for Special Students

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#### 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 French Language Studies
- Certificate in French Language Teaching and Learning
- Certificate in French Language Translation
- Certificate in Teaching of English as a Second Language
- Certificate in Nunavut Public Service Studies
- Certificate in Public Service Studies
- Diploma in Sonic Design

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 French Language Studies**  
**Certificate in French Language Teaching and Learning**

**Certificate in French Language Translation**

- Offered by the Department of French
- The course requirements (5.0 credits) may be found in the French program section of this Calendar.
- Successful completion requires a CGPA of at least 6.50.
- May be taken concurrently with any Honours degree.
- No credit may be used to satisfy the requirements of any two of these certificates.

**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 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.

**Diploma in Sonic Design**

- Offered by the Music program of the School for Studies in Art and Culture
- The course requirements (5.0 credits) may be found in the Music program section of this Calendar.
- Successful completion requires CGPA at least 6.00.
- May be taken concurrently with B.A. Honours or General.

## 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/studentsupport](http://carleton.ca/studentsupport)

#### 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 speaking to 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:

- 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) As a record of attendance, you must print your own name and student number on the Examination Signing Sheet and sign it. You may not leave the Examination Room before doing so.
- 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 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 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 deadline shown 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 brief cases, large purses, books, pencil cases, calculator cases, etc. either outside the Examination Room or in a place specified by a proctor.
- j) You may not bring any food or drink into the Examination Room without the written authorization of a physician.
- 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 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 requirements 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, 607 Robertson Hall.



## 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 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 and Requirements section of this Calendar)

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### Year Status and General Prerequisites

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In the Bachelor of Architectural Studies degree program, year status 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 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

B.A. degree students must include a First-Year Seminar (FYSM) during their first 4.0 credits of registration. Students are limited to one FYSM. Some First-Year Seminars count as courses leading to a major. 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 exempt from the FYSM requirement.

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## Breadth Requirement for the B.A. Degree

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

### Breadth Area 1: Culture and Communication

Art History, Art and Culture, Comparative Literary Studies, English, Film Studies, French, Journalism, Mass Communication, Music, and Languages (Arabic, English as a Second Language, German, Greek, Indigenous Languages, Italian, Japanese, Korean, Latin, Mandarin, Russian, Sign Language, Spanish)

Subject codes: ACUL, ALSS, ARTH, CHIN, CLST, ENGL, ESLA, FILM, FINS, FREN, GERM, GREK, ITAL, JAPA, JOUR, LATN, MCOM, MUSI, RUSS, SPAN

### Breadth Area 2: Humanities

Canadian Studies, Child Studies, Classics, Directed Interdisciplinary Studies, European and Russian Studies, History, Human Rights, Humanities, Linguistics, Philosophy, Religion, and Women's Studies.

Subject codes: CDNS, CHST, CLAS, CLCV, DIST, EURR, HIST, HUMS, LALS, PHIL, RELI, WOMN

### Breadth Area 3: Science, Engineering, and Design

Architecture, Biology, Chemistry, Computer Science, Earth Sciences, Engineering, 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, IDES, ISCI, ISCS, ISYS, MAAE, MATH, MECH, NSCI, PHYS, STAT, SYSC, TSES

### Breadth Area 4: Social Sciences

Anthropology, Business, Cognitive Science, Criminology and Criminal Justice, Economics, Environmental Studies, Geography, 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, LAWS, PADM, PADM, PSCI, PSYC, SOAN, SOCI, SOWK

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## 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.

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## 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.

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## 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.

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## Courses from Other Faculties and Schools

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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.

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## Mention : Français

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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.

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### Academic Performance Evaluation for Engineering

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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.

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### Graduation

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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.

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### Course Load

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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.

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### Co-operative Education Programs

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All Engineering programs are available with or without participation in the Co-operative Education option.

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### Year Status for Engineering

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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.

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### Year Status Prerequisites

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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

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

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

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

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

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.

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## Year Standing and General Prerequisites

In addition to the year standing requirements described in the Academic Regulations of the University section of this Calendar, Bachelor of Information Technology programs specify additional requirements regarding year standing. These year standing assessments are used as general prerequisites for access to the courses of the program.

- **Interactive Multimedia and Design**

### *2nd Year*

Requires successful completion of at least 3.0 credits from the program including at least one of IMD 1001 and IMD 1002 and at least one of IMD 1004 and IMD 1005;

### *3rd Year*

Requires successful completion of at least 8.0 credits from the program including all first-year course requirements and IMD 2900;

### *4th Year*

At least 13.0 credits from the program including all first- and second-year course requirements and IMD 3900 and IMD 3901.

- **Network Technology**

### *2nd Year*

Requires successful completion of at least 3.0 credits from the program including NET 1000, NET 1002, NET 1005, BIT 1000, BIT 1002;

### *3rd Year*

Requires successful completion of at least 8.0 credits from the program including all first-year course requirements and NET 2000, NET 2001, NET 2003, NET 2006;

*4th Year*

Requires successful completion of at least 13.0 credits from the program including all first- and second-year course requirements and NET 3000, NET 3001, NET 3008, and NET 3900.

## 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).

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### Breadth Requirement for the B.Sc.

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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;

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### Declared and Undeclared Students

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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.

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### Change of Program within the B.Sc. Degree

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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 at the Registrar's Office 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.

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### Minors, Concentrations and Specializations

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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.

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### Experimental Science Requirement

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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 of the College of Natural Sciences: Biology, Chemistry, Earth Sciences or Physics.

Approved experimental science courses:

#### Biochemistry

BIOC 2200, BIOC 3006, BIOC 4001, BIOC 4201

#### Biology

BIOL 1003, BIOL 1004, BIOL 2001, BIOL 2002, BIOL 2104, BIOL 2200

#### Chemistry

CHEM 1000, CHEM 2101, CHEM 2102, CHEM 2203, CHEM 2204, CHEM 2206, CHEM 2302, CHEM 2303, CHEM 2800

#### Earth Sciences

ERTH 1001, ERTH 1006, ERTH 1007, ERTH 2102, ERTH 2312, ERTH 2404, ERTH 2801, ERTH 2802, ERTH 3111, ERTH 3112, ERTH 3201, ERTH 3202, ERTH 3204, ERTH 3205, ERTH 3805, ERTH 3806

#### Physics

PHYS 1001, PHYS 1002, PHYS 1003, PHYS 1004, PHYS 1007, PHYS1008, PHYS 2202, PHYS 2604, PHYS 3007, PHYS 3606, PHYS 3608

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### Course Categories For B.Sc. Programs

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#### Science Geography Courses

GEOG 2004, GEOG 2007, GEOG 2100, GEOG 3002, GEOG 3003, GEOG 3005, GEOG 3006, GEOG 3007, GEOG 3101, GEOG 3102, GEOG 3103, GEOG 3104, GEOG 3105, GEOG 3108, GEOG 4000, GEOG 4002, GEOG 4003, GEOG 4005, GEOG 4006, GEOG 4008, GEOG 4101, GEOG 4103, GEOG 4104, GEOG 4107, GEOG 4108, GEOG 4109

#### Science Psychology Courses

PSYC 2000[1.0], PSYC 2001, PSYC 2002, PSYC 2200, PSYC 2700, PSYC 3000 [1.0], PSYC 3200[1.0], PSYC 3201, PSYC 3202, PSYC 3203, PSYC 3204, PSYC 3205, PSYC 3207, PSYC 3506, PSYC 3700[1.0], PSYC 3702, PSYC 3800[1.0], PSYC 4001, PSYC 4207



**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:

- The College of Natural Sciences except: ISCI 2001, ISCI 2002, BIOL 2106
- Mathematics (MATH) or Statistics (STAT)
- 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.)
- Science Geography courses (see list above)
- Science Psychology courses (see list above)
- Engineering (students wishing to register in Engineering courses must obtain the permission of the Faculty of Engineering and Design.)
- 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
- Chemistry students may use BIOL 1902 and BIOL 1903 only as free electives
- Earth Sciences (ERTH ) except ERTH 1003
- Earth Science students may use ERTH 2401, ERTH 2402 and ERTH 2403 only as free electives
- Physics (PHYS) except PHYS 1901 and 1902
- Mathematics (MATH) or Statistics (STAT) except MATH 1805
- Computer Science (COMP) except COMP 1000, COMP 1001, COMP 1805
- 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)
- Engineering

**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 2700, BUSI 3001, BUSI 3008, BUSI 4000, BUSI 4001, BUSI 4002

*Economics*

ECON 2200[1.0], ECON 2201, ECON 2202, ECON 2400, ECON 4004, ECON 4005, ECON 4706, ECON 4707

*Geography*

All Science Geography courses (see list above) and GEOG 1005[1.0]

*Psychology*

All Science Psychology courses (see list above)

*Sociology*

SOCI 3700[1.0]

**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 and Class Schedule booklet for restrictions). 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, ERTH 1003, MATH 1805, COMP 1805, PHYS 1901, PHYS 1902, 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, COMP 1001, ISSC 3000, MATH 0005.

# Special Studies (Non-Degree)

300 Tory Building  
1125 Colonel By Drive  
Ottawa, Ontario, Canada K1S 5B6  
Tel.: (613) 520-3500  
Fax: (613) 520-3502  
Web site: [www.carleton.ca/registrar](http://www.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

Co-operative Education is based on the principle that academic study, combined with alternating work periods, is desirable for effective professional preparation. Work periods allow students to acquire experience in the area of career interest, while the academic terms can be devoted to fundamental and theoretical studies. The practical experience is not a substitute for, but rather a complement to, academic studies.

The following programs have approved Co-operative Education options:

**Faculty of Arts:** Anthropology, Cognitive Science, Mass Communication, Psychology (Human-Computer Interaction), Sociology (includes Applied Social Research and Power and Everyday Life).

**School of Business:** Accounting, Business General, Finance, Information Systems, International Business, Managing People and Organizations, Marketing, Operations Management.

**Faculty of Engineering and Design:** Aerospace Engineering, Architectural Studies, Biomedical and Electrical Engineering, Civil (includes Management), Communications Engineering, Computer Systems Engineering, Electrical Engineering, Environmental Engineering, Engineering Physics, Industrial Design, Information Technology, Mechanical Engineering (includes Integrated Manufacturing), Software Engineering.

**Faculty of Public Affairs:** Economics, Law (includes Concentration in Business Law, Concentration in Law, Policy, and Government), Political Science (includes Concentration in Canadian Politics, Comparative Politics and Area Studies, Gender and Politics, International Relations, Political Theory and Public Affairs and Policy Analysis), Public Affairs and Policy Management (includes Communication and Information Technology Management, Development Rights, Human Rights, International Studies, Public Policy and Administration, Social Policy, and Strategic Public Opinion and Policy Analysis).

**Faculty of Science:** Applied Physics, Bioinformatics, Biology, Biology and Biotechnology, Biology and Physics, Biostatistics, Biochemistry and Biotechnology, Chemistry, Chemistry and Physics, Computational Biochemistry, Computational Biology, Computational Chemistry, Computer Mathematics, Computer Mathematics Information Technology, Computer Science (including Software and Computing, Management and Business Systems, Software Engineering, Network Computing, Information Systems Security, Bioinformatics, Psychology, Law), Computer Science and Mathematics, Computer Statistics, Earth Sciences, Economics and Mathematics, Economics and Statistics, Environmental Science, Mathematics with Physics, Mathematics with Specialization in Stochastics, Neuroscience, Physics and Statistics.

Students in the Co-operative Education program must satisfy the normal requirements for their degree programs as well as the graduation requirements specific to the Co-operative Education option in order to graduate with the Co-operative Education designation.

Students are expected to maintain communication with the Career Development and Co-operative Education Office on all matters pertaining to their participation in the Co-operative Education program and the regulations and procedures for their Co-operative Education option.

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## The Work/Study Sequence

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The work study sequence and number of mandatory work terms varies according to the individual program. Four-month, eight-month, twelve-month or sixteen-month work terms may be available. Please see specific programs for details. Students are normally expected to complete the full complement of work terms in the prescribed academic term/work term sequence. Students in Co-operative Education require an additional year to complete their degree program.

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## Co-operative Education Admission Requirements

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Consult the Admissions Requirements for Undergraduate Degree Programs regulations section of this calendar.

Students whose first language is not English and who are admitted to Carleton based on CAEL, IELTS or TOEFL assessments are also required to take the Spoken English Test for Co-op students and attain a minimum score of 5.0. Application for admission to the Co-operative Education option is made through the Career Development and Co-operative Education Office with a deadline for application to Co-operative Education consistent with the deadline for regular course registration.

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## Co-operative Education Participation Requirements (COOP 1000)

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Students wishing to participate in the Co-operative Education program must complete COOP 1000 and obtain a grade of Satisfactory (SAT) prior to participation in any job placement activities. Enrolment in COOP 1000 is restricted to Co-operative Education students and applicants. Eligible students may take COOP 1000 as a course overload.

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## Continuation Requirements

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Once admitted to the Co-operative Education option, students must meet the academic standards required to participate in job application through the co-operative education placement process. To view the academic standards for each program please consult the Admissions Requirements for Undergraduate Degree Programs regulations section of this calendar.

All students must:

- Maintain full-time status in each study term;
- Meet the academic standards required to continue in their degree program;
- Obtain a Satisfactory grade in all work-term courses;
- Maintain legal eligibility to work in Canada.

Please note that students participating in the Co-operative Education program will only be able to register in one 0.5-credit course during a work term. The only exception will be for Public Affairs and Policy Management students, who will be allowed to register in the 1.0-credit Honours research essay/project during a work term.

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## Work Term Assessment

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Successful completion of a work term is achieved by the submission of a satisfactory work term report and receipt of a satisfactory evaluation from the employer. Students are expected to submit a written work term report at the end of each four-month work term. Co-operative Education students will be assessed on their work performance by their workplace supervisor.

An unsatisfactory work term report or a poor assessment in the workplace will not affect students' academic progress, but may result in their being required to withdraw from the Co-operative Education option.

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## Employer Performance Evaluations

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Each work term employer will be required to evaluate the student's performance. An Unsatisfactory evaluation is investigated by the Career Development and Co-operative Education Office and may result in a work term failure being recorded on the Career Development and Co-operative Education Student Record. Employer evaluations are not recorded on a student's transcript.

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## Voluntary Withdrawal from the Co-operative Option

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Students may withdraw from the Co-operative Education option without penalty during a study term. Such students are eligible to continue in their regular program provided they meet the academic standards required for continuation in that program.

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## Required Withdrawal from the Co-operative Option

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Students may be required to withdraw from the Co-operative Education option for one or more of the following reasons:

- Submission of an unsatisfactory work term report or receipt of an unsatisfactory employer evaluation;
- Failure to report to an employer or leaving an employer without prior approval;
- Failure to attend all pre-arranged interviews with employers;
- Failure to achieve a Satisfactory grade in COOP 1000, the co-operative education preparation class, before registering in the first work term course;
- Participating in the placement process arranged by the Career Development and Co-operative Education Office after receiving a job offer resulting from independent job search.

Students will lose their co-operative education status for one of the following:

- Declining a second job offer during the placement process arranged by the Career Development and Co-operative Education Office;
- Dismissal with cause by an employer;
- Failure to pay the pre-work-term charge and work-term fee by the appropriate dates;
- Failure to register for a co-operative education work-term report course.

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## Employment

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Although every effort is made to find a sufficient number of work term positions for all students enrolled in Co-operative Education, no guarantee of employment can be made. The employment process is competitive and dependent on market conditions. Academic performance, skills, motivation, maturity, attitude and potential will determine whether a student is offered a job. It is the student's final responsibility to secure an available position through successful participation in the competitive interview process and their own job search activities. Students who are unable to obtain suitable employment are expected to continue their academic program on a full-time basis. The summer term is the only exception to this rule.

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## Graduation with Co-operative Education Designation

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Students who successfully complete the specified number of co-operative education work term courses (see below) in addition to the requirements of their regular program will receive a Co-operative Education designation on the final transcript and diploma.

Disciplines requiring four satisfactorily-completed co-operative education work terms:

Engineering (Aerospace, Biomedical and Electrical, Civil, Environmental, Mechanical, Communications, Computer Systems, Electrical, Engineering Physics, Software), Accounting, Business General, Finance, Information Systems, International Business, Managing People and Organizations, Marketing, Operations Management, Computer Science, Mathematics and Statistics, Mathematics with Physics, Mathematics with Specialization in Stochastics, Statistics

Disciplines requiring three satisfactorily-completed co-operative education work terms:

Anthropology, Applied Physics, Architectural Studies, Biochemistry, Biochemistry and Biotechnology, Bioinformatics, Biology, Biology and Biotechnology, Biology and Physics, Biostatistics, Chemistry, Chemistry and Physics, Cognitive Science, Computational Biology, Computational Biochemistry, Computational Chemistry, Earth Sciences, Economics, Economics and Mathematics, Economics and Statistics, Environmental Science, Industrial Design, Information Technology, Business Law, Law, Policy and Government, Mass Communication, Physics, Political Science, Psychology (Human-Oriented Technology program), Public Affairs and Policy Management (Communication and Information Technology Management, Development Rights, Human Rights, International Studies, Public Policy and Administration, Social Policy, and Strategic Public Opinion and Policy Analysis), Sociology

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## Standing and Appeals

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The Career Development and Co-operative Education Office administers the regulations and procedures applicable to the co-operative education programs and will report instances of a student's failing a work term or being required to withdraw from their co-operative education option to their academic department. Any decision of the Career Development and Co-operative Education Office may be appealed through the normal channels within the University.



## Co-operative Education Regulations

Co-operative Education students are responsible for satisfying all co-operative education regulations for their program.

### Registration

All work terms must be completed before the beginning of the final academic term. Co-operative Education students must be registered as full-time students in all academic terms of the Co-operative Education option from point of entry through to the final academic term. The definition of full-time for Co-operative Education students is a minimum of 2.0 credits each study term. The only exception occurs when a student may have sufficient credits to be able to register as a part-time student in the final term. During a work term, co-operative education students must register in one of the following work term report courses appropriate for their program.

### Co-op Work Term Courses

#### Bachelor of Arts

*Anthropology and Sociology*  
SOCI/ANTH 3000, SOCI/ANTH 4000,  
SOCI/ANTH 4001

*Cognitive Science*  
CGSC 3100, CGSC 4100, CGSC 4101

*Economics*  
ECON 3981, ECON 3982, ECON 3983, ECON 3984

*Business Law and Law, Policy and Government*  
LAWS 3806, LAWS 3807, LAWS 3838, LAWS 3809

*Mass Communication*  
MCOM 3200, MCOM 3201, MCOM 3202

*Political Science*  
PSCI 3901, PSCI 3902, PSCI 3903, PSCI 3904

*Psychology*  
PSYC 3903, PSYC 4903, PSYC 4904

#### Bachelor of Architectural Studies

ARCN 1001, ARCN 2001, ARCN 3001,  
ARCN 4001, ARCN 4901

#### Bachelor of Computer Science

*Biomedical Computing, Computer Game Development, Information Systems Security, Law, Management and Business Systems, Network Computing, Psychology, Software and Computing, and Software Engineering*  
COMP 3200, COMP 3201, COMP 3202,  
COMP 4200, COMP 4201

#### Bachelor of Commerce

*Accounting, Business General, Finance, Information Systems, International Business, Managing People and Organizations, Marketing, and Operations Management*  
BUSI 3901, BUSI 3902, BUSI 3903, BUSI 3904,  
BUSI 3905

#### Bachelor of Engineering

*Aerospace Engineering, 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, Software Engineering*  
SYSC 1901, SYSC 2901, SYSC 3901, SYSC 3902,  
SYSC 3903

*Biomedical and Electrical Engineering, Electrical Engineering, 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

#### Bachelor of Industrial Design

IDES 2401, IDES 3402, IDES 3403, IDES 3404,  
IDES 3405

#### Bachelor of Information Technology

*Interactive Multimedia and Design, Network Technology*  
BIT 2200, BIT 2201, BIT 3300, BIT 3301, BIT 3302

#### Bachelor of Mathematics

*Biostatistics, Computer Mathematics, Computer Mathematics (Information Technology), Computer Science and Mathematics, Computer Statistics (Computing Theory and Numerical Methods; Statistics and Computing), Computer Statistics, Mathematics, Mathematics (Specialization in Stochastics), Mathematics and Economics, Statistics, Statistics and Economics*  
MATH 2200, MATH 3200, MATH 3201,  
MATH 4200, MATH 4201

#### Bachelor of Public Affairs and Management

*Communication and Information Technology Policy, Development Studies, Human Rights, International Studies, Public Policy and Administration, Social Policy, Strategic Opinion and Policy Analysis*  
PAPM 3100, PAPM 3101, PAPM 3102

#### Bachelor of Science

*Applied Physics, Mathematics and Physics, 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, Computational Chemistry*  
CHEM 2909, CHEM 3909, CHEM 4909

*Earth Sciences*  
ERTH 2001, ERTH 3001, ERTH 4001

*Environmental Science*  
ENSC 2909, ENSC 3909, ENSC 4909

# Co-operative Education Work-Study Patterns

## Legend

S = Study

W = Work

O = Optional

\* indicates recommended work study pattern

\*\* student finds own employer for this work-term

## 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, Psychology (Human-Computer Interaction)

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	

### 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

### 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	

### Mass Communication

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	

### 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 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 Commerce (B.Com.)

### Accounting 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	S	W	W/S	S	W	W/S	S	

Concentrations: Finance, Information Systems, International Business, Managing People and Organizations, Marketing, Operations Management, and students with no concentration

Year	Year 1			Year 2			Year 3			Year 4			Year 5	
Term	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	W	Summer	Fall	W
Pattern	S	S		S	S	W	W	S	S	W	W	W	S	S

## Bachelor of Computer Science (B.C.S.)

Computer Science, Streams: Biomedical Computing, Computer Game Development, Information Systems Security, Law, Management and Business Systems, Network Computing, Psychology, Software & Computing, Software 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	W
Pattern	S	S	O	S	S	W	W	S	W	S	W	W	S	S

## Bachelor of Engineering (B.Eng.)

Aerospace, Civil, Communications, Environmental, Mechanical 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, Physics, Software 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	W	W	S	S	W	W	W	S	S

Biomedical and Electrical 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		S	S	W	S	W	W	W	S	W	S	S

## 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

# Programs

Architectural Studies  
 Art History  
 Biochemistry  
 Biology  
 Biotechnology  
 Business  
 Canadian Studies  
 Chemistry  
 Child Studies  
 Cognitive Science  
 Computer Science  
 Criminology and Criminal Justice  
 Directed Interdisciplinary Studies  
 Earth Sciences  
 Economics  
 Engineering:  
     Aerospace  
     Biomedical and Electrical  
     Civil  
     Communications  
     Computer Systems  
     Electrical  
     Engineering Physics  
     Environmental  
     Mechanical  
     Software  
 English  
 Environmental Science  
 Environmental Studies  
 European and Russian Studies  
 Film Studies  
 French  
 Geography  
 Geomatics  
 Greek and Roman Studies  
 History  
 Human Rights  
 Humanities  
 Industrial Design  
 Information Technology  
 Integrated Science  
 Journalism  
 Law  
 Linguistics and Applied Language Studies  
 Mass Communication  
 Mathematics and Statistics

Music  
 Philosophy  
 Physics  
 Political Science  
 Psychology  
 Public Affairs and Policy Management  
 Public Service Studies Certificate  
 Religion  
 Sexuality Studies (Minor)  
 Social Work  
 Sociology and Anthropology  
 Technology, Society, Environment Studies (Minor)  
 Undeclared (Guide for registration)  
 Women's Studies

# Architectural Studies

## School of Architecture

### Faculty of Engineering and Design

This section presents the requirements for:

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

The Co-operative Education Option is available with the Bachelor of Architectural Studies.

The School of Architecture 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

In addition to the requirements listed below, students must satisfy the University regulations (see the *Academic Regulations and Requirements of the University* section of this Calendar), and the Academic Regulations and Requirements of the Bachelor of Architectural Studies.

Students should consult the School when planning their program and selecting courses.

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## Academic Performance Evaluation for Bachelor of Architectural Studies

1. The Bachelor of Architectural Studies 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 Architecture 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].
3. *Good Standing* requires a grade of C- or better in each course of the Architecture Core.
4. Students in Architectural Studies are either in *Good Standing* or on Academic Warning. Students who satisfy the conditions for *Suspension* at an Academic Performance Evaluation must leave the Architectural Studies program with the status *Ineligible to Return (ITR)*.
5. Students wishing to continue into the professional M.Arch. degree program must have successfully completed the B.A.S. degree program with an Overall CGPA of 7.00 or better.

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## Program Requirements

### Architectural Studies B.A.S. (20.0 credits)

#### Requirements:

##### First Year

1. 3.5 credits in:  
ARTH 1100 [0.5], ARCH 1000 [0.5],  
ARCN 2106 [0.5], ARCS 1005 [0.5],  
ARTH 1101 [0.5], ARCS 1105 [1.0];
2. 1.5 credit in free electives;

##### Second Year

3. 5.0 credits in:  
ARCH 2300 [0.5], ARCC 2202 [0.5],  
ARCS 2105 [1.5], CIVE 2005 [0.5],  
ARCN 2105 [0.5], ARCS 2106 [1.5];

##### Third Year

4. 3.5 credits in:  
ARCC 2203 [0.5], ARCS 3105 [1.5],  
ARCS 3106 [1.5];
5. 1.0 credit in an approved history/theory elective;
6. 0.5 credit in a workshop or free elective;

##### Fourth Year

7. 4.0 credits in:  
ARCC 3202 [0.5], ARCC 4500 [0.5],  
ARCS 4105 [1.5], ARCS 4106 [1.5];
8. 0.5 credit in a workshop or free elective;
9. 0.5 credit in an approved history/theory elective.

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## Course Sequence

In the first, second, and third year of the program, studios must be taken in sequence. In the fourth year, studios may be taken out of sequence, with the permission of the CSPA.

The Architectural Technology courses required in the third and fourth year of the program interact closely with Design Studios and are accompanied by certain co-requisites and prerequisites. This requirement reflects the interrelationship between assignments of Technology courses and Design Studios. Students should consult the course descriptions carefully when planning their registration.

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## Retention of Work

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 reductions (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.

Programs

## Art History

### School for Studies in Art and Culture Faculty of Arts and Social Sciences

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 School of Architecture:

- 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 and Requirements 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):

1. 2.0 credits in ARTH 1100, ARTH 1101, ARTH 1200, ARTH 2608;
2. 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. 3.0 credits in ARTH or architecture;
4. 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;
5. These 10.0 credits required in the Major CGPA must include:
  - a) at least 2.0 credits at the 2000-level or above;
  - b) at least 1.0 credit at the 4000-level;

### B. Credits Not Included in the Major CGPA (10.0 credits):

6. 8.0 credits in electives not in ARTH or architecture;
7. 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):

1. 2.0 credits in ARTH 1100, ARTH 1101, ARTH 1200, ARTH 2608;
2. 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]
3. 2.0 credits in ARTH or architecture;
4. 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):

5. 7.0 credits in electives not in ARTH or architecture;
6. 1.0 credit in free electives.

## Notes for programs in History and Theory of Architecture:

1. No more than 1.5 credits may be taken as directed readings and/or the Honours Research essay.
2. Architecture courses which are workshops or studio-based may not be taken for credit in these programs.
3. 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

This section presents the requirements for the B.Sc. programs in:

- Biochemistry – B.Sc. Honours
- Computational Biochemistry – B.Sc. Honours
- Biochemistry – B.Sc. General

Requirements for the program Biochemistry and Biotechnology are presented in the Biotechnology program section of this Calendar.

Co-operative Education Option is available.

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### Graduation Requirements

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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 and Requirements 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.

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### Course Categories for Biochemistry

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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

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### Program Requirements

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#### Biochemistry B.Sc. Honours (20.0 credits)

##### A. Credits included in the Major CGPA (13.5 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: BIOL 2303, BIOL 3201, BIOL 3205, BIOL 3303, BIOL 3305, BIOL 3501, BIOL 4008, BIOL 4102, BIOL 4103, BIOL 4104, BIOL 4106, BIOL 4109, BIOL 4200, BIOL 4201, BIOL 4202, BIOL 4209, BIOL 4300, BIOL 4301, BIOL 4306, BIOL 4400;
5. 3.5 credits in: CHEM 1000 [1.0], CHEM 2103 or BIOC 2300, CHEM 2203, CHEM 2204, CHEM 2303, CHEM 2501;
6. 1.0 credit from: CHEM 3201, 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;
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 1002;
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 1003, BIOL 1004, BIOL 2104, BIOL 3104;
2. 3.0 credits in CHEM 1000 [1.0], 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 1002, COMP 1005, COMP 1006;
6. 1.5 credits in MATH 2800, BIOL 3604, 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. General (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: BIOL 2303, BIOL 3201, BIOL 3205, BIOL 3303, BIOL 3305, BIOL 3501, BIOL 4008, BIOL 4102, BIOL 4103, BIOL 4104, 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 1000 [1.0], 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, STAT 2507, COMP 1007;
14. 0.5 credit in free electives.

# Biology

## Department of Biology Faculty of Science

This section presents the requirements for programs in:

- **Bioinformatics – B.Sc. Honours**
- **Computational Biology – B.Sc. Honours**
- **Biology – B.Sc. Honours**
- **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).

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### Graduation Requirements

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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 and Requirements 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 and Requirements for the Bachelor of Arts Degree).

Students should consult with the Department when planning their program and selecting courses.

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### Course Categories for Biology programs

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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.

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### Program Requirements

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#### 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 (12.0 credits):

1. 4.0 credits in BIOL 1003, BIOL 1004, BIOL 2104, BIOL 2200, BIOL 3104, BIOL 4106, and BIOL 4908 [1.0];
2. 0.5 credit in BIOL 2001 or BIOL 2002;
3. 0.5 credit in BIOC 2300 or CHEM 2101;
4. 3.0 credits in BIOC 3008, BIOC 3101, BIOC 3102, BIOC 3202, BIOC 4008, and BIOC 4202;
5. 1.0 credits in BIOL or BIOC at the 3000-level or above;
6. 2.5 credits in COMP 1002, COMP 1005, COMP 1006, COMP 2002, and COMP 2004;
7. 0.5 credit in COMP at the 2000-level or above;

##### B. Credits not included in the Major CGPA (8.0 credits):

8. 2.0 credit in CHEM 1000 [1.0], CHEM 2203, and CHEM 2204;
9. 1.0 credit in PHYS 1007 and PHYS 1008, or PHYS 1003 and PHYS 1004;
10. 3.0 credits in MATH 1007, MATH 1107, MATH 2007, STAT 2507, MATH 2800, and MATH 3800;
11. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
12. 1.5 credits in Approved Arts or Social Sciences.

#### Computational Biology B.Sc. Honours (20.0 credits)

##### A. Credits included in the Major CGPA (12.0 credits):

1. 6.0 credits in BIOL 1003, BIOL 1004, BIOL 2001, BIOL 2002, BIOL 2104, BIOL 2200, BIOL 2600, BIOL 3609, BIOL 3612, BIOL 4103, and BIOL 4908 [1.0];
2. 2.0 credits in BIOL or BIOC at the 3000-level or above;
3. 2.0 credits in COMP 1002, COMP 1005, COMP 1006, and COMP 2002;
4. 2.0 credits in COMP at the 2000-level or above;

##### B. Credits not included in the Major CGPA (8.0 credits):

5. 2.0 credits in CHEM 1000 [1.0], CHEM 2203, and CHEM 2204;

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, MATH 2800, STAT 2507, and MATH 3800;
8. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
9. 1.5 credits in Approved Arts or Social Sciences.

## Biology

### B.Sc. Honours (20.0 credits)

#### A. Credits included in the Major CGPA (9.0 credits):

1. 5.0 credits in BIOL 1003, BIOL 1004, BIOL 2001, BIOL 2002, BIOL 2104, BIOL 2200, BIOL 2600, BIOL 4901, and BIOL 4908 [1.0];
2. 0.5 credit from BIOL 3205 or BIOL 3305;
3. 1.5 credits from BIOL 1005, BIOL 2303, BIOL at the 3000-level, and BIOL at the 4000-level;
4. 2.0 credits in Advanced Science Faculty Electives;

#### B. Credits not included in the Major CGPA (11.0 credits):

5. 1.0 credit in Science Faculty Electives;
6. 2.0 credits in Advanced Science Faculty Electives;
7. 1.5 credit in CHEM 1000 [1.0] and MATH 1007;
8. 0.5 credit from MATH 1107 or STAT 2507;
9. 1.0 credit from: (PHYS 1007 and PHYS 1008) or (PHYS 1003 and PHYS 1004);
10. 2.0 credits in Science Continuation credits (not in BIOL);
11. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
12. 1.5 credits in Approved Arts or Social Sciences;
13. 1.0 credit in free electives.

Note: students should choose the courses for **Items 3, 4 and 5** above so that they can develop an area of specialization according to their preferred area of biology. Possible areas of specialization include molecular and cellular biology, genetics, microbiology, plant and animal physiology, animal behaviour, ecology, and systematics. These courses should be chosen in consultation with the Undergraduate Adviser or a faculty member working in an area close to the interest of the student.

## Biology

### B.Sc. General (15.0 credits)

#### A. Credits included in the Major CGPA (6.0 credits):

1. 3.5 credits in BIOL 1003, BIOL 1004, BIOL 2001, BIOL 2002, BIOL 2104, BIOL 2200, and BIOL 2600;
2. 0.5 credit from BIOL 3205 or BIOL 3305;
3. 2.0 credits from BIOL 1005, BIOL 2303, BIOL at the 3000-level, and BIOL at the 4000-level;

#### B. Credits not included in the Major CGPA (9.0 credits):

4. 1.5 credits in CHEM 1000 [1.0] and MATH 1007;
5. 0.5 credit from MATH 1107 or STAT 2507;
6. 1.0 credit from (PHYS 1007 and PHYS 1008) or (PHYS 1003 and PHYS 1004);
7. 2.0 credits in Science Continuation not in BIOL;
8. 1.0 credit in Science;
9. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
10. 1.5 credits in Approved Arts or Social Sciences;
11. 1.0 credit free elective.

## 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 1003, BIOL 1004, GEOG 2013, and GEOG 2014;
2. 10.0 credits in BIOL (or BIOC) and Science Geography at the 2000-level or above 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 above;
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 CHEM 1000 [1.0] and MATH 1007;
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;
8. 1.0 credit in Science Faculty Electives;
9. 1.0 credit in Science Faculty Electives or COMP at the 2000-level or above, 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 7** above, 1.0 credit in geography, other than the Physical Geography, is recommended;
3. 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 1003 and BIOL 1004;
2. 1.0 credit in EARTH 1006 and EARTH 1007;
3. 10.0 credits in BIOL (or BIOC) and EARTH at the 2000-level or above collectively satisfying:
  - a) 1.0 credit from BIOL 3605 and EARTH 2801;
  - b) at least 4.0 credits in BIOL;
  - 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 or EARTH 4908;

### 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 1000 [1.0], PHYS 1003 and PHYS 1004, or PHYS 1007 and PHYS 1008 (The omitted subject, i.e. CHEM or PHYS, must have been taken at the OAC 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), 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 or PHYS 3608), 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 1003, BIOL 1004, 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 BIOL 4908 [1.0] or PHYS 4909 [1.0];

### B. Credits not included in the Major CGPA (7.5 credits):

8. 1.0 credit in CHEM 1000 [1.0];
9. 0.5 credit from MATH 1004 or MATH 1007;
10. 0.5 credit from MATH 1104 or MATH 1107;
11. 2.0 credit in STAT 2507, MATH 1005, MATH 2004, 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;
14. 1.5 credits in Approved Arts or Social Sciences;
15. 1.0 credit in free elective.

Note: in **Items 3 and 4** above, PHYS 3008 may replace PHYS 3007; PHYS 4008 may replace PHYS 4007.

## Neuroscience B.Sc. Combined Honours (20.0 credits)

### A. Credits Included in the Major CGPA (12.5 credits):

1. 3.0 credits in BIOL 1003, BIOL 1004, 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 above;
4. 4.0 credits in PSYC 1001, PSYC 1002, PSYC 2001, PSYC 2200, PSYC 2700, PSYC 3200 [1.0] and PSYC 4200;
5. 0.5 credit in PSYC 2002 (for students who plan to complete PSYC 3000 - see **Item 10** below) or 0.5 credit from: PSYC 3202, PSYC 3203 (BIOL 3605), PSYC 3204, PSYC 3205, PSYC 3207, PSYC 4001 (with permission), or PSYC 4207;
6. 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;
7. 0.5 credit from BIOL 3802, BIOL 4317 or BIOC 4007;
8. 1.0 credit in PSYC 4907 [1.0] or BIOL 4908 [1.0];

### B. Credits Not Included in the Major CGPA (7.5 credits):

9. 1.0 credit in MATH 1007 and MATH 1107;
10. 1.0 credit in PSYC 3000 [1.0] (for students who have completed PSYC 2002) or 1.0 credit in STAT 2507 and STAT 2509;
11. 1.5 credits in CHEM 1000 [1.0] and CHEM 2203;
12. 1.0 credit in (PHYS 1007 and PHYS 1008) or (PHYS 1001 and PHYS 1002);
13. 0.5 credit in NSCI 1000 or approved Arts or Social Sciences, not in PSYC;
14. 1.5 credits in Approved Arts or Social Sciences, not in PSYC or BIOL;
15. 1.0 credits in free electives.

Note: the topic for **Item 8** above must be in neurophysiology, animal behaviour, neuropsychology or a related topic.

## Biology B.A. Honours (20.0 credits)

### A. Credits included in the Major CGPA (8.0 credits):

1. 3.5 credits in BIOL 1003, BIOL 1004, BIOL 2001, BIOL 2002, BIOL 2104, BIOL 2200, BIOL 2600;
2. 0.5 credit from BIOL 3205 or BIOL 3305;
3. 1.0 credit in BIOL at the 4000-level;



4. 2.0 credits in BIOL;
5. 1.0 credit from BIOL 4907 [1.0] or BIOL 4908 [1.0];

**B. Credits not included in the Major CGPA (12.0 credits):**

6. 1.0 credit in CHEM 1000 [1.0];
7. 1.0 credit in Science Faculty Electives at the 2000-level or above, not in BIOL;
8. 1.0 credit in Science Faculty Electives not in BIOL;
9. 2.0 credits in Approved Arts or Social Sciences at the 2000-level or above;
10. 4.0 credits in Approved Arts or Social Sciences;
11. 1.0 credit at the 3000- or 4000-level approved by the Undergraduate Adviser;
12. 2.0 credits in free electives.

**Biology**

**B.A. General (15.0 credits)**

**A. Credits included in the Major CGPA (6.0 credits):**

1. 3.5 credits in BIOL 1003, BIOL 1004, BIOL 2001, BIOL 2002, BIOL 2104, BIOL 2200, and BIOL 2600;
2. 2.5 credits in BIOL;

**B. Credits not included in the Major CGPA (9.0 credits):**

3. 1.0 credit in CHEM 1000 [1.0];
4. 1.0 credit in Science Faculty Electives, not in BIOL;
5. 4.0 credits in Approved Arts or Social Sciences;
6. 1.0 credit at the 2000-level or above;
7. 1.0 credit in electives not in BIOL;
8. 1.0 credit in free electives.

**Biology**

**B.A. Combined Honours (20.0 credits)**

**A. Credits included in the Biology Major CGPA (6.0 credits):**

1. 3.5 credits in BIOL 1003, BIOL 1004, BIOL 2001, BIOL 2002, BIOL 2104, BIOL 2200, and BIOL 2600;
2. 1.0 credit in BIOL at the 4000-level;
3. 1.5 credits in BIOL;

**B. Additional Requirements (14.0 credits):**

4. 1.0 credit in CHEM 1000 [1.0];
5. 1.0 credit in an Honours project: BIOL 4907 [1.0] or BIOL 4908 [1.0], or equivalent from the other Honours department;
6. 1.0 credit in Science Faculty Electives, not in BIOL, at the 2000-level or above;
7. 1.0 credit in Science Faculty Electives not in BIOL;
8. 7.0 credits in Approved Arts or Social Sciences to include the requirements for the other discipline;

9. 2.0 credits in free electives not in BIOL or the other discipline;
10. 1.0 credit in free electives.

**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. 1.0 credit in BIOL 2001 and BIOL 2002;
3. 0.5 credit in BIOL 2104;
4. 0.5 credit from BIOL 2200, BIOL 2303 or BIOL 2600;
5. 1.0 credit in BIOL at the 3000-level or above.

**Note:** at least 2.0 of these credits must be taken at Carleton University.

## Biotechnology

Department of Biology  
Institute of Biochemistry  
Faculty of Science

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 and Requirements 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 1003, BIOL 1004, 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 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 1000 [1.0], 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 4901, BIOL 2001, BIOL 2002, BIOL 3205, BIOL 3305, BIOL 4106, BIOL 4109, BIOL 4201, BIOL 4209, BIOL 4300, BIOL 4301, CHEM 3100, CHEM 3202, CHEM 3205, CHEM 3700, CHEM 3800, or 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 1003, BIOL 1004, 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 3101, 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, or 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 1000 [1.0], CHEM 2203 and CHEM 2204;
- 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.

## Business

### Eric Sprott School of Business

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
  - Operations 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.

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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).

Students should consult with the School when planning their program and selecting courses.

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### Academic Performance Evaluation

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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)*.

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### Bachelor of Commerce Program Requirements

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#### Bachelor of Commerce (Honours) (20.0 credits)

- A. Credits Included in the Major CGPA (14.0 credits):**
1. 3.0 credits in BUSI 1004, BUSI 1005, BUSI 1402, BUSI 2101, ECON 1000 [1.0];
  2. 2.5 credits in BUSI 2208, BUSI 2300, BUSI 2400, BUSI 2504, BUSI 2601;
  3. 1.0 credit in ECON 2002, ECON 2102;
  4. 2.5 credits in BUSI 3102, BUSI 3103, BUSI 3300, BUSI 4601, BUSI 4609;
  5. 1.0 credit in Business at the 4000-level;
  6. 0.5 credit in MATH 1009;
  7. 0.5 credit in MATH 1119;

8. 1.0 credit in ECON 2201 and ECON 2202 or STAT 2606 and STAT 2607;
  9. 1.0 credit in (PSYC 1001 and PSYC 1002) or (SOC1 1001 and SOC1 1002);
  10. 1.0 credit in a free elective at the 4000-level;
- B. Credits Not Included in the Major CGPA (6.0 credits):**
11. 6.0 credits in free electives.

**Note:** the following ESL courses cannot be used as free electives toward the B.Com. degree: ESLA 1300, ESLA 1500.

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### Concentrations in the B.Com. Program

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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 proper choice of electives. 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 4000, BUSI 4002, BUSI 4007, BUSI 4008.

#### 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 2001, BUSI 2002, BUSI 2402, BUSI 3001, BUSI 3400, BUSI 3403.

#### Concentration in Information Systems

1. 3.0 credits in BUSI 2402, BUSI 3400, BUSI 3403, BUSI 3404, BUSI 4400, BUSI 4402;
2. 1.5 credits from BUSI 3304, BUSI 3308, BUSI 3405, BUSI 3407, BUSI 4401, BUSI 4404, BUSI 4406, BUSI 4607.

#### Concentration in International Business

1. 2.5 credits in BUSI 3703, BUSI 3704, BUSI 4205, BUSI 4706, BUSI 4707;
2. 1.0 credit from BUSI 3504, BUSI 3705, BUSI 4303, BUSI 4604, BUSI 4708.

3. 1.0 credit from ECON 3601, ECON 3508, ECON 3602, ECON 3808, ECON 4806, EURR 4005, GEOG 2200, GEOG 3209, GEOG 3404; LAWS 3207, LAWS 3208, LAWS 4200, PSCI 2601, PSCI 2602, PSCI 3600.

#### Concentration in Managing People and Organizations

1. 2.5 credits in BUSI 3100, BUSI 3104, BUSI 3105, BUSI 4103, BUSI 4109;
2. 1.5 credits from BUSI 3703, BUSI 4105, BUSI 4107, BUSI 4108, BUSI 4112, 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 Operations Management

1. 2.0 credits in BUSI 3308, BUSI 4302, BUSI 4303, BUSI 4607;
2. 2.5 credits from BUSI 2402, BUSI 3008, BUSI 3304, BUSI 3405, BUSI 3407, BUSI 3704, BUSI 4008, BUSI 4305, BUSI 4404, BUSI 4406, STAT 3503, STAT 3504, STAT 3507.

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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 five languages: French, German, Japanese, Mandarin, or Spanish.

#### Academic Performance Evaluation for B.I.B.

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

*Good Standing* requires:

*At the first A.P.E.:*

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

*At all subsequent A.P.E.'s and at graduation:*

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

Students who do not achieve *Good Standing* must leave the program with status *Ineligible to Return (IR)*.

#### 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 language credits must be prespecified by course numbers by the selected Language units. Students are advised not to register in courses before they have been specified.

#### The Year Abroad

The third year of study will be spent taking a set of courses at a foreign institution approved by the Eric Sprott School of Business.

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. Students will take up to 5.0 credits as outlined below. Carleton credits commensurate to courses taken abroad will be determined by the Registrar's Office and awarded towards the student's degree.

At least 1.0 credit of the courses taken abroad must be delivered in the student's selected language.

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.

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 (12.5 credits):

1. 3.5 credits in BUSI 1004, BUSI 1005, BUSI 1701, BUSI 1704, BUSI 1705, ECON 1000 [1.0];
2. 4.0 credits in BUSI 2702, BUSI 2208, BUSI 2400, BUSI 2504, BUSI 3700, BUSI 4705 (see **Note**, below), BUSI 4709 (see **Note**, below), STAT 2606;
3. 1.5 credits from, BUSI 3504, BUSI 3704, BUSI 3705, BUSI 4205, BUSI 4706, BUSI 4707, BUSI 4708, ECON 3601, ECON 3602;
4. 2.0 credits in BUSI at the 2000-level or above;
5. 1.5 credits in BUSI or ECON at the 2000-level or above;



**B. Credits Included in the Core CGPA (4.0 credits):**

6. 4.0 credits in one of French, German, Japanese, Mandarin, or Spanish;

**C. Credits Not Included in the Major or Core CGPA (3.5 credits):**

7. 1.0 credit in PSCI, HIST, GEOG, LAWS, SOCI, ANTH, WOMN, BUSI, or ECON;
8. 2.5 credits in free electives.

**Note:** BUSI 4705 and BUSI 4709 in **Item 2** above must be taken at Carleton University.

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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 proper choice of electives. 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, GEOG 4401, 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, GEOG 4401, 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 3600, ECON 3601, ECON 3602, ECON 3607.

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**Minor in Business**

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The Minor in Business is open to all students registered in undergraduate programs who have completed at least 4.0 credits toward their degree, including BUSI 1001 and BUSI 1002 with a minimum grade of C+ in each, and with a minimum Overall CGPA of 6.00.

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 (5.0 credits):**

1. 3.0 credits in BUSI 1001, BUSI 1002, BUSI 2101, BUSI 2204, BUSI 2400, BUSI 2503;
2. 1.0 credit in Business at the 3000-level or above;
3. 1.0 credit in Business;
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

This section presents the requirements for:

- Canadian Studies - B.A. Combined Honours
- Canadian Studies - B.A. General
- Minor in Aboriginal 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 Major students to demonstrate proficiency in a language other than English, normally French or an Aboriginal language. Proficiency is normally demonstrated through the completion of 1.0 credits in French (FREN 1100 [1.0], FREN 2100 [1.0], FINS 2105 and FINS 3105 or approved equivalent) or ALSS 1900 (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 aboriginal 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];
  2. 1.0 credit from CDNS 2010, CDNS 2011, CDNS 2210, CDNS 2300, CDNS 2400, CDNS 2500;
  3. 1.0 credit from CDNS 3104, CDNS 3300, CDNS 3400, CDNS 3510, CDNS 3600;
  4. 0.5 credit in CDNS 3000;
  5. 1.0 credit from CDNS 4101, CDNS 4104, CDNS 4200, CDNS 4300, CDNS 4400 and CDNS 4500;
  6. 1.0 credit, at the 4000-level, from the list of Approved Canadian Studies or Aboriginal Studies Electives below;
  7. 1.5 credits from the list of Approved Canadian 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 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];
2. 1.0 credit from CDNS 2010, CDNS 2011, CDNS 2210, CDNS 2300, CDNS 2400, CDNS 2500;
3. 1.5 credits from CDNS 3000, CDNS 3104, CDNS 3300, CDNS 3400, CDNS 3510, CDNS 3600;
4. 1.0 credit, at the 3000-level, from the list of Approved Canadian Studies or Aboriginal Studies Electives (below);
5. 2.5 credits from the list of Approved Canadian Studies or Aboriginal Studies Electives (below);

##### B. Credits Not included in the Major CGPA (8.0 credits):

7. 7.0 credits in electives not in Canadian Studies;
8. 1.0 credit free elective.

##### C. Additional Requirements

9. The School of Canadian Studies language requirement must be met.

#### Minor in Aboriginal Studies

The Minor in Aboriginal Studies is open to all undergraduate degree students.

##### Requirements (4.0 credits):

1. 1.0 credit in CDNS 1000 [1.0], FYSM 1409 [1.0], FYSM 1600 [1.0];
2. 1.0 credit in ALSS 1900 [1.0];
3. 1.0 credit in CDNS 2010 and CDNS 2011;
4. 1.0 credit at the 3000-level or above satisfying:
  - a) 0.5 credit from CDNS 3104, CDNS 4101, CDNS 4104;
  - b) 0.5 credit in Aboriginal Studies from the list of Approved Aboriginal Studies Electives.
5. 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;
- 1.0 credit from CDNS 2010, CDNS 2011, CDNS 2210, CDNS 2300, CDNS 2400, CDNS 2500;
- 1.0 credit at the 3000- or 4000-level from: CDNS 3000, CDNS 3104, CDNS 3200, CDNS 3300, CDNS 3400, CDNS 3510, CDNS 3600, CDNS 4101, CDNS 4104, CDNS 4200, CDNS 4300, CDNS 4400, CDNS 4500, CDNS 4800, CDNS 4801, CDNS 4802, CDNS 4901, CDNS 4902, CDNS 4903, CDNS 4904, CDNS 4905, CDNS 4906 or CDNS 4907;
- 1.0 credit from the list of approved Canadian 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 2200 and FREN 2300, 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 2200 and FREN 2300, 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.

### Applied Language Studies

ALSS 1900

### 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.

### 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 4802, ENGL 4803, ENGL 4806, ENGL 4808, ENGL 4809

### Film Studies

FILM 2209 [1.0], FILM 3209, FILM 4209

### French

FREN 2300, FINS 2500, FREN 3002, FREN 3003, FREN 3102, FREN 3302, FREN 3303

*Geography*

GEOG 2020, GEOG 2505, GEOG 3026, GEOG 3200,  
GEOG 3305 [1.0], GEOG 3501, GEOG 4004,  
GEOG 4301, GEOG 4305, GEOG 4407

*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 3504 [1.0], HIST 3506, HIST 3507, HIST 3602,  
HIST 3903, HIST 4302 [1.0], HIST 4304 [1.0],  
HIST 4306 [1.0], HIST 4505 [1.0], HIST 4602

*Journalism*

JOUR 2205, JOUR 2501, JOUR 3005, JOUR 3006,  
JOUR 3502,

*Law*

LAWS 1000 [1.0], LAWS 2003 [1.0], LAWS 2004 [1.0],  
LAWS 2005 [1.0], 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

*Linguistics and Applied Languages*

LALS 2701, LALS 2704, LALS 3705

*Mass Communication*

MCOM 2101 [1.0], MCOM 2300, MCOM 2302,  
MCOM 2501, MCOM 3005, MCOM 3006 [1.0],  
MCOM 3502, MCOM 4500, MCOM 4501

*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 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, SOCI 2455, 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 Studies*

WOMN 2800, WOMN 3002 [1.0]

**Aboriginal Studies Electives**

The following courses are deemed by the School of Canadian Studies to have significant Aboriginal content, and can be included where appropriate as part of a minor in Aboriginal Studies. Carleton courses not on this list may be applied as approved Aboriginal 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 Aboriginal Studies electives.

*Sociology/Anthropology*

ANTH 2610, SOCI 3570, ANTH 3570, ANTH 3600,  
ANTH 4610

*Applied Language Studies*

ALSS 1900

*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 4808, ENGL 4809

*Geography*

GEOG 3501

*History*

HIST 3503 [1.0]

*Law*

LAWS 2003 [1.0], LAWS 2005 [1.0], LAWS 3504,  
LAWS 4504

*Music*

MUSI 4104

*Political Science*

PSCI 4002, PSCI 4109, PSCI 4206

*Social Work*

SOWK 4102, SOWK 4203



## Chemistry

### Department of Chemistry Faculty of Science

This section presents the requirements for:

- Chemistry – B.Sc. Honours
- Chemistry – B.Sc. General
- Computational Chemistry – B.Sc. Honours
- Computational Chemistry – B.Sc. General
- Chemistry - B.Sc. Honours – Concentration in Nanotechnology
- 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 and Requirements 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. 7.0 credits in CHEM 1000 [1.0], CHEM 2103, CHEM 2203, CHEM 2302, CHEM 2303, CHEM 2501, CHEM 3100, CHEM 3101, CHEM 3201, CHEM 3503, CHEM 3504, and CHEM 4908 [1.0];
2. 0.5 credit from CHEM 2204 or CHEM 2206;
3. 1.0 credit from CHEM 3106, CHEM 3107, CHEM 3205 or CHEM 3305;
4. 0.5 credit in BIOC 3101;
5. 1.0 credit at the 4000-level in CHEM, or 0.5 credit at the 4000-level in CHEM and BIOC 3102;
6. 0.5 credit at the 3000- or 4000-level in Chemistry;

###### B. Credits Not Included in the Major CGPA (9.5 credits):

7. 2.0 credits in MATH 1007, MATH 1107, MATH 2007, and MATH 2008;

8. 1.0 credit in (PHYS 1003 and PHYS 1004), or (PHYS 1007 and PHYS 1008);
9. 0.5 credit in Science Continuation (not CHEM);
10. 1.0 credit in Science Faculty Electives at the 1000-level (not BIOL 1902 or BIOL 1903);
11. 2.0 credits in Science Faculty Electives or Science Continuation Courses (not BIOL 1902 or BIOL 1903);
12. 0.5 credit in NSCI 1000 or an Approved Arts or Social Sciences elective;
13. 1.5 credits in Approved Arts or Social Sciences electives;
14. 1.0 credit in free elective.

**Note:** normally the credits in Item 11 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 1000 [1.0], 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 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.

#### Computational Chemistry

##### B.Sc. Honours (20.0 credits)

###### A. Credits Included in the Major CGPA (12.5 credits):

1. 6.5 credits in CHEM 1000 [1.0], CHEM 2103, CHEM 2203, CHEM 2206, CHEM 2501, CHEM 3101, CHEM 3102, CHEM 3106, CHEM 3201, CHEM 3503, CHEM 4406, CHEM 4407;

2. 1.0 credit in BIOC 3101 and (BIOC 3102 or BIOC 3008);
  3. 2.0 credits in COMP 1002, COMP 1005, COMP 1006, and COMP 2004;
  4. 0.5 credit in COMP at the 2000-level;
  5. 0.5 credit in COMP at the 2000- or 3000-level;
  6. 1.5 credit in CHEM 4908 [1.0] and MATH 3800;
  7. 0.5 credit from CHEM at the 3000- or 4000-level, or BIOC 4006;
- B. Credits Not Included in the Major CGPA (7.5 credits):**
8. 2.0 credits in MATH 1007, MATH 1107, MATH 2007, and MATH 2008;
  9. 1.0 credit in BIOL 1003 and BIOL 2200;
  10. 0.5 credit from PHYS 1003 or PHYS 1007;
  11. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
  12. 1.5 credit in Approved Arts or Social Sciences;
  13. 1.0 credit in Science Faculty Electives;
  14. 1.0 credit in free electives.

### Computational Chemistry B.Sc. General (15.0 credits)

- A. Credits Included in the Major CGPA (8.5 credits):**
1. 5.0 credits in CHEM 1000 [1.0], CHEM 2103, CHEM 2203, CHEM 2206, CHEM 2501, CHEM 3101, CHEM 3102, CHEM 3106, and CHEM 3201;
  2. 1.0 credit in BIOC 3101 and (BIOC 3102 or BIOC 3008);
  3. 2.0 credits in COMP 1002, COMP 1005, COMP 1006, and COMP 2004;
  4. 0.5 credit in COMP at the 2000- or 3000-level;
- B. Credits Not Included in the Major CGPA (6.5 credits):**
5. 2.0 credits in MATH 1007, MATH 1107, MATH 2007, and MATH 2008;
  6. 1.0 credit in BIOL 1003 and BIOL 2200;
  7. 0.5 credit from PHYS 1003 or PHYS 1007;
  8. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
  9. 1.5 credit in Approved Arts or Social Sciences;
  10. 1.0 credit in free electives.

### Chemistry B.Sc. Honours Concentration in Nanotechnology (20.0 credits)

- A. Credits Included in the Major CGPA (10.5 credits):**
1. 8.5 credits in: CHEM 1000 [1.0], 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];

2. 0.5 credit from CHEM 2204 or CHEM 2206;
  3. 1.0 credit from CHEM 3106, CHEM 3205, CHEM 3305 or CHEM 3504;
  4. 0.5 credit in BIOC 3101;
- B. Credits Not Included in the Major CGPA (9.5 credits):**
5. 2.0 credits in MATH 1007, MATH 1107, 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. 2.0 credits 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 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 1000 [1.0], 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 1002, COMP 1005, COMP 1006; 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. 2.5 credits in MATH 1007, MATH 1107, MATH 2007, MATH 2008, and MATH 2107;
  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;
  10. 1.5 credits in Approved Arts or Social Sciences.

## Chemistry and Earth Sciences B.Sc. Combined Honours (20.0 credits)

### A. Credits Included in the Major CGPA (12.0 credits):

1. 4.0 credits in CHEM 1000 [1.0], CHEM 2103, CHEM 2302, CHEM 2303, CHEM 2501, CHEM 3100, and CHEM 3503;
2. 1.0 credit in CHEM at the 4000-level;
3. 1.0 credit in EARTH 1006 and EARTH 1007;
4. 2.0 credits in EARTH 2101, EARTH 2102, EARTH 2406, and EARTH 2801;
5. 1.0 credit in EARTH at the 3000-level;
6. 1.0 credit in EARTH at the 4000-level;
7. 1.0 credit in CHEM or EARTH;
8. 1.0 credit from CHEM 4908 or EARTH 4908;

### B. Credits Not Included in the Major CGPA (8.0 credits):

9. 1.5 credits in MATH 1007, MATH 1107, and MATH 2007;
10. 0.5 credit in MATH or STAT at the 2000-level;
11. 1.0 credit in (PHYS 1003 and PHYS 1004) or (PHYS 1007 and PHYS 1008);
12. 1.0 credit in Science Faculty Electives (not CHEM or EARTH);
13. 1.0 credit in Science Faculty Electives;
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;

**Note:** to meet professional registration requirements for geoscience in Ontario, students must have at least 0.5 credit in BIOL.

## Chemistry and Physics B.Sc. Combined Honours (20.0 credits)

### A. Credits Included in the Major CGPA (12.5 credits):

1. 1.0 credit in (PHYS 1001 and PHYS 1002) or (PHYS 1003 and PHYS 1004) or (PHYS 1007 and PHYS 1008 with an average grade of B- or better);
2. 3.5 credits in PHYS 2202, PHYS 2604, PHYS 3007, PHYS 3308, PHYS 3606, PHYS 3701, and PHYS 4707;
3. 1.0 credit in PHYS at the 4000-level;
4. 4.5 credits in CHEM 1000 [1.0], CHEM 2103, CHEM 2203, CHEM 2501, CHEM 3100, CHEM 3102, CHEM 3503, and CHEM 4102;
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 from: CHEM 4908 [1.0], PHYS 4909 [1.0];

### B. Credits Not Included in the Major CGPA (7.5 credits):

9. 3.0 credits in MATH 1004, MATH 1005, MATH 1104, MATH 2004, STAT 3502, and MATH 3705;

10. 0.5 credit in ECOR 2606;
11. 0.5 credit from: COMP 1005 or COMP 1007;
12. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
13. 0.5 credit in CHEM, PHYS, MATH, STAT, COMP, or engineering excluding CHEM 0100, CHEM 1003, PHYS 1901, PHYS 1902, MATH 1805, COMP 1805;
14. 1.5 credits in Approved Arts or Social Sciences;
15. 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 1000;
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

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 *Academic Regulations and Requirements 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 2201, 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 2502 [1.0], 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 2003 [1.0];
- 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 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 2502 [1.0], 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 2003 [1.0];
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

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 and Requirements 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. 1.5 credits in CGSC 2001, CGSC 2002 and CGSC 3001;
  2. 1.0 credit in CGSC 4908 [1.0];
  3. 1.5 credits in COMP 1005, COMP 1006, and COMP 1805;
  4. 0.5 credit from COMP 4106, CGSC 4001, or CGSC 5001;
  5. 1.0 credit in LALS 1000 [1.0] or (LALS 1001 and LALS 1002);
  6. 1.5 credits in LALS 2001, LALS 2003 and LALS 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 2504, PHIL 3104, PHIL 3301, PHIL 3501, PHIL 3502 or PHIL 3504;
  10. 2.0 credits in PSYC 1001, PSYC 1002, PSYC 2200 and PSYC 2700;
  11. 4.5 credits in the specialization:

- a) 3.0 credits from PHIL 2504, PHIL 2540, PHIL 3104, PHIL 3140, PHIL 3301, PHIL 3306, PHIL 3501, PHIL 3502, or PHIL 3504;
- b) 0.5 credit from PHIL 4503, PHIL 4504, PHIL 4701, PHIL 4702, PHIL 4703, or PHIL 4704;
- c) 1.0 credit from: PHIL 4210, PHIL 4220, or 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. 1.5 credits in CGSC 2001, CGSC 2002 and CGSC 3001;
  2. 1.0 credit in CGSC 4908 [1.0];
  3. 1.5 credits in COMP 1005, COMP 1006, and COMP 1805;
  4. 0.5 credit from COMP 4106, CGSC 4001, or CGSC 5001;
  5. 1.0 credit in LALS 1000 [1.0] or (LALS 1001 and LALS 1002);
  6. 1.5 credits in LALS 2001, LALS 2003 and LALS 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 2504, PHIL 3104, PHIL 3301, PHIL 3501, PHIL 3502, PHIL 3504;
  10. 2.0 credits in PSYC 1001, PSYC 1002, PSYC 2200 and PSYC 2700;
  11. 4.0 credits in the specialization:
    - a) 1.0 credit in LALS 3002 and LALS 3004;
    - b) 2.0 credits from: LALS 2603, LALS 2604, LALS 2701, LALS 3009, LALS 3601, LALS 3101;
    - c) 1.0 credit from: LALS 4001, LALS 4002, LALS 4009, LALS 4602;
- B. Credits Not Included in the Major CGPA (5.0 credits):**
12. 5.0 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. 1.5 credits in CGSC 2001, CGSC 2002 and CGSC 3001;
2. 1.0 credit in CGSC 4908 [1.0];
3. 1.5 credits in COMP 1005, COMP 1006, and COMP 1805;
4. 0.5 credit from COMP 4106, CGSC 4001, or CGSC 5001;
5. 1.0 credit in LALS 1000 [1.0] or (LALS 1001 and LALS 1002);
6. 1.5 credits in LALS 2001, LALS 2003 and LALS 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 2504, PHIL 3104, PHIL 3301, PHIL 3501, PHIL 3502 or PHIL 3504;
10. 2.0 credits in PSYC 1001, PSYC 1002, PSYC 2200 and PSYC 2700;
11. 4.5 credits in the specialization:
  - a) 1.0 credit in (PSYC 2001 and PSYC 2002) or PSYC 2000 [1.0];
  - b) 2.0 credits in PSYC 3000 [1.0] and PSYC 3200 [1.0];
  - c) 0.5 credit in either PSYC 3202 or PSYC 3702;
  - d) 1.0 credit 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. 1.5 credits in CGSC 2001, CGSC 2002 and CGSC 3001;
2. 1.0 credit in CGSC 4908 [1.0];
3. 1.5 credits in COMP 1005, COMP 1006, and COMP 1805;
4. 0.5 credit from COMP 4106, CGSC 4001, or CGSC 5001;
5. 1.0 credit in LALS 1000 [1.0] or (LALS 1001 and LALS 1002);
6. 1.5 credits in LALS 2001, LALS 2003 and LALS 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 2504, PHIL 3104, PHIL 3301, PHIL 3501, PHIL 3502 or PHIL 3504;
10. 2.0 credits in PSYC 1001, PSYC 1002, PSYC 2200 and PSYC 2700;
11. 4.5 credits in the specialization:
  - a) 1.0 credit in (PSYC 2001 and PSYC 2002) or PSYC 2000 [1.0];
  - b) 2.0 credits in PSYC 3000 [1.0], PSYC 3700 [1.0];
  - c) 0.5 credit in either PSYC 3202 or PSYC 3702;
  - d) 1.0 credit 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. 1.5 credits in CGSC 2001, CGSC 2002 and CGSC 3001;
2. 1.0 credit in CGSC 4908 [1.0];
3. 1.5 credits in COMP 1005, COMP 1006, and COMP 1805;
4. 0.5 credit from COMP 4106, CGSC 4001, or CGSC 5001;
5. 1.0 credit in LALS 1000 [1.0] or (LALS 1001 and LALS 1002);
6. 1.5 credit in LALS 2001, LALS 2003 and LALS 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 2504, PHIL 3104, PHIL 3301, PHIL 3501, PHIL 3502 or PHIL 3504;
10. 2.0 credits in PSYC 1001, PSYC 1002, PSYC 2200 and PSYC 2700;
11. 4.5 credits in the specialization:
  - a) 0.5 credit in COMP 1002;
  - b) 2.5 credits at the 2000-level or above in COMP;
  - 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.



## Computer Science

### School of Computer Science

### Faculty of Science

This section presents the requirements for:

- Bachelor of Computer Science General
- Bachelor of Computer Science Honours with streams
  - Software and Computing
  - Management and Business Systems
  - Software Engineering
  - Network Computing
  - Information Systems Security
  - Computer Game Development
  - Biomedical Computing
  - Psychology
  - Law
- 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 Eric 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:

- **Business**  
BUSI 2300, BUSI 2400, BUSI 4400, BUSI 4402, BUSI 4406, BUSI 4407
- **Engineering**  
SYSC 3303, SYSC 4005, SYSC 4507
- **Arts and Social Sciences**  
CCDP 2000, PHIL 2104, PHIL 2106

#### Experimental Science Electives

All courses in BIOC, BIOL, CHEM, EARTH and PHYS are eligible as Experimental Science electives with the exception of: BIOL 1902, BIOL 1903, BIOL 2106, CHEM 1003, EARTH 1004, EARTH 2401, EARTH 2402, EARTH 2403, PHYS 1900 [1.0], PHYS 1901, PHYS 1902, ISCI 1001, ISCI 1002, ISCI 2001 and ISCI 2002

#### Approved Arts or Social Sciences

All courses offered by the Faculty of Arts and Social Sciences and the Faculty of Public Affairs, excluding Prohibited Courses listed below.

#### Science or Business Electives

All courses in BIOL, BIOC, CHEM, EARTH, PHYS and BUSI and also: GEOG 1005, ISCI 1001, ISCI 1002, ISCI 2001, ISCI 2002

#### 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

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### Program Requirements

#### Bachelor of Computer Science General

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#### Computer Science B.C.S. General (20.0 credits)

##### A. Credits Included in the Major CGPA (8.0 credits):

1. 6.0 credits in COMP 1405, COMP 1805, COMP 1406, COMP 1402, COMP 2402, COMP 2003, COMP 2404, COMP 2805, COMP 3000, COMP 3004, COMP 3005, and COMP 3007;
2. 0.5 credit in COMP at the 2000-level or above;
3. 1.0 credit in COMP at the 3000-level or above;
4. 0.5 credit in COMP at the 4000-level;

##### B. Credits Not Included in the Major CGPA (12.0 credits):

5. 1.5 credits in MATH 1007, MATH 1104, and STAT 2507;
6. 0.5 credit in Mathematics and Statistics at the 2000 level or above;
7. 0.5 credit in CCDP 2000;
8. 2.0 credits in Approved Arts or Social Sciences;
9. 3.0 credits in Approved Arts or Social Sciences or Science or Business Electives;
10. 4.5 credits in free electives.

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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):**
- 7.0 credits in COMP 1405, COMP 1805, COMP 1406, COMP 1402, COMP 2402, COMP 2003, COMP 2404, COMP 2805, COMP 3000, COMP 3004, COMP 3005, COMP 3007, COMP 3804, and COMP 4905;
  - 0.5 credit in COMP 4804;
  - 0.5 credit in COMP at the 2000-level or above;
  - 1.0 credit in COMP at the 4000-level;
- B. Credits Not Included in the Major CGPA (11.0 credits):**
- 2.5 credits in MATH 1007, MATH 1104, MATH 2107, STAT 2605, and MATH 3101;
  - 1.5 credits in Approved Arts or Social Sciences;
  - 3.5 credits in Approved Arts or Social Sciences or Science or Business Electives;
  - 3.5 credits in free electives.

**Computer Science**  
**Management and Business Systems**  
**Stream (20.0 credits)**

- A. Credits Included in the Major CGPA (9.5 credits):**
- 7.0 credits in COMP 1405, COMP 1805, COMP 1406, COMP 1402, COMP 2402, COMP 2003, COMP 2404, COMP 2805, COMP 3000, COMP 3004, COMP 3005, COMP 3007, COMP 3804, and COMP 4905;
  - 0.5 credit in COMP at the 2000-level or above;
  - 1.5 credits in COMP at the 4000-level;
  - 0.5 credit in BUSI 2300;
- B. Credits Not Included in the Major CGPA (10.5 credits):**
- 2.5 credits in MATH 1007, MATH 1104, MATH 2107, MATH 3101, and STAT 2507;
  - 2.5 credits in BUSI 1001, BUSI 1002, BUSI 2101, BUSI 2504, and BUSI 3403;
  - 1.0 credit in ECON 1000 [1.0];
  - 1.0 credit in BUSI at the 3000-level or above;
  - 0.5 credit in BUSI at the 4000-level;
  - 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 (10.0 credits):**
- 7.0 credits in COMP 1405, COMP 1805, COMP 1406, COMP 1402, COMP 2402, COMP 2003, COMP 2404, COMP 2805, COMP 3000, COMP 3004, COMP 3005, COMP 3007, COMP 3804, and COMP 4905;
  - 0.5 credit in COMP 2405;
  - 2.5 credits in COMP 3104, COMP 4004, COMP 4104, COMP 4804, and SYSC 3303;
- B. Credits Not Included in the Major CGPA (10.0 credits):**
- 2.5 credits in MATH 1007, MATH 1104, MATH 2107, STAT 2605, and MATH 3101;
  - 1.5 credits in Approved Arts or Social Sciences;
  - 3.5 credits in Approved Arts or Social Sciences or Science or Business Electives;
  - 2.5 credits in free electives.

**Computer Science**  
**Network Computing Stream**  
**B.C.S. Honours (20.0 credits)**

- A. Credits Included in the Major CGPA (11.0 credits):**
- 7.0 credits in COMP 1405, COMP 1805, COMP 1406, COMP 1402, COMP 2402, COMP 2003, COMP 2404, COMP 2805, COMP 3000, COMP 3004, COMP 3005, COMP 3007, COMP 3804, and COMP 4905;
  - 0.5 credit in COMP 2405;
  - 3.5 credits in COMP 3203, COMP 4001, COMP 4009, COMP 4104, COMP 4108, COMP 4203, and COMP 4804;
- B. Credits Not Included in the Major CGPA (9.0 credits):**
- 2.5 credits in MATH 1007, MATH 1104, MATH 2107, STAT 2605, and MATH 3101;
  - 1.5 credits in Approved Arts or Social Sciences;
  - 3.5 credits in Approved Arts or Social Sciences or Science or Business Electives.
  - 1.5 credits in free electives.

**Computer Science**  
**Information Systems Security Stream**  
**B.C.S. Honours (20.0 credits)**

- A. Credits Included in the Major CGPA (10.5 credits):**
- 7.0 credits in COMP 1405, COMP 1805, COMP 1406, COMP 1402, COMP 2402, COMP 2003, COMP 2404, COMP 2805, COMP 3000, COMP 3004, COMP 3005, COMP 3007, COMP 3804, and COMP 4905;
  - 0.5 credit in COMP 2405;
  - 0.5 credit from COMP 3002, COMP 3104, COMP 4004 or COMP 4104;
  - 2.5 credits in COMP 3203, COMP 4108, COMP 4804, COMP 4109, and COMP 4203;

- B. Credits Not Included in the Major CGPA (9.5 credits)**
5. 2.5 credits in MATH 1007, MATH 1104, MATH 2107, STAT 2605, MATH 3101;
  6. 1.5 credits in Approved Arts or Social Sciences;
  7. 3.5 credits Approved Arts or Social Sciences or Science or Business Electives;
  8. 2.0 credits in free electives.

**Bachelor of Computer Science (Honours)  
Computer Game Development Stream  
(20.0 credits)**

- A. Credits Included in the Major CGPA (11.0 credits):**
1. 7.0 credits in COMP 1405, COMP 1805, COMP 1406, COMP 1402, COMP 2402, COMP 2003, 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. 2.0 credits in COMP 2405, COMP 3104, COMP 4004, and COMP 4104;
- B. Credits Not Included in the Major CGPA (9.0 credits):**
4. 2.5 credits in MATH 1007, MATH 1104, MATH 2007, MATH 2107, and STAT 2605;
  5. 1.0 credit in an Experimental Science;
  6. 1.0 credit in Science or Business Electives;
  7. 2.5 credits in Approved Arts or Social Sciences;
  8. 0.5 additional credit in Approved Arts or Social Sciences or Science or Business Electives;
  9. 1.5 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 1402, COMP 2402, COMP 2003, COMP 2404, COMP 2805, COMP 3000, COMP 3004, COMP 3005, COMP 3007, COMP 3804, and COMP 4905;
  2. 0.5 credit in COMP 3308;
  3. 1.0 credits 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. 2.5 credits in MATH 1007, MATH 1104, MATH 2107, MATH 3101, and STAT 2507;
  6. 2.0 credits in BIOL 1003, BIOL 1004, BIOL 2104, and BIOL 2600;
  7. 0.5 credit from BIOL 3104 or BIOL 3609;
  8. 2.0 credits in CHEM 1000 [1.0]; CHEM 2203, and CHEM 2204;
  9. 1.0 credit in BIOC 2200 and BIOC 3101;

10. 1.5 credits in Approved Arts or Social Sciences;
11. 1.5 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 1402, COMP 2402, COMP 2003, 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. 2.0 credits in MATH 1007, MATH 1104, MATH 2107, and MATH 3101;
  5. 0.5 credit in STAT 2507;
  6. 1.0 credit in PSYC 1001 and PSYC 1002;
  7. 2.0 credits in PSYC 2001, PSYC 2100, PSYC 2700, and PSYC 2800;
  8. 1.0 credit in PSYC 3800;
  9. 0.5 credit from PSYC 3102, PSYC 3105 or PSYC 3702;
  10. 1.0 credit in PSYC 4800 and PSYC 4805;
  11. 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 1402, COMP 2402, COMP 2003, 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. 2.0 credits in MATH 1007, MATH 1104, MATH 2107, and MATH 3101;
  5. 0.5 credit in STAT 2507;
  6. 1.0 credit in LAWS 1000;
  7. 1.0 credit in LAWS 2003;
  8. 1.0 credit from LAWS 2004 or LAWS 2005;
  9. 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;
  10. 2.5 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 1000 [1.0], 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 1002, COMP 1005, COMP 1006; 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. 2.5 credits in MATH 1007, MATH 1107, MATH 2007, MATH 2008, and MATH 2107;
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;
10. 1.5 credits in Approved Arts or Social Sciences;
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 1002, COMP 1005, COMP 1006; COMP 2002, COMP 2003, COMP 2004, COMP 3004, COMP 3000, COMP 3005, COMP 3804, and COMP 3805;
3. 0.5 credit in MATH 4905 or COMP 4905

*and for the stream 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 stream in Statistics and Computing:*

4. 2.5 credits in MATH 2454, STAT 2559, STAT 2655, STAT 3558, and STAT 3559;

5. 0.5 credit in STAT 3505 or STAT 3506;
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 with at least 1.0 credit at the 2000-level or above consisting of:
  - a) 1.0 credit in Natural Science;
  - b) 2.0 credits in Approved Arts or Social Sciences;
  - c) 1.0 credit not in MATH, STAT or COMP;
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 1002, 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

This section presents the requirements for:

- **Criminology and Criminal Justice – B.A. Honours with Concentration in**  
Law  
Psychology  
Sociology
- **Criminology and Criminal Justice – B.A. General with Concentration in**  
Law  
Psychology  
Sociology
- **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 and Requirements 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 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.

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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: (13.0 credits):

1. 2.5 credits in LAWS 1000 [1.0], LAWS 2004 [1.0], LAWS 3907;
2. 0.5 credit from: LAWS 3305, LAWS 3306 or LAWS 3308;
3. 1.0 credit in LAWS at the 2000-level or higher;
4. 1.5 credits in LAWS at the 3000-level or higher;
5. 2.0 credits in PSYC 1001, PSYC 1002, PSYC 2400, PSYC 3402;
6. 1.0 credit in: SOCI 1001 and SOCI 1002;
7. 1.0 credit in: SOCI 2445 and SOCI 2450;
8. 0.5 credit from: SOCI 3400 or SOCI 3410;
9. 1.0 credit from: CRCJ 3000 [1.0] or Approved CCJ Electives at the 3000-level or higher (See **Note 2**);
10. 1.0 credit from: CRCJ 3901 [1.0] or Approved CCJ Electives at the 3000-level;
11. 1.0 credit from: CRCJ 4908 [1.0] or Approved CCJ Electives at the 4000-level;

##### B. Credits Not Included in the Major CGPA (7.0 credits):

12. 5.0 credits in electives, not in Approved CCJ electives;
13. 2.0 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 (13.5 credits):

1. 2.0 credits in: LAWS 1000 [1.0] and LAWS 2004 [1.0];
2. 0.5 credit from: LAWS 3305, LAWS 3306 or LAWS 3308;
3. 3.0 credits in: PSYC 1001, PSYC 1002, PSYC 2400, PSYC 3402, PSYC 3000 [1.0];
4. 1.0 credit from (PSYC 2001 and PSYC 2002) or PSYC 2000 [1.0];
5. 1.0 credit in PSYC at the 2000-level or higher;
6. 0.5 credit in PSYC at the 3000-level or higher;
7. 1.0 credit in: SOCI 1001 and SOCI 1002;



8. 1.0 credit in: SOCI 2445 and SOCI 2450;
  9. 0.5 credit from: SOCI 3400 or SOCI 3410;
  10. 1.0 credit from: CRCJ 3000 [1.0] or PSYC 3400 [1.0] or Approved CCJ Electives at the 3000-level or higher (See Note 2);
  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] 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.

**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: (13.0 credits):**
1. 2.0 credits in: LAWS 1000 [1.0] and LAWS 2004 [1.0];
  2. 0.5 credit from: LAWS 3305, LAWS 3306 or LAWS 3308;
  3. 2.0 credits in: PSYC 1001, PSYC 1002, PSYC 2400, and PSYC 3402;
  4. 1.0 credit in: SOCI 1001 and SOCI 1002;
  5. 2.0 credits in SOCI 2003 [1.0], SOCI 2445, SOCI 2450;
  6. 0.5 credit from: SOCI 3400 or SOCI 3410;
  7. 1.0 credit in SOCI at the 2000-level or higher;
  8. 1.0 credit in SOCI at the 3000-level or higher;
  9. 1.0 credit from: CRCJ 3000 [1.0] or SOCI 3003 [1.0] or Approved CCJ Electives at the 3000-level or higher (See Note 2);
  10. 1.0 credit from: CRCJ 3901 [1.0] or Approved CCJ Electives at the 3000-level;
  11. 1.0 credit from: CRCJ 4908 [1.0] or Approved CCJ Electives at the 4000-level;
- B. Credits Not Included in the Major CGPA (7.0 credits):**
12. 5.0 credits in electives, not in Approved CCJ electives;
  13. 2.0 credits in free electives.

**Notes for all Concentrations:**

1. For **Requirement 11** in each concentration, registration in the Honours Research Project CRCJ 4908 requires a Major CGPA of at least 10.00.
2. SOCI 3003 may be substituted for CRCJ 3000 for students doing their Concentration in Sociology. PSYC 3400 may be substituted for students doing their Concentration in Psychology.

3. For the Concentration in Sociology, SOCI 2005 [1.0] or SOCI 3005 is highly recommended.
4. See note entitled **Maximum Number of CCJ Credits** above the Program Requirements section regarding the maximum permissible Criminology credits for your program.

**Program Requirements  
Criminology and Criminal Justice**

**B.A. General (15.0 credits)**

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: (10.0 credits):**
1. 2.0 credits in LAWS 1000 [1.0], LAWS 2004 [1.0];
  2. 0.5 credit from: LAWS 3305, LAWS 3306 or LAWS 3308;
  3. 2.0 credits in LAWS at the 2000-level or higher;
  4. 2.0 credits in PSYC 1001, PSYC 1002, PSYC 2400, PSYC 3402;
  5. 1.0 credit in: SOCI 1001 and SOCI 1002;
  6. 1.0 credit in SOCI 2445 and SOCI 2450;
  7. 0.5 credit from: SOCI 3400 or SOCI 3410;
  8. 1.0 credit from: CRCJ 3901 [1.0] or Approved CCJ Electives at the 3000-level;
- B. Credits Not Included in the Major CGPA (5.0 credits):**
9. 3.5 credits in electives, not in Approved CCJ electives;
  10. 1.5 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 (10.5 credits):**
1. 2.0 credits in LAWS 1000 [1.0] and LAWS 2004 [1.0];
  2. 0.5 credit from: LAWS 3305, LAWS 3306 or LAWS 3308;
  3. 2.0 credits in PSYC 1001, PSYC 1002, PSYC 2400, and PSYC 3402;
  4. 1.0 credit from (PSYC 2001 and PSYC 2002) or PSYC 2000 [1.0];
  5. 1.5 credits in PSYC at the 2000-level or higher;
  6. 1.0 credit in: SOCI 1001 and SOCI 1002;
  7. 1.0 credit in: SOCI 2445 and SOCI 2450;
  8. 0.5 credit from: SOCI 3400 or SOCI 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 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: (10.0 credits):**

1. 2.0 credits in: LAWS 1000 [1.0], LAWS 2004 [1.0];
2. 0.5 credit from: LAWS 3305, LAWS 3306 or LAWS 3308;
3. 2.0 credits in: PSYC 1001, PSYC 1002, PSYC 2400, PSYC 3402;
4. 1.0 credit in: SOCI 1001 and SOCI 1002;
5. 2.0 credits in SOCI 2003 [1.0], SOCI 2445, SOCI 2450;
6. 0.5 credit from: SOCI 3400 or SOCI 3410;
7. 1.0 credit in SOCI at the 2000-level or higher;
8. 1.0 credit from: CRCJ 3901[1.0] or Approved CCJ Electives at the 3000-level;

**B. Credits Not Included in the Major CGPA (5.0 credits):**

9. 3.5 credits in electives, not in Approved CCJ electives;
10. 1.5 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, 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. If granted permission, students

will then register in CRCJ 3901 [1.0] during August 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, LAWS 4603, LAWS 4901, LAWS 4902

*Psychology*

PSYC 2100, PSYC 2200, PSYC 2500, PSYC 2600, PSYC 3102, PSYC 3204, PSYC 3403, PSYC 3405, PSYC 3507, PSYC 3604, PSYC 4402, PSYC 4900, PSYC 4902

*Sociology*

SOCI 2455, SOCI 3055, SOCI 3420, SOCI 3450, SOCI 4055, SOCI 4410, SOCI 4420, SOCI 4430, SOCI 4910, SOCI 4920

**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

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

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 – B.Sc. General
- Computational Geophysics – B.Sc. Honours
- 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

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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.Sc. students including those relating to First-Year Seminar, Science Continuation and Breadth requirements (see the *Academic Regulations and Requirements 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.

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### Course Categories for Earth Sciences Programs

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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

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### Program Requirements

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#### 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 1007;
  2. 7.0 credits in EARTH 2101, EARTH 2102, EARTH 2311, EARTH 2312, EARTH 2405, EARTH 2404, EARTH 2801, EARTH 2802, EARTH 3201, EARTH 3202, EARTH 3204, EARTH 3205, EARTH 3805, EARTH 3806;
  3. 1.0 credit in EARTH 4908 [1.0];
  4. 2.0 credits in EARTH at the 4000-level.
- B. Credits Not Included in the Major CGPA (9.0 credits):
  5. 1.0 credit in MATH 1007 and MATH 1107;
  6. 1.0 credit in CHEM 1000 [1.0];
  7. 1.0 credit from BIOL 1003, BIOL 1004, PHYS 1003 or PHYS 1007, or PHYS 1004 or PHYS 1008;
  8. 0.5 credit in STAT 2507;
  9. 0.5 credit in COMP or in MATH, STAT at the 2000-level or above;
  10. 1.0 credit in Science Continuation Courses;
  11. 0.5 credit in Science Faculty Electives;
  12. 0.5 credit in NSCI 1000 or Approved Arts or Social Science electives;
  13. 1.5 credits in Approved Arts or Social Science electives;
  14. 1.5 credits in free electives.

**Note:** to meet professional registration requirements for geoscience in Ontario, students must have at least 0.5 credit in each of BIOL and PHYS.

#### 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. 1.0 credit in EARTH 1006 and EARTH 1007;
  2. 3.0 credits in EARTH 2101, EARTH 2102, EARTH 2311, EARTH 2312, EARTH 2404, EARTH 2801;
  3. 2.5 credits in EARTH 3201, EARTH 3805, EARTH 3111, EARTH 3112, EARTH 3113;
  4. 0.5 credit in EARTH 4003 or EARTH 4808;
  5. 1.0 credit in EARTH 4908 [1.0];
  6. 3.0 credits from NSCI 1000, BIOL 3104, BIOL 3501, (BIOL 3601 or BIOL 3602), BIOL 3802, BIOL 3605, BIOL 3609, BIOL 3611, BIOL 4500, GEOG 3002, GEOG 3102, GEOG 3104, EARTH 2401, EARTH 2405, EARTH 2802, EARTH 3205, EARTH 4005, EARTH 4303, EARTH 4304, EARTH 4305, EARTH 4306, EARTH 4307, EARTH 4802;

- B. Credits Not Included in the Major CGPA (9.5 credits):**
- 2.0 credits in BIOL 2001, BIOL 2104, BIOL 2600, STAT 2507;
  - 3.5 credits in BIOL 1003, BIOL 1004, CHEM 1000 [1.0], MATH 1007, MATH 1107, PHYS 1007;
  - 2.5 credits in Approved Arts or Social Sciences;
  - 1.5 credits in free electives.

### Earth Sciences

#### B.Sc. General (20.0 credits)

- A. Credits Included in the Major CGPA (11.0 credits)**
- 1.0 credit in EARTH 1006 and EARTH 1007;
  - 7.0 credits in EARTH 2101, EARTH 2102, EARTH 2311, EARTH 2312, EARTH 2405, EARTH 2404, EARTH 2801, EARTH 2802, EARTH 3201, EARTH 3202, EARTH 3204, EARTH 3205, EARTH 3805, EARTH 3806;
  - 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 1000 [1.0];
  - 1.0 credit in BIOL 1003, BIOL 1004, PHYS 1003 or PHYS 1007, or PHYS 1004 or PHYS 1008;
  - 2.0 credits in Science Continuation Courses;
  - 0.5 credit in Science Faculty Electives;
  - 0.5 credit in NSCI 1000 or Approved Arts or Social Science electives;
  - 1.5 credits in Approved Arts or Social Science electives;
  - 1.5 credits in free electives.

**Note:** to meet professional registration requirements for geoscience in Ontario, students must have at least 0.5 credit in each of BIOL and PHYS.

### Earth Sciences

#### B.Sc. General (15.0 credits)

- A. Credits Included in the Major CGPA (7.0 credits):**
- 1.0 credit from EARTH 1006, EARTH 1007;
  - 3.0 credits EARTH 2101, EARTH 2102, EARTH 2312, EARTH 2404;
  - 3.0 credits in EARTH 3201, EARTH 3202, EARTH 3204, EARTH 3205, EARTH 3805, EARTH 3806;
- B. Credits Not Included in the Major CGPA (8.0 credits):**
- 1.0 credit in MATH 1007 and MATH 1107;
  - 1.0 credit in CHEM 1000 [1.0];
  - 1.0 credit in (BIOL 1003 and BIOL 1004) or (PHYS 1003 and PHYS 1007), or (PHYS 1004 and PHYS 1008);
  - 2.0 credits in Science Continuation Courses;
  - 0.5 credits in NSCI 1000 or Approved Arts or Social Sciences;

- 1.5 credits in Approved Arts or Social Sciences;
- 1.0 credit in free electives.

### Computational Geophysics B.Sc. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (9.0 credits):**
- 2.0 credits in COMP 1002, COMP 1005, COMP 1006, and COMP 2004;
  - 1.0 credits in MATH 2800, and MATH 3800
  - 1.0 credit in EARTH 4908 [1.0];
  - 1.0 credit in EARTH 1006 and EARTH 1007;
  - 4.0 credits in EARTH 2404, EARTH 2405, EARTH 2801, EARTH 3201, EARTH 3805, EARTH 3806, EARTH 4801, EARTH 4804;
- B. Credits Not Included in the Major CGPA (11.0 credits):**
- 2.5 credits in MATH 1007, MATH 1107, MATH 2007, MATH 2008, MATH 3705;
  - 3.0 credits in PHYS 1001, PHYS 1002, PHYS 2202, PHYS 3308, PHYS 3807, PHYS 4203;
  - 1.0 credit in CHEM 1000 [1.0];
  - 2.5 credits from COMP 3000, COMP 3005, EARTH 2101, EARTH 2102, EARTH 2311, EARTH 2802, EARTH 3202, EARTH 3204, EARTH 3205, EARTH 4306, EARTH 4707, EARTH 4807, PHYS 2604, STAT 2507;
  - 0.5 credit in NSCI 1000 or Approved Arts and Social Sciences;
  - 1.5 credits in Approved Arts and Social Sciences.

**Note:** the courses in Requirement 8 above should be selected in consultation with the program adviser.

### Earth Sciences and Physical Geography B.Sc. Combined Honours (20.0 credits)

- A. Credits Included in the Major CGPA (12.0 credits):**
- 1.0 credit in EARTH 1006 and GEOG 2100 (preferred), or EARTH 1007;
  - 1.5 credits in EARTH 2101, EARTH 2102, EARTH 2404;
  - 0.5 credit in EARTH 2801 or ENSC 2000;
  - 2.0 credits in EARTH at the 3000-level or above;
  - 1.0 credit in EARTH at the 4000-level;
  - 0.5 credit in GEOG 2102;
  - 1.5 credit in Science Geography or Geomatics courses at the 2000-level or above;
  - 2.0 credits in GEOM 3002, GEOG 3102, GEOG 3105, GEOG 3108;
  - 1.0 credit in Science Geography or Geomatics courses at the 4000-level;
  - 1.0 credit in GEOG 4906 [1.0] or EARTH 4908 [1.0];
- B. Credits Not Included in the Major CGPA (8.0 credits):**
- 2.0 credits in CHEM 1000 [1.0], MATH 1007 and MATH 1107;

12. 1.0 credit in PHYS 1003 and PHYS 1004, or PHYS 1007 and PHYS 1008;
13. 1.0 credit in Mathematics (MATH, STAT) at 2000-level or above; and/or in COMP; (STAT 2507 and COMP 1004 are recommended);
14. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
15. 1.5 credits in Approved Arts or Social Sciences;
16. 2.0 credits in free electives.

**Notes:**

1. EARTH 1000 [1.0] or EARTH 1005 [1.0] or GEOG 1005 [1.0], all no longer offered, can substitute for EARTH 1006 and GEOG 2100; EARTH 1008 (no longer offered) can substitute for EARTH 1007 or EARTH 1006.
2. A Human Geography course is recommended in the program.
3. The course ENSC 2000 precludes GEOG 2909.
4. To meet professional registration requirements for geoscience in Ontario, students must have at least 0.5 credit in each of BIOL and PHYS.

**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. 1.0 credit in GEOG 2100 and EARTH 1006 (preferred) or EARTH 1007;
  2. 2.0 credits in EARTH 2101, EARTH 2102, EARTH 2404, EARTH 2802;
  3. 0.5 credit in EARTH 2801 or ENSC 2000;
  4. 2.0 credit in EARTH 3201, EARTH 3202, EARTH 3205, EARTH 3806;
  5. 1.0 credit in EARTH at the 4000-level;
  6. 0.5 credit in GEOG 2006 or STAT 2507;
  7. 1.5 credits in GEOM 2004, GEOM 2007, GEOM 2101;
  8. 2.0 credits in GEOM 3002, GEOG 3102, GEOG 3105, GEOG 3108;
  9. 1.0 credit in GEOG 4101 and GEOG 4108;
  10. 1.0 credit in EARTH 4908 [1.0] or GEOG 4906 [1.0];
- B. Credits Not Included in the Major CGPA (7.5 credits):**
11. 1.0 credit in CHEM 1000 [1.0];
  12. 1.0 credit in MATH 1007 and MATH 1107;
  13. 1.0 credit in (PHYS 1003 and PHYS 1004) or (PHYS 1007 and PHYS 1008);
  14. 0.5 credit from COMP 1003, COMP 1004 or COMP 1007;
  15. 1.0 credit in Science Faculty Electives at the 2000-level or above;
  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 free electives.

**Note:** to meet professional registration requirements for geoscience in Ontario, students must have at least 0.5 credit in each of BIOL and PHYS.

**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 1003 and BIOL 1004;
  2. 1.0 credit in EARTH 1006 and EARTH 1007;
  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 EARTH 2801;
    - 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 or EARTH 4908;
- 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 in CHEM 1000 [1.0], 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 OAC or Grade 12 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 (12.0 credits):**
1. 4.0 credits in CHEM 1000 [1.0], CHEM 2101, CHEM 2102, CHEM 2302, CHEM 2303, CHEM 3503, CHEM 3504;
  2. 1.0 credit in CHEM at the 4000-level;
  3. 1.0 credit of EARTH 1006 and EARTH 1007;
  4. 2.0 credits in EARTH 2101, EARTH 2102, EARTH 2404, EARTH 2801;
  5. 1.0 credit in EARTH at the 3000-level;
  6. 1.0 credit in EARTH at the 4000-level;
  7. 1.0 credit in CHEM or EARTH;
  8. 1.0 credit in either CHEM 4908 or EARTH 4908;
- B. Credits Not Included in the Major CGPA (8.0 credits):**
9. 1.5 credits in MATH 1007, MATH 1107, MATH 2007;

10. 0.5 credit in MATH or STAT at the 2000-level;
11. 1.0 credit in either (PHYS 1003 and PHYS 1004) or (PHYS 1007 and PHYS 1008);
12. 1.0 credit in Science Faculty Electives (not CHEM or EARTH);
13. 1.0 credit in Science Faculty Electives;
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 elective;

**Note:** to meet professional registration requirements for geoscience in Ontario, students must have at least 0.5 credit in BIOL.

### **Minor in Earth Sciences**

The Minor in Earth Sciences is available to students registered in degree programs other than those offered by the Department of Earth Sciences. Consultation with the undergraduate advisor is recommended.

#### **Requirements:**

1. 1.0 credit Earth Sciences at the 1000-level;
2. 3.0 credits in Earth Sciences above the 1000-level;
3. The remaining requirements of the major discipline(s) and degree must be satisfied.

## Economics

### Department of Economics Faculty of Public Affairs

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 – B.A. Honours
- Applied Economics with Concentration: Financial Economics, or International Political Economy, or Development – B.A. Honours
- 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.

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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 the *Academic Regulations and Requirements for the Bachelor of Arts Degree*).

Students should consult with the Department when planning their program and selecting courses.

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### Access to Economics Courses

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To meet the prerequisite requirements for most 2000-level economics courses, students must have obtained a grade of C- or higher in ECON 1000 [1.0] or FYSM 1003 [1.0].

Certain 3000- and 4000-level economics courses also have prerequisites with minimum grade requirements. These requirements are specified with the course descriptions.

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### 0000-Level Courses

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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).

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## Program Requirements

### B.A. Honours

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#### Economics

#### B.A. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (9.0 credits):
  1. 1.0 credit from ECON 1000 [1.0] or FYSM 1003 [1.0];
  2. 6.0 credits in ECON 2002, ECON 2003, ECON 2102, ECON 2103, ECON 2201, ECON 2202, ECON 2400, ECON 4001, ECON 4002, ECON 4200, ECON 4201, 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 (11.0 credits):
  6. 1.0 credit in MATH 1009 and MATH 1119;
  7. 7.0 credits in electives not in ECON;
  8. 3.0 credits in free electives.

#### Note:

An Honours essay (ECON 4908 [1.0]) with a grade of B- or higher may be written to earn 1.0 credit at the 4000-level or to replace the ECON 4901 and ECON 4902 requirement. Students who choose to do the Honours Essay must first complete an Honours essay prospectus to the satisfaction of both their adviser and the Honours Supervisor.

#### Applied Economics

#### B.A. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (9.0 credits):
  1. 1.0 credit in ECON 1000 [1.0] or FYSM 1003 [1.0];
  2. 4.5 credits in ECON 2002, ECON 2003, ECON 2102, ECON 2103, ECON 2201, ECON 2202, ECON 2400, ECON 3706, ECON 4890;
  3. 1.5 credits in ECON at the 3000-level;
  4. 2.0 credits in ECON at the 4000-level;
- B. Credits Not Included in the Major CGPA (11.0 credits):
  5. 1.0 credit in MATH 1009 and MATH 1119;
  6. 7.0 credits in electives not in ECON;
  7. 3.0 credits in free electives.



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**Program Requirements  
Concentrations**


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**Economics  
B.A. Honours  
with Concentration (20.0 credits)**

- A. Credits Included in the Major CGPA (11.0 credits):**
- 1.0 credit in ECON 1000 [1.0] or FYSM 1003 [1.0];
  - 5.0 credits in ECON 2002, ECON 2003, ECON 2102, ECON 2103, ECON 2201, ECON 2202, ECON 2400, ECON 4200, ECON 4201, ECON 4706;
  - 1.0 credit in:
    - ECON 4901 and ECON 4902, or
    - ECON 4908 [1.0] (see **Note** below);
  - One of the following concentrations, also included in the Major CGPA:

**Concentration in Financial Economics**

- 3.0 credits in BUSI 1001, BUSI 1002, ECON 2504 (or BUSI 2504), ECON 2505 (or BUSI 2505), ECON 3500 (or BUSI 3500), ECON 3502 (or BUSI 3502);
- 1.0 credit from ECON 4500 (or BUSI 4500), ECON 4502 (or BUSI 4502), ECON 4504;

or

**Concentration in International Political Economy**

- 2.0 credits in ECON 4601, ECON 4602, PSCI 2602, PSCI 4603;
- 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);
- 1.0 credit from ECON 4508, INAF 4103 or PSCI 4604, PSCI 4207, PSCI 4500, PSCI 4805;

or

**Concentration in Development**

- 3.0 credits in ECON 3508, ECON 3509, ECON 4507, ECON 4508, PSCI 2102, PSCI 4104;
- 1.0 credit from ECON 3808, ECON 4806, ECON 4807, INAF 4102, PSCI 4105, PSCI 4409 (or INAF 4202);

**B. Credits Not Included in the Major CGPA (9.0 credits):**

- 1.0 credit in MATH 1009 and MATH 1119;
- 7.0 credits in electives not in ECON;
- 1.0 credit in free electives.

**Note:**

An Honours essay (ECON 4908 [1.0]) with a grade of B- or higher may be written to earn 1.0 credit at the 4000-level or to replace the ECON 4901 and ECON 4902 requirement. Students who choose to do the Honours Essay must first complete an Honours essay prospectus to the satisfaction of both their adviser and the Honours Supervisor.

**Applied Economics**
**B.A. Honours  
with Concentration (20.0 credits)**

- A. Credits Included in the Major CGPA (11.0 credits):**
- 1.0 credit in ECON 1000 [1.0] or FYSM 1003 [1.0];
  - 4.5 credits in ECON 2002, ECON 2003, ECON 2102, ECON 2103, ECON 2201, ECON 2202, ECON 2400, ECON 3706, ECON 4890;
  - 0.5 credit in ECON at the 3000-level;
  - 1.0 credit in ECON at the 4000-level;
  - One of the following concentrations, also included in the Major CGPA:

**Concentration in Financial Economics**

- 3.0 credits in BUSI 1001, BUSI 1002, ECON 2504 (or BUSI 2504), ECON 2505 (or BUSI 2505), ECON 3500 (or BUSI 3500), ECON 3502 (or BUSI 3502);
- 1.0 credit from ECON 4500 (or BUSI 4500), ECON 4502 (or BUSI 4502), ECON 4504;

or

**Concentration in International Political Economy**

- 2.0 credits in ECON 4601, ECON 4602, PSCI 2602, PSCI 4603;
- 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);
- 1.0 credit from ECON 4508, INAF 4103 or PSCI 4604, PSCI 4207, PSCI 4500, PSCI 4805;

or

**Concentration in Development**

- 3.0 credits in ECON 3508, ECON 3509, ECON 4507, ECON 4508, PSCI 2102, PSCI 4104;
- 1.0 credit from ECON 3808, ECON 4806, ECON 4807, INAF 4102, PSCI 4105, PSCI 4409 (or INAF 4202);

**B. Credits Not Included in the Major CGPA (9.0 credits):**

- 1.0 credit in MATH 1009 and MATH 1119;
- 7.0 credits in electives not in ECON;
- 1.0 credit in free electives.

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**Program Requirements**
**B.A. and B.Math. Combined Honours**


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**Economics  
B.A. Combined Honours (20.0 credits)**

Students may apply for Combined Honours in Economics and one of the following disciplines with the requirements described below: Anthropology, Applied Language Studies, Art History, Biology, Canadian Studies, Classics and Religion, English, European and Russian Studies, Film Studies, French, General Linguistics, Geography, History, Human Rights, Journalism, Law, Law with Concentration in Business Law, Law with Concentration in Law, Policy and Government, Mass Communication,

Music, Philosophy, Political Science, Psychology, Sociology, Women's Studies.

**A. Credits Included in the Economics Major CGPA (7.0 credits):**

1. 1.0 credit in ECON 1000 [1.0] or FYSM 1003 [1.0];
2. 4.5 credits in ECON 2002, ECON 2003, ECON 2102, ECON 2103, ECON 2201, ECON 2202, ECON 2400, ECON 4200, ECON 4201;
3. 1.0 credit in:
  - a) ECON 4901 and ECON 4902, or
  - b) ECON 4908 [1.0] (see Note below);
4. 0.5 credit in ECON at the 4000-level;

**B. Additional Requirements:**

5. The requirements for Combined Honours in the other discipline must be satisfied;
6. 1.0 credit in MATH 1009 and MATH 1119;
7. 4.0 credits in electives not in ECON or the other discipline;
8. 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 to earn 1.0 credit at the 4000-level or to replace the ECON 4901 and ECON 4902 requirement. Students who choose to do the Honours essay must first complete an Honours essay prospectus to the satisfaction of both their adviser and the Honours Supervisor.

**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 or STAT at the 3000- or 4000-level;
4. 1.0 credit in MATH or STAT at the 4000-level;
5. 4.0 credits in ECON 1000 [1.0], ECON 2002, ECON 2003, ECON 2102, ECON 2103, ECON 4200, ECON 4201;
6. 1.0 credit in:
  - a) ECON 4901 and ECON 4902; or
  - b) ECON 4908 [1.0] (see Note 1 below);
7. 1.0 credit in ECON at the 4000-level;

**B. Credits Not Included in the Major CGPA (5.0 credits):**

8. 1.0 credit in COMP 1005 and 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 to earn 1.0 credit at the 4000-level or to replace the ECON 4901 and ECON 4902 requirement. Students who choose to do the Honours essay must first complete an Honours essay prospectus to the satisfaction of both their adviser and the Honours Supervisor.
2. ECON 2400 does not count for credit in this program.

**Economics and Statistics**

**B.Math. Combined Honours (20.0 credits)**

**A. Credits Included in the Major CGPA (14.5 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 or STAT at the 4000-level;
3. 4.0 credits in ECON 1000 [1.0], ECON 2002, ECON 2003, ECON 2102, ECON 2103, ECON 4200, ECON 4201;
4. 1.0 credit in:
  - a) ECON 4901 and ECON 4902, or
  - b) ECON 4908 [1.0] (see Note 1 below);
5. 1.0 credit in ECON at the 4000-level;

**B. Credits Not Included in the Major CGPA (5.5 credits):**

6. 1.0 credit in COMP 1005 and 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 to earn 1.0 credit at the 4000-level or to replace the ECON 4901 and ECON 4902 requirement. Students who choose to do the Honours essay must first complete an Honours essay prospectus to the satisfaction of both their adviser and the Honours 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.

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## Program Requirements

### B.A. General

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#### Economics

#### B.A. General (15.0 credits)

##### A. Credits Included in the Major CGPA (6.0 credits):

1. 1.0 credit in ECON 1000 [1.0] or FYSM 1003 [1.0];
2. 3.0 credits in ECON 2002, ECON 2003, ECON 2102, ECON 2103, ECON 2201, ECON 2202;
3. 2.0 credits in ECON 2400 and/or ECON at the 3000- or 4000-level;

##### B. Credits Not Included in the Major CGPA (9.0 credits):

4. 1.0 credit in MATH 1009 and MATH 1119;
  5. 6.0 credits in electives not in ECON;
  6. 2.0 credits in free electives.
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### Minors

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#### 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 2002;
3. 0.5 credit in ECON 2101 or ECON 2102;
4. 2.0 credits in ECON at the 2000-level or above;
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 2002, ECON 2003, ECON 4200;
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

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**
- **Biomedical and Electrical 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**

The Co-operative Education Option is available in Engineering. 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 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 *Academic Regulations and Requirements for the Bachelor of Engineering Degree*).

Students should consult with their Department when planning their program and selecting courses.

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### Course Categories for Engineering Programs

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The following categories of courses are used in defining the programs.

- **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 ([www.carleton.ca/engineering/academicsupport](http://www.carleton.ca/engineering/academicsupport)). 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.

- **Breadth Electives for Communications Engineering**  
SYSC 3601, SYSC 4507, SYSC 4005, SYSC 3303, SYSC 4505, SYSC 4607, ELEC 4503, ELEC 4506, ELEC 4509, ELEC 4601, ELEC 4706, ELEC 4707, ELEC 4708
- **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 (21.0 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

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. 5.0 credits in MATH 2004, MATH 3705, MAAE 2001, MAAE 2101, MAAE 2202, MAAE 2300, MAAE 2400, MAAE 2700, ECOR 2606, CCDP 2100;

###### Third Year

4. 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

5. 4.5 credits in MAAE 4500, ECOR 4995, AERO 4003, AERO 4302, AERO 4306, AERO 4308, AERO 4907 [1.0], ECOR 3800;
6. 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

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. 5.0 credits in MATH 2004, MATH 3705, MAAE 2001, MAAE 2101, MAAE 2202, MAAE 2300, MAAE 2400, MAAE 2700, ECOR 2606, CCDP 2100;

#### Third Year

4. 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

5. 4.5 credits in MAAE 4500, MAAE 4102, ECOR 4995, AERO 4003, AERO 4602, AERO 4608, AERO 4907 [1.0], ECOR 3800;
6. 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

1. 4.5 credits in CHEM 1101, MATH 1004, MATH 1005, MATH 1104, PHYS 1004, ECOR 1010, ECOR 1101, ECOR 1606, CCDP 2100;
2. 0.5 credit in Complementary Studies Electives;

#### Second Year

3. 5.0 credits in MATH 2004, MATH 3705, MAAE 2001, MAAE 2101, MAAE 2202, MAAE 2700, ELEC 2501, ECOR 2606, ELEC 2607, ELEC 2507;

#### Third Year

4. 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

5. 3.0 credits in ECOR 4995, AERO 4003, AERO 4907 [1.0], ECOR 3800, MAAE 4500;
6. 1.5 credits from: AERO 4009, AERO 4801, ELEC 4505, SYSC 4600, ELEC 4503;
7. 1.0 credit from: AERO 4802, SYSC 4405, SYSC 4607, ELEC 4502, ELEC 4509, ELEC 4600, ELEC 4706;
8. 0.5 credit in Complementary Studies Electives.

### Biomedical and Electrical Engineering Bachelor of Engineering (21.0 credits)

#### First Year

1. 5.0 credits in BIOL 1003, CHEM 1000 [1.0], MATH 1004, MATH 1005, MATH 1104, PHYS 1004, ECOR 1010, ECOR 1101, ECOR 1606;

#### Second Year

2. 5.0 credits in BIOC 2200, MATH 2004, ECOR 2606, ELEC 2501, SYSC 2002, MATH 3705, CCDP 2100, ELEC 2507, ELEC 2607, ELEC 3105;

#### Third Year

3. 5.0 credits in CHEM 2203, SYSC 3600, ELEC 3509, ELEC 3500, ELEC 3908, STAT 3502, SYSC 3006, SYSC 3501, ELEC 3909, ECOR 3800;

#### Fourth Year

4. 2.0 credits in SYSC 4201, ECOR 4995, ELEC 4601, SYSC 4405;
5. 1.0 credit from SYSC 4907 [1.0] or ELEC 4907 [1.0];
6. 1.5 credits from ELEC 4709, SYSC 4202, SYSC 4203, and SYSC 4204;
7. 0.5 credit from SYSC or ELEC at the 4000-level with a laboratory/problem analysis component;
8. 1.0 credit in Complementary Studies Electives.

#### Note:

For **Item 5** 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. The project must deal with a biomedical engineering application.

### Civil Engineering Bachelor of Engineering (21.5 credits)

#### First Year

1. 4.5 credits in CHEM 1101, MATH 1004, MATH 1005, MATH 1104, PHYS 1004, ECOR 1010, ECOR 1101, ECOR 1606, CCDP 2100;
2. 0.5 credit in Complementary Studies Electives;

#### Second Year

3. 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

4. 5.0 credits in STAT 2507, CIVE 3202, CIVE 3203, CIVE 3204, CIVE 3205, CIVE 3206, CIVE 3208, CIVE 3304, ECOR 3800, ELEC 3605;
5. 0.5 credit in Complementary Studies Electives;

#### Fourth Year

6. 2.5 credits in CIVE 4208, CIVE 4209, CIVE 4407, ECOR 4995, CIVE 4908;
7. 2.5 credits from:
  - i) 1.5 credits from: CIVE 4200, CIVE 4302, CIVE 4303, ENVE 3003, CIVE 4400, CIVE 4403 (see **Note** below); and
  - ii) 1.0 credit from: CIVE 4201, CIVE 4202, CIVE 4301, CIVE 4307, CIVE 4308, CIVE 4500 (see **Note** below);
8. 1.0 credit in Complementary Studies Electives.

Note: CIVE 4907 [1.0] may replace 0.5 credit for **Item 7.i)** and 0.5 credit for **Item 7.ii)** above.



### Civil Engineering with Concentration in Management Bachelor of Engineering (21.5 credits)

#### First Year

1. 4.5 credits in CHEM 1101, MATH 1004, MATH 1005, MATH 1104, PHYS 1004, ECOR 1010, ECOR 1101, ECOR 1606, CCDP 2100;
2. 0.5 credit in Complementary Studies Electives.

#### Second Year

3. 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

4. 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

5. 2.0 credits in CIVE 4400, ECOR 4995, CIVE 4908, SYSC 3200;
6. 1.5 credits from: CIVE 4200, CIVE 4208, CIVE 4302, CIVE 4303, CIVE 4403, CIVE 4407, ENVE 3003 (see **Note** below);
7. 1.0 credit from CIVE 4201, CIVE 4202, CIVE 4209, CIVE 4301, CIVE 4307, CIVE 4308, CIVE 4500 (see **Note** below);
8. 1.5 credits in BUSI 2204, BUSI 3103, BUSI 4105.

#### Note:

Credit in CIVE 4907 [1.0] may replace 0.5 credit under **Item 6** above and 0.5 credit under **Item 7** above.

### Communications Engineering Bachelor of Engineering (21.0 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. 5.0 credits in MATH 2004, SYSC 2001, SYSC 2002, ELEC 2501, CCDP 2100, MATH 3705, SYSC 2003, ELEC 2507, ELEC 2607, SYSC 2004;

#### Third Year

4. 4.5 credits in STAT 2605, ELEC 3509, ELEC 3500, ELEC 3909, SYSC 3503, SYSC 4602, ECOR 3800, SYSC 3500, SYSC 4502;
5. 0.5 credit in Breadth Electives;

#### Fourth Year

6. 3.0 credit in SYSC 4604, SYSC 4504, ECOR 4995, SYSC 4700, SYSC 4701, SYSC 4405;
7. 1.0 credit from SYSC 4907 [1.0], ELEC 4907 [1.0];
8. 0.5 credit in Breadth Elective;
9. 0.5 credit in Breadth Electives or Systems and Computer (SYSC) or Electronics (ELEC) at the 4000-level;
10. 1.0 credit in Complementary Studies Electives.

#### Note:

For **Item 7** above, students should register in SYSC 4907 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 (21.0 credits)

#### First Year

1. 4.5 credits in CHEM 1101, MATH 1004, MATH 1005, MATH 1104, PHYS 1004, ECOR 1010, ECOR 1101, ECOR 1606, CCDP 2100;
2. 0.5 credit in Complementary Studies Electives;

#### Second Year

3. 5.0 credits in MATH 2004, MATH 3705, MAAE 2101, SYSC 2001, SYSC 2002, SYSC 2003, SYSC 2004, ELEC 2501, ELEC 2507, ELEC 2607;

#### Third Year

4. 4.5 credits in STAT 3502, ECOR 3800, SYSC 3001, SYSC 3100, SYSC 3303, SYSC 3501, SYSC 3600, SYSC 3601, ELEC 3500;
5. 0.5 credit in Complementary Studies Electives;

#### Fourth Year

6. 3.0 credits in SYSC 4507, SYSC 4602, SYSC 4800, SYSC 4805, ELEC 4705, ECOR 4995;
7. 1.0 credit from SYSC 4907 [1.0] or ELEC 4907 [1.0];
8. 1.5 credits from: MECH 4503, ECOR 2606 or SYSC or ELEC at the 3000-level or above;
9. 0.5 credit in Complementary Studies Electives.

#### Note:

For **Item 7** 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 (21.0 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 2002, MATH 3705, SYSC 2004, ELEC 2507, ELEC 2607, CCDP 2100;

4. 0.5 credit in Complementary Studies;

#### Third Year

5. 4.5 credits in SYSC 3600, ELEC 3509, ELEC 3500, ELEC 3908, ELEC 3105, STAT 3502, SYSC 3006, SYSC 3501, ELEC 3909;

6. 0.5 credit in Complementary Studies;

#### 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 either in Science Electives for Engineering or in ENVE, CIVE, IDES, MAAE, AERO, MECH at the 2000-level or above, MECH 4503, SYSC 3100, 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 CCDP 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 2002, 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 1000 [1.0], MATH 1004, MATH 1005, MATH 1104, PHYS 1004, ECOR 1010, ECOR 1101, ECOR 1606, CCDP 2100;

**Second Year**

2. 5.0 credits in CHEM 2800, EARTH 2404, MATH 2004, STAT 2507, ENVE 2001, ENVE 2002, CIVE 2200, MAAE 2300, MAAE 2400, ECOR 2606;

**Third Year**

3. 5.0 credits in BIOL 3604, CHEM 2302, ENVE 3001, ENVE 3002, ENVE 3003, ENVE 3004, CIVE 2700, CIVE 3208, CIVE 4307, ECOR 3800;

**Fourth Year**

4. 3.5 credits in ENVE 4003, ENVE 4005, ENVE 4006, ENVE 4101, ENVE 4104, ENVE 4908, ECOR 4995;
5. 1.5 credits from: ENVE 4907 [1.0], ENVE 4002, CIVE 3304, CIVE 4208, CIVE 4301, CIVE 4303, CIVE 4400, MECH 4401, MECH 4403, MECH 4406, MECH 4407, SYSC 3200;
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 1000 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 (21.0 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. 5.0 credits in MATH 2004, MATH 3705, MAAE 2001, MAAE 2101, MAAE 2202, MAAE 2300, MAAE 2400, MAAE 2700, ECOR 2606, CCDP 2100;

**Third Year**

4. 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**

5. 4.0 credits in MAAE 4500, MAAE 4102, MECH 4003, MECH 4406, MECH 4907 [1.0], ECOR 3800, ECOR 4995;
6. 2.0 credits from Mechanical and Aerospace (MECH, AERO, MAAE) at the 4000-level, ELEC 4504.

### Mechanical Engineering with Concentration in Integrated Manufacturing 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. 5.0 credits in MATH 2004, MATH 3705, MAAE 2001, MAAE 2101, MAAE 2202, MAAE 2300, MAAE 2400, MAAE 2700, ECOR 2606, CCDP 2100;

**Third Year**

4. 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**

5. 4.0 credits in MAAE 4500, MAAE 4102, ECOR 4995, MECH 4003, MECH 4406, MECH 4907 [1.0], ECOR 3800;
6. 1.5 credits from MECH 4501, MECH 4503, MECH 4604, MECH 4704, MECH 4705, MECH 4805, MECH 4806;
7. 0.5 credit in MECH, AERO, MAAE at the 4000-level, or ELEC 4504.

**Software Engineering  
Bachelor of Engineering (21.0 credits)**

**First Year**

1. 5.0 credits in MATH 1004, MATH 1005, MATH 1104, MATH 1805, PHYS 1003, PHYS 1004, ECOR 1010, SYSC 1100, SYSC 1101, SYSC 1102;

**Second Year**

2. 5.0 credits in CCDP 2100, CHEM 1101, MATH 2004, ECOR 1101, SYSC 2001, SYSC 2003, SYSC 2100, SYSC 2101, ELEC 2501, ELEC 2607;

**Third Year**

3. 5.0 credits in COMP 3005, ECOR 3800, SYSC 3001, SYSC 3100, SYSC 3101, SYSC 3303, SYSC 4800, SYSC 4005, STAT 3502, SYSC 3600;

**Fourth Year**

4. 3.0 credits in ECOR 4995, SYSC 4101, SYSC 4507, SYSC 4106, SYSC 4806, ELEC 4705;
5. 1.0 credit from SYSC 4907 [1.0] or ELEC 4907 [1.0];
6. 0.5 credit from ELEC 2507, SYSC 3200, SYSC 3501, SYSC 3601, SYSC 4102, SYSC 4405, SYSC 4502, SYSC 4504, SYSC 4505, SYSC 4602, ELEC 4708, ELEC 4509, ELEC 4506;
7. 0.5 credit from the list in Item 6 or from SYSC 4105, SYSC 4107, COMP 2805, COMP 3002, COMP 4000, COMP 4001, COMP 4002, COMP 4003, COMP 4100, COMP 4106;
8. 1.0 credit in Complementary Studies Electives.

**Note:**

1. For **Item 5** 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.

## English

### Department of English Language and Literature Faculty of Arts and Social Sciences

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 and Requirements 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 English at the 1000-level (FYSM 1006 [1.0] or ENGL 1602 [1.0] recommended);
2. 4.0 credits in ENGL 2300 [1.0], ENGL 2802 [1.0], ENGL 3304 [1.0], ENGL 3502 [1.0];
3. 2.0 credits in English at the 4000-level;
4. 3.0 credits in English;

###### B. Credits Not Included in the Major CGPA (10.0 credits):

5. 8.0 credits in electives not in English;
6. 2.0 credits in free electives (may be English).

#### English

##### B.A. Combined Honours (20.0 credits)

###### A. Credits Included in the English Major CGPA (6.0 credits):

1. 1.0 credit in English at the 1000-level (FYSM 1006 [1.0] or ENGL 1602 [1.0] recommended);
2. 3.0 credits in ENGL 2300 [1.0], ENGL 2802 [1.0], ENGL 3502 [1.0];
3. 1.0 credit in English at the 4000-level;
4. 1.0 credit in English;

###### B. Additional Requirements (14.0 credits):

5. The requirements for B.A. Combined Honours in the other discipline;
6. 5.0 credits in electives not in English or the other discipline;
7. 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 English at the 1000-level (FYSM 1006 [1.0] or ENGL 1602 [1.0] recommended);
2. 3.0 credits in ENGL 2300 [1.0], ENGL 2802 [1.0], ENGL 3502 [1.0];
3. 2.0 credits in English;

###### B. Credits Not Included in the Major CGPA (9.0 credits):

4. 7.0 credits not in English;
5. 2.0 credits in free electives (may be in English).

#### Minor in English Language and Literature

Open to all undergraduate degree students not in English programs.

##### Requirements (4.0 credits):

1. 1.0 credit in English at the 1000-level (FYSM 1006 [1.0] or ENGL 1602 [1.0] recommended);
2. 3.0 credits in ENGL 2300 [1.0], ENGL 2802 [1.0], ENGL 3502.
3. The remaining requirements of the major discipline(s) and degree must be satisfied.

**Note:** students in the Bachelor of Humanities program may substitute ENGL 3300 for ENGL 2300, for **Item 2** above.

## Environmental Science

### Institute of Environmental Science

### Faculty of Science

This section presents the requirements for:

- **Environmental Science – B.Sc. Honours with Concentration in**  
**Biology**  
**Chemistry**  
**Earth Sciences**

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**  
(additional courses may be used with approval of the Environmental Science Institute):

#### *Biology*

BIOL 2001, BIOL 2002, BIOL 2200, BIOL 2303, BIOL 3004, BIOL 3102, BIOL 3104, BIOL 3201, BIOL 3205, BIOL 3305, BIOL 3501, BIOL 3601, BIOL 3602, BIOL 3604, BIOL 3605, BIOL 3606, BIOL 3801, BIOL 3802, BIOL 4102, BIOL 4103, BIOL 4104, BIOL 4106, BIOL 4109, BIOL 4300, BIOL 4603, BIOL 4604, BIOL 4901

#### *Chemistry*

CHEM 2203, CHEM 2204, CHEM 2207, CHEM 2208, CHEM 3101, CHEM 3102, CHEM 3105, CHEM 3201, CHEM 3202, CHEM 3205, CHEM 3305, CHEM 3503, CHEM 3504, CHEM 3505, CHEM 3700, CHEM 3800, CHEM 4301, CHEM 4302, CHEM 4700, CHEM 4800

#### *Computer Science*

COMP 1002, COMP 1004, COMP 1005, COMP 1007

#### *Earth Sciences*

ERTH 2101, ERTH 2102, ERTH 2311, ERTH 2312, ERTH 2401, ERTH 2402, ERTH 2403, ERTH 3113,

ERTH 3201, ERTH 3202, ERTH 3205, ERTH 3805, ERTH 3806, ERTH 4005, ERTH 4303

#### *Environmental Science*

ENSC 4001, ENSC 4700

#### *Geography*

GEOG 3101, GEOG 3102, GEOG 3103, GEOG 3104, GEOG 3105, GEOG 3108, GEOG 4101, GEOG 4108

#### *Geomatics*

GEOM 2007, GEOM 3002, GEOM 4003

#### *Mathematics*

MATH 1107, MATH 2007, STAT 2509

#### *Physics*

PHYS 1001, PHYS 1002, PHYS 1007, PHYS 1008

#### *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, CHEM 2800;
3. 0.5 from GEOG 2014, GEOG 3103, GEOG 3104, GEOG 3105, GEOG 3108;
4. 0.5 from ERTH 2402, ERTH 2403, ERTH 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 1003, BIOL 1004, CHEM 1000 [1.0], GEOG 2013, ERTH 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 2014, GEOG 3103, GEOG 3104, GEOG 3105, GEOG 3108;
14. 0.5 from: ERTH 2402, ERTH 2403, ERTH 3205;
15. 2.0 credits in Approved Arts or Social Sciences, or Approved Science;
16. 1.0 credit in free elective.

**Note:** at least 2.0 credits in **Items 1-16** above must be approved Arts or Social Sciences.



**Environmental Science  
B.Sc. Honours (20.0 credits)  
with Concentration in Biology**

- A. Credits Included in the Major CGPA (10.5 credits):**
- 3.5 credits in:  
ENSC 1500, ENSC 2000, ENSC 2001,  
ENSC 3509, ENSC 3906, ENSC 4906 [1.0];
  - 1.0 credit in BIOL 2600, CHEM 2800;
  - 0.5 from:  
GEOG 2014, GEOG 3103, GEOG 3104,  
GEOG 3105, GEOG 3108;
  - 0.5 from EARTH 2402, EARTH 2403, EARTH 3205;
  - 0.5 credit in Approved Science for  
Environmental Science at the 4000-level,  
excluding ENSC 4001;
  - 4.0 credits in:
    - 1.5 credit in: BIOL 2001, BIOL 2002,  
BIOL 2200;
    - 0.5 credit from BIOL 2303, BIOL 3004,  
BIOL 3102, or BIOL 3205;
    - 2.0 credits in:
 

**Ecology focus:**

      - BIOL 3604;
      - 1.0 from: BIOL 3601, BIOL 3602,  
BIOL 3605, BIOL 3606;
      - 0.5 credit BIOL at the 4000-level;

*or*

**Microbiology/genetics focus:**

      - 1.0 credit in: BIOL 3104, BIOL 4103;
      - 0.5 credit from BIOL 2303, BIOL 3102,  
BIOL 3303;
      - 0.5 credit BIOL at the 4000-level;
  - 0.5 credit in Approved Environmental Science  
Specialization;
- B. Credits Not Included in the Major CGPA (9.5 credits):**
- 1.0 credit in:  
MATH 1007, STAT 2507;
  - 3.0 credits in:  
BIOL 1003, BIOL 1004, CHEM 1000 [1.0],  
GEOG 2013, EARTH 1006;
  - 0.5 credit in PHIL 2380;
  - 0.5 credit in CHEM 2302;
  - 0.5 credit in BIOL 2104;
  - 0.5 credit from: GEOG 2014, GEOG 3103,  
GEOG 3104, GEOG 3105, GEOG 3108;
  - 0.5 credit from EARTH 2402, EARTH 2403,  
EARTH 3205;
  - 2.0 credits in Approved Arts and Social  
Sciences;
  - 1.0 credit in free electives.

**Environmental Science  
B.Sc. Honours (20.0 credits)  
with Concentration in Chemistry**

- A. Credits Included in the Major CGPA (10.0 credits):**
- 2.5 credits in:  
ENSC 1500, ENSC 2000, ENSC 3509,  
ENSC 4906 [1.0];
  - 0.5 in BIOL 2600;
  - 0.5 from GEOG 2014, GEOG 3103, GEOG 3104,  
GEOG 3105, GEOG 3108;
  - 0.5 credit from EARTH 2402, EARTH 2403,  
EARTH 3205;
  - 4.5 credits in CHEM 2103, CHEM 2203,  
CHEM 2204, CHEM 2302, CHEM 2303,  
CHEM 2501, CHEM 3305, CHEM 3800,  
CHEM 4800;
  - 1.5 credits in:
 

**Organic focus:**

CHEM 3201, CHEM 3202, CHEM 3205;

*or*

**Inorganic focus:**

    - CHEM 3503, CHEM 3504, and
    - 0.5 credit in CHEM above the 1000-level

*or*

**Physical focus:**

    - CHEM 3100, CHEM 3101, and CHEM 3107  
(see Note, below);
- B. Credits not included in the Major CGPA (10.0 credits):**
- 1.5 credits in MATH 1007, MATH 1107,  
STAT 2507;
  - 3.0 credits in BIOL 1003, BIOL 1004,  
CHEM 1000 [1.0], GEOG 2013, EARTH 1006;
  - 0.5 credit in PHIL 2380;
  - 1.0 credit in PHYS 1003 and PHYS 1004, or  
PHYS 1007 and PHYS 1008;
  - 0.5 credit from BIOL 2104 or BIOL 2200;
  - 0.5 credit from GEOG 2014, GEOG 3103,  
GEOG 3104, GEOG 3105, GEOG 3108;
  - 0.5 credit from EARTH 2402, EARTH 2403,  
EARTH 3205;
  - 1.5 credits in Approved Arts and Social  
Sciences;
  - 1.0 credit in free elective.

**Note:** Students taking the **Physical focus** in Item 6 above are required to take MATH 2007 and MATH 2008 as prerequisites.

**Environmental Science  
B.Sc. Honours (20.0 credits)  
with Concentration in Earth Sciences**

**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 2014, GEOG 3103,  
GEOG 3104, GEOG 3105, GEOG 3108;
4. 0.5 credit from EARTH 2402 or EARTH 2403;
5. 1.0 credit from EARTH 4005, EARTH 4303,  
EARTH 4304, EARTH 4306, EARTH 4307,  
EARTH 4802, EARTH 4804;
6. 3.5 credits in EARTH 2101, EARTH 2102,  
EARTH 2406, EARTH 3201, EARTH 3205,  
EARTH 3805, EARTH 3806;
7. 0.5 credit from EARTH 2311, EARTH 2312,  
EARTH 2405, EARTH 3202, EARTH 3204;

**B. Credits not included in the Major CGPA  
(9.5 credits):**

8. 1.5 credits in MATH 1007, MATH 1107,  
STAT 2507;
9. 3.0 credits in BIOL 1003, BIOL 1004,  
CHEM 1000 [1.0], EARTH 2013, GEOG 2100,  
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 2014, GEOG 3103,  
GEOG 3104, GEOG 3105, GEOG 3108;
14. 0.5 credit from EARTH 2402 or EARTH 2403;
15. 1.5 credits in Approved Arts or Social Sciences;
16. 1.0 credit in free electives.

## Environmental Studies

### Department of Geography and Environmental Studies

### Faculty of Arts and Social Sciences

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.

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### Program Requirements

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#### Environmental Studies B.A. Honours (20.0 credits)

- Credits Included in the Major CGPA (12.0 credits):**
  - 1.0 credit in ISCI 1001 and ISCI 1002;
  - 1.0 credit in ENST 1020/GEOG 1020 and GEOG 1010; or ENST 1001 [1.0];
  - 1.0 credit in ENST 2000 and ISCI 2002;
  - 1.0 credit from: ECON 2201, ECON 2202, GEOG 2005, GEOG 2006, PSCI 2701, PSCI 2702, PSYC 2001, PSYC 2002 or SOCI 2003 [1.0];
  - 0.5 credit in ENST 3000;
  - 0.5 credit in PHIL 2380;
  - 0.5 credit from LAWS 3800, PHIL 3380 or ENST 2900;
  - 0.5 credit from BIOL 2106, ENSC 2001, or ENST 2900, or Science Continuation courses;
  - 1.5 credits in ENST 4000 and 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;
- 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)

- Credits Included in the Major CGPA (8.0 credits):**
  - 1.5 credits in ISCI 1001, ISCI 1002, and ISCI 2002;
  - 1.0 credit in ENST 1020/GEOG 1020 and GEOG 1010; or ENST 1001 [1.0];
  - 1.0 credit in ENST 2000 and ENST 3000;
  - 1.0 credit from ECON 2201, ECON 2202, GEOG 2005, GEOG 2006, PSCI 2701, PSCI 2702, PSYC 2001, PSYC 2002, or SOCI 2003 [1.0];
  - 0.5 credit in PHIL 2380;
  - 0.5 credit from LAWS 3800, PHIL 3380, or ENST 2900;
  - 1.5 credits in Approved Environmental Studies Electives;
  - 1.0 credit in Approved Environmental Studies Electives at the 3000-level or above.
- 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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Courses are grouped under thematic headings to assist students in planning. Additional selections may be made from the departments whose courses appear below. Students may also select courses from Chemistry, Physics, Earth Sciences, Architecture or other disciplines that relate to their chosen theme.

#### Environment, Economy and Development

##### Biology

BIOL 2106

##### Economics

ECON 3805, ECON 3806

##### Environmental Science

ENSC 2001

##### Environmental Studies

ENST 2900

##### European and Russian Studies

EURR 4005

##### Geography/Geomatics

GEOG 2004, GEOG 2200, GEOG 3101, GEOG 3108, GEOG 3209, GEOG 3306, GEOG 4004, GEOG 4300, GEOG 4405

##### History

HIST 2909

##### Sociology/Anthropology

ANTH 3355, SOCI 3805, SOCI 2035, SOCI 4036

##### Technology, Society, Environment

TSES 3001, TSES 3002, TSES 3500, TSES 4001, TSES 4002

#### Environment, Policy and Law

##### Environmental Studies

ENST 2900

Programs - Environmental Studies

*Geography*

GEOG 3206, GEOG 4004, GEOG 4300

*History*

HIST 2909

*Law*

LAWS 2005 [1.0], LAWS 3005, LAWS 3800

*Political Science*

PSCI 2002, PSCI 2003, PSCI 4002

*Sociology/Anthropology*

SOCI 3570, ANTH 3570, ANTH 3355, SOCI 2035,  
SOCI 4036

*Technology, Society, Environment*

TSES 3001, TSES 3002, TSES 3500

**Environmental Attitudes and Ethics**

*Environmental Studies*

ENST 2900

*Geography/Geomatics*

GEOG 2004, GEOG 2300, GEOG 4004, GEOG 4300,  
GEOG 4301

*History*

HIST 2909

*Philosophy*

PHIL 3320, PHIL 3330, PHIL 3340, PHIL 4320,  
PHIL 4330

*Sociology/Anthropology*

ANTH 3355, SOCI 3805, SOCI 2035, SOCI 4036

*Technology, Society, Environment*

TSES 3001, TSES 3002, TSES 3500

**Human Population and the Built Environment**

*Architecture*

ARCU 3902 (Section A), ARCH 4100, ARCH 4105

*Engineering*

CIVE 4303

*Environmental Studies*

ENST 2900

*Geography*

GEOG 3200, GEOG 3700, GEOG 4203, GEOG 4207

*History*

HIST 2909, HIST 3209

*Political Science*

PSCI 3002

*Sociology/Anthropology*

ANTH 3355, SOCI 3730, SOCI 3805, SOCI 4038

**Understanding the Earth**

*Earth Sciences*

ERTH 1001, ERTH 1003, ERTH 1006, ERTH 2311,  
ERTH 2401, ERTH 2402, ERTH 2403

## European and Russian Studies

### Institute of European and Russian Studies

### Faculty of Public Affairs

This section presents the requirements for:

- **European and Russian Studies – B.A. Honours Concentration in**
  - Russian and Eurasian Studies
  - European Studies and European Integration
- **European and Russian Studies – B.A. Combined Honours Concentration in**
  - Russian and Eurasian Studies
  - European Studies and European Integration

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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 and Requirements for the Bachelor of Arts Degree*).

Students must fulfil the requirements listed below for one of the two concentration areas. Students must also attain proficiency in a major European language appropriate to the area concentration, 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. The choice of language depends on the concentration that the student has selected within the European and Russian Studies program.

This requirement may be fulfilled in one of two ways:

- i) Completion of one of the following courses (or equivalent): RUSS 2200 [1.0], FREN 2100 [1.0]; GERM 3105 [1.0]; SPAN 3105 [1.0]; ITAL 3000 [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. 2.0 credits in EURR 2000 [1.0], PSCI 3207, and EURR 4003;
  3. 0.5 credit from ECON 3807 or ECON 3808;
 and one of the following concentrations, also included in the Major CGPA:

#### Concentration in Russian and Eurasian Studies (7.0 credits)

4. 1.0 credit from HIST 2600 [1.0] or HIST 3600 [1.0];
5. 1.0 credit in PSCI which must include either PSCI 3208 or PSCI 3209 and may include PSCI 3704 or PSCI 3705;
6. 0.5 credit from GEOG 3600 or GEOG 4600;
7. 2.0 credit in Russian and Eurasian Studies Electives at the 4000-level, one of which may be EURR 4908 [1.0] (not RUSS);
8. 2.5 credit in Russian and Eurasian Studies Electives;
9. The Institute Language requirement must be satisfied in Russian.

#### Concentration in European Studies and European Integration (7.0 credits)

4. 1.0 credit from: HIST 2509 [1.0], HIST 2801 [1.0], HIST 3800, HIST 3801;
  5. 0.5 credit in PSCI 3206;
  6. 0.5 credit from: PSCI 3704, PSCI 3705;
  7. 0.5 credit from: GEOG 3600 or GEOG 3603;
  8. 2.0 credits in European Studies and European Integration Electives at the 4000-level, one of which may be 4908 [1.0] (not FREN, GERM, ITAL, SPAN);
  9. 2.5 credits in European Studies and European Integration Electives;
  10. The Institute Language requirement must be satisfied in French, German, Italian or Spanish, Polish, or Russian;
- B. Credits Not Included in the Major CGPA (9.5 credits):
    11. 1.0 credit in ECON 1000 or FYSM 1003;
    12. 8.5 credits in free electives.

**Note:** the area concentration 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 2000 [1.0];
2. 0.5 credit from ECON 3807 or ECON 3808;

and one of the following Concentrations, also included in the Major CGPA:

**Concentration in Russian and Eurasian Studies**

3. 1.0 credit from HIST 2600 [1.0] or HIST 3600 [1.0];
4. 1.0 credit from PSCI 3208, PSCI 3209, or PSCI 3704;
5. 1.5 credit in Russian and Eurasian Studies Electives at the 4000-level (not RUSS), one of which may be EURR 4908;
6. 2.0 credits in Russian Area Electives;
7. The Institute Language requirement must be satisfied in Russian;

**Concentration in European Studies and European Integration**

3. 1.0 credit from HIST 2509 [1.0], HIST 2801 [1.0], HIST 3800, or HIST 3801;
4. 0.5 credit in PSCI 3207;
5. 0.5 credit from PSCI 3206, PSCI 3704, or PSCI 3705;
6. 0.5 credit in EURR 4003;
7. 1.0 credit at the 4000-level in European Studies and European Integration, one of which may be EURR 4908 [1.0] (not FREN, GERM, ITAL, SPAN, or RUSS);
8. 2.0 credits in European Studies and European Integration Electives;
9. The Institute Language requirement must be satisfied in French, German, Italian, Spanish, Polish, or Russian;

**B. Credits Not Included in the Major CGPA requirements:**

8. The requirements from the other discipline must be satisfied;
9. 1.0 credit from ECON 1000 or FYSM 1003;
10. 5.0 credits in electives not in courses with code EURR or the other discipline;
11. 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. The Honours essay topic must be in the Concentration area.
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 the concentration requirements included in the Major CGPA in the B.A. Combined Honours.

**EURUS Electives Categories**

**Russian and Eurasian Electives**

*Economics*

ECON 3600, ECON 3808, ECON 4806

*European and Russian Studies*

FYSM 1002 [1.0], FYSM 1601 [1.0], EURR 4002, EURR 4005, EURR 4006, EURR 4007, EURR 4008, EURR 4009, EURR 4100, EURR 4101, EURR 4107, EURR 4202, EURR 4203, EURR 4205, EURR 4908 [1.0]

*Geography*

GEOG 3600, GEOG 4600

*History*

FYSM 1405 (approved sections only), HIST 2205 [1.0], HIST 2600 [1.0], HIST 3600 [1.0], HIST 3605, HIST 4600 [1.0], HIST 4602

*Law*

LAWS 3603, LAWS 3604, LAWS 4806

*Philosophy*

PHIL 2201, PHIL 2202

*Political Science*

PSCI 3208, PSCI 3209, PSCI 3311, PSCI 3704, PSCI 3705, PSCI 3308, PSCI 3309, PSCI 4501, PSCI 4503, PSCI 4505, PSCI 4601

*Russian*

No more than 2.0 credits from RUSS 2100 [1.0], RUSS 2200 [1.0], RUSS 3001, RUSS 3002, RUSS 3002, RUSS 4200, RUSS 4201

*Sociology and Anthropology*

SOCI 2005 [1.0]

**European Studies and European Integration Electives**

*Art History*

ARTH 2403, ARTH 2502, ARTH 2600, ARTH 3505, ARTH 4505

*Economics*

ECON 3600 (or one or both of ECON 3601, ECON 3602), ECON 3807, ECON 3808, ECON 4806, ECON 4807

*European and Russian Studies*

FYSM 1601 [1.0], EURR 4005, EURR 4006, EURR 4008, EURR 4100, EURR 4101, EURR 4104, EURR 4106, EURR 4201, EURR 4204, EURR 4908 [1.0]

*French*

FREN 1100, FREN 2100, FREN 3301, FREN 4101, FREN 4301, (No more than 2.0 credits in FREN, GERM, ITAL and SPAN);

*Geography*

GEOG 3600, GEOG 3603, GEOG 4600

*German*

GERM 2105 [1.0], GERM 3105 [1.0], GERM 3605 [1.0] (No more than 2.0 credits in FREN, GERM, ITAL, SPAN, and RUSS)

*History*

HIST 1001, HIST 1002, HIST 2203 [1.0], HIST 2205 [1.0], HIST 2500 [1.0], HIST 2504 [1.0], HIST 2505 [1.0], HIST 2509 [1.0], HIST 2801 [1.0], HIST 3105, HIST 3108 [1.0], HIST 3115, HIST 3200, HIST 3201 [1.0], HIST 3603, HIST 3800, HIST 3801, HIST 3802, HIST 3902, HIST 4200 [1.0]

*Italian*

ITAL 2000 [1.0], ITAL 3000 [1.0], ITAL 3501,  
ITAL 3503 (No more than 2.0 credits in FREN,  
GERM, ITAL, and SPAN);

*Law*

LAWS 3603, LAWS 3604, LAWS 4806

*Music*

MUSI 1001, MUSI 2103, MUSI 2104, MUSI 2105

*Political Science*

PSCI 3206, PSCI 3308, PSCI 3309, PSCI 3500,  
PSCI 3600, PSCI 3703, PSCI 3704, PSCI 3705,  
PSCI 4103, PSCI 4305 [1.0], PSCI 4505,  
PSCI 4903 [1.0], PSCI 4904 [1.0]

*Philosophy*

PHIL 2101, PHIL 2103, PHIL 2201, PHIL 2202,  
PHIL 3002, PHIL 3003, PHIL 3005, PHIL 3009

*Russian*

No more than 2.0 credits from  
RUSS 2100 [1.0], RUSS 2200 [1.0], RUSS 3001,  
RUSS 3002, RUSS 4200, RUSS 4201

*Sociology and Anthropology*

ANTH 2005, SOCI 2005 [1.0]

*Spanish*

SPAN 2105 [1.0], SPAN 3105 [1.0], SPAN 3605 [1.0],  
SPAN 4105 [1.0] (No more than 2.0 credits in FREN,  
GERM, ITAL, SPAN, and RUSS)

## Film Studies

### School for Studies in Art and Culture Faculty of Arts and Social Sciences

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 and Requirements 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. 4.0 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 3000-level;
  3. 2.0 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 3205 [1.0], FILM 3301, FILM 3303 [1.0], FILM 3505 [1.0], FILM 3701, FILM 3209, FILM 3901.
4. The remaining requirements of the major discipline(s) and degree must be satisfied.

## French

### Department of French Faculty of Arts and Social Sciences

This section presents the requirements for:

- **French – 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**
- **Certificate in French Language Studies (C.F.L.S.)**
- **Certificate in French Translation Studies (C.F.T.S.)**
- **Certificate in French Language Teaching and Learning (C.F.L.T.L.)**

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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 are normally required to pass an oral examination testing their proficiency in spoken French. The examination normally takes place at the end of second year for B.A. General students and at the end of third year for B.A. Honours. Student 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 in: FREN 1100 [1.0];
  2. 1.0 credit in: FREN 2100 [1.0];
  3. 2.0 credits in Initiation aux études françaises FREN 2200, FREN 2300, FREN 2400, FREN 2500;
  4. 4.0 credits in FREN Area Electives at the 3000 or 4000 level;
  5. 2.0 credits in FREN Area Electives at the 4000 level;
- B. **Credits Not Included in the Major CGPA (10.0 credits):**
  6. 8.0 credits in electives not in FREN;
  7. 2.0 credits in free electives.

#### French

##### B.A. Combined Honours (20.0 credits)

- A. **Credits Included in the Major CGPA (7.0 credits):**
  1. 1.0 credit in FREN 1100 [1.0];
  2. 1.0 credit in FREN 2100 [1.0];
  3. 2.0 credits in Initiation aux études françaises FREN 2200, FREN 2300, FREN 2400, FREN 2500;
  4. 2.0 credits in FREN at the 3000 level;
  5. 1.0 credit in FREN at the 4000 level;
- B. **Additional Requirements (8.0 credits):**
  6. The requirements from the other discipline must be satisfied;
  7. 5.0 credits in electives not in FREN or the other discipline;
  8. Sufficient free electives to make 20.0 credits for the degree.

#### 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. 1.0 credit in FREN 1100 [1.0];
2. 1.0 credit in FREN 2100 [1.0];
3. 2.0 credits in Initiation aux études françaises FREN 2200, FREN 2300, FREN 2400, FREN 2500;
4. 2.0 credits in FREN at the 3000 level;
5. 1.0 credit in FREN at the 4000 level.

#### French

##### B.A. General (15.0 credits)

- A. **Credits Included in the Major CGPA (6.0 credits):**
  1. 1.0 credit in FREN 1100 [1.0];
  2. 1.0 credit in FREN 2100 [1.0];
  3. 2.0 credits in Initiation aux études françaises FREN 2200, FREN 2300, FREN 2400, FREN 2500;
  4. 2.0 credits in FREN at the 3000 level;
- B. **Credits Not Included in the Major CGPA (9.0 credits):**
  5. 7.0 credits not in FREN;
  6. 2.0 credits in free electives.

## Minor in French

Open to all undergraduate degree students not in French programs.

### Requirements (4.0 credits):

1. 3.0 credits in FREN at the level of FREN 1100 or higher;
2. 1.0 credit in FREN at the 3000-level;
3. 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):

1. 3.0 credits in FINS;
2. 1.0 credit in FINS at the 3000-level;
3. The remaining requirements of the major discipline(s) and degree must be satisfied.

## Certificate in French Language Studies (C.F.L.S.)

A 5.0-credit undergraduate certificate designed for both part-time and full-time students wishing to perfect their spoken and written French. Students may also earn the Certificate as part of a B.A. Honours in French, or an Honours program in any other discipline, or as part of a Combined B.A. Honours in French and another discipline.

### Requirements (5.0 credits):

1. 1.0 credit in FREN 1100 [1.0];
2. 1.0 credit in FREN 2100 [1.0];
3. 1.0 credit in Initiation aux études françaises FREN 2200, FREN 2300, FREN 2400, FREN 2500;
4. 1.0 credit in FREN 3701, FREN 3702;
5. 1.0 further credit in FREN at the 3000-level.

## Certificate in French Language Teaching and Learning (C.F.L.T.L.)

A 5.0-credit undergraduate certificate designed for both part-time and full-time students wishing to improve their knowledge and appreciation of the teaching and learning process. Students may also earn the Certificate as part of a B.A. (Honours) in French, or an Honours program in any other discipline, or as part of a combined B.A. (Honours) in French and another discipline.

### Requirements (5.0 credits):

1. 1.0 credit in FREN 1100 [1.0];
2. 1.0 credit in FREN 2100 [1.0];
3. 1.0 credit in: Initiation aux études françaises FREN 2200, FREN 2400;
4. 2.0 credits in French Language Teaching and Learning, FREN 3601, FREN 3602, FREN 4601, FREN 4602.

## Certificate in French Translation Studies (C.F.T.S.)

A 5.0-credit undergraduate certificate designed for both part-time and full-time students wishing to improve their translation skills. While not a professional program, this certificate should meet the needs of those who are occasionally called upon to translate in their work environment. Students may also earn the Certificate as part of a B.A. Honours in French, or an Honours program in any other discipline, or as part of a Combined B.A. Honours in French, and another discipline.

### Requirements (5.0 credits):

1. 1.0 credit in FREN 1100 [1.0];
2. 0.5 credit in Initiation aux études françaises FREN 2500;
3. 0.5 credit from: Initiation aux études françaises FREN 2200, FREN 2300, FREN 2400;
4. 2.0 credits in FREN 3501, FREN 3502, FREN 4501, FREN 4502;
5. 1.0 credit tutorial in translation FREN 4801.

**Note:** students are not permitted to count the same course(s) towards more than one certificate offered by the Department of French. Should any student undertake another certificate, appropriate course substitutions will be required.

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## FREN Area Electives

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### *Littérature nationales*

FREN 3001, FREN 3002, FREN 3003, FREN 4001, FREN 4002, FREN 4003

### *Thèmes*

FREN 3101, FREN 3102, FREN 3103, FREN 4101, FREN 4102, FREN 4103

### *Approches*

FREN 3201, FREN 3202, FREN 4201, FREN 4202

### *Dimensions culturelles*

FREN 3301, FREN 3302, FREN 3303, FREN 4301, FREN 4302, FREN 4303

### *Réflexions linguistiques*

FREN 3401, FREN 3402, FREN 3403, FREN 4401, FREN 4402, FREN 4403

### *Traduction*

FREN 3501, FREN 3502, FREN 4501, FREN 4502

### *Enseignement et apprentissage du français*

FREN 3601, FREN 3602, FREN 4601, FREN 4602

### *Langue*

FREN 3701, FREN 3702

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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

*Interdisciplinary Approaches: French Links*

FINS 3605, FINS 3606, FINS 3607

## Geography

### Department of Geography and Environmental Studies Faculty of Arts and Social Sciences

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 Geomatics - B.Sc. Honours (refer to Geomatics programs section)**
- **Geography with Concentration in Physical Geography - B.Sc. Honours**
- **Minor in Geography**
- **Minor in Geography: Physical Geography**

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 and Requirements 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 and Requirements 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 other approved field course) and GEOG 3900;
  6. 1.0 credit from GEOG 4904 [1.0] or GEOG 4909 [1.0];
  7. 2.0 credits in GEOG and/or GEOM at the 3000-level;
  8. 2.0 credits in GEOG and/or GEOM at the 4000-level;
- B. **Credits Not Included in the Major CGPA (10.0 credits):**
  9. 8.0 credits in electives not in GEOG or GEOM;
  10. 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 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 3101, 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 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 Geography 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.

**Course Categories for B.Sc. Geography***Geography Science Electives*

GEOG 1010, GEOG 2005, GEOG 2006, GEOG 2013, GEOG 2014, GEOG 3000, GEOG 3003, GEOG 3101, GEOG 3102, GEOG 3103, GEOG 3104, GEOG 3105, GEOG 3108, GEOG 4000, GEOG 4004, GEOG 4005, 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 and Requirements for the Bachelor of Science Degree* for a list of courses in this category.

*Experimental Science Electives*

BIOL 1003, BIOL 1004, CHEM 1000, PHYS 1001, PHYS 1002, PHYS 1003, PHYS 1004, PHYS 1007, PHYS 1008

*Approved Arts or Social Sciences Electives*

See *Academic Regulations and Requirements for the Bachelor of Science Degree* for a list of courses in this category.

**B.Sc. Program Requirements****Geography with Concentration in Physical Geography B.Sc. Honours (20.0 credits)****A. Credits Included in the Major CGPA (9.0 credits):**

1. 1.0 credit in GEOG 2013 and EARTH 1006;
2. 1.0 credit in GEOM 2004 and GEOG 2014;
3. 2.5 credits in GEOG 3101, GEOG 3102, 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 approved credits in Science, Computer Science or Engineering;
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.

**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 1003, BIOL 1004, GEOG 2013 and GEOG 2014;
2. 10.0 credits in BIOL or BIOC and Science Geography at the 2000-level or above, satisfying collectively:
  - a) 0.5 credit from BIOL 3605, BIOL 3606, GEOG 3000, GEOG 4000;
  - b) at least 4.0 credits in BIOL or BIOC;
  - c) at least 4.0 credits in GEOG and/or GEOM;
  - d) at least 4.0 credits are at the 3000-level or above;
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 CHEM 1000 [1.0], MATH 1007;
5. 0.5 credit in 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;
8. 1.0 credit in Science Faculty Electives;
9. 1.0 credit in Science Faculty Electives or COMP, not in BIOL or GEOG or GEOM, at the 2000-level or above;
10. 1.0 credit in free electives.

**Notes:**

1. Courses in Physical Geography are listed in the *Academic Regulations and Requirements for the Bachelor of Science Degree* section as Science Geography courses.
2. For **Item 7** above, 1.0 credit in Geography, other than the Physical Geography, is recommended;
3. 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.

**Earth Sciences and Physical Geography  
B.Sc. Combined Honours (20.0 credits)**

**A. Credits Included in the Major CGPA  
(12.0 credits):**

1. 1.5 credits in GEOG 2013, GEOG 2014 and EARTH 1006 (preferred), or EARTH 1007;
2. 1.5 credits in EARTH 2101, EARTH 2102, and EARTH 2406;
3. 0.5 credit from EARTH 2801 or ENSC 2000;
4. 2.0 credits in EARTH at the 3000-level or above;
5. 1.0 credit in EARTH at the 4000-level;
6. 1.5 credits in Science Geography or Geomatics Courses at the 2000-level or above;
7. 2.0 credits in GEOM 3002, GEOG 3102, GEOG 3105, and GEOG 3108;
8. 1.0 credit in Science Geography or Geomatics Courses at the 4000-level;

9. 1.0 credit from GEOG 4906 [1.0] or EARTH 4908 [1.0];

**B. Credits Not Included in the Major CGPA  
(8.0 credits):**

10. 2.0 credits in CHEM 1000 [1.0], MATH 1007 and MATH 1107;
11. 1.0 credit in PHYS 1003 and PHYS 1004, or PHYS 1007 and PHYS 1008;
12. 1.0 credit in MATH and/or STAT at 2000-level or above; and/or in COMP (STAT 2507 and COMP 1004 are recommended);
13. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
14. 1.5 credits in Approved Arts or Social Sciences;
15. 2.0 credits in free electives.

**Notes:**

1. EARTH 1000 [1.0] or EARTH 1005 [1.0] or GEOG 1005 [1.0], all no longer offered, can substitute for EARTH 1006 and GEOG 2013; GEOL 1008 (no longer offered) can substitute for EARTH 1007 or EARTH 1006; GEOG 2102 can substitute for GEOG 2014.
2. A Human Geography course is recommended in the program.
3. The course ENSC 2000 precludes GEOG 2909.
4. To meet professional registration requirements for geoscience in Ontario, students must have at least 0.5 credit in each of BIOL and PHYS.

**Earth Sciences and Physical Geography:  
Concentration in Terrain Science  
B.Sc. Combined Honours (20.0 credits)**

**A. Credits Included in the Major CGPA  
(12.5 credits):**

1. 1.0 credit in GEOG 2014 and EARTH 1006 (preferred), or EARTH 1007;
2. 2.0 credits in EARTH 2101, EARTH 2102, EARTH 2406, and EARTH 2802;
3. 0.5 credit from EARTH 2801 or ENSC 2000;
4. 2.0 credits in EARTH 3201, EARTH 3202, EARTH 3205, and EARTH 3806;
5. 1.0 credit in EARTH at the 4000-level;
6. 0.5 credit from GEOG 2006 or STAT 2507;
7. 1.5 credits in GEOM 2004, GEOM 2007, and GEOG 2013;
8. 2.0 credits in GEOM 3002, GEOG 3102, GEOG 3105, and GEOG 3108;
9. 1.0 credit in GEOG 4101 and GEOG 4108;
10. 1.0 credit from EARTH 4908 [1.0] or GEOG 4906 [1.0];

**B. Credits Not Included in the Major CGPA  
(7.5 credits):**

11. 1.0 credit in CHEM 1000 [1.0];
12. 1.0 credit in MATH 1007 and MATH 1107;

13. 1.0 credit in (PHYS 1003 and PHYS 1004) or (PHYS 1007 and PHYS 1008);
14. 0.5 credit from COMP 1003, COMP 1004 or COMP 1007;
15. 1.0 credit in Science Faculty Electives at the 2000-level or above;
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 free electives.

**Notes:**

To meet professional registration requirements for geoscience in Ontario, students must have at least 0.5 credit in each of BIOL and PHYS.

**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 in 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 3101, GEOG 3102, GEOG 3103, GEOG 3104, GEOG 3105, GEOG 3108, 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

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 and Requirements 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 and Requirements 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 2005, GEOG 2006, GEOG 2100,  
GEOG 2102, GEOG 3000, GEOG 3003,  
GEOG 3101, GEOG 3102, GEOG 3103,  
GEOG 3104, GEOG 3105, GEOG 3108,  
GEOG 4000, GEOG 4004, GEOG 4005,  
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 and Requirements for the Bachelor of Science Degree* for a list of courses in this category.

#### *Experimental Science Electives*

BIOL 1003, BIOL 1004, CHEM 1000, PHYS 1001,  
PHYS 1002, PHYS 1003, PHYS 1004, PHYS 1007,  
PHYS 1008

#### *Approved Arts or Social Sciences Electives*

See *Academic Regulations and Requirements 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, 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. 1.0 credit in GEOG 2100, EARTH 1006;
  2. 1.5 credits in 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 approved credits in Science, Computer Science or Engineering;
  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 in either 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.

## Greek and Roman Studies

### College of the Humanities

### Faculty of Arts and Social Sciences

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 Academic Regulations and Requirements 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. 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. 3.0 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 (4.0 credits)

Open to all undergraduate degree students not in the Greek and Roman Studies programs.

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

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

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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 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 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:

- the world before 1750
- modern Europe
- North America
- Asia, Africa, and Latin America
- 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, such as HIST 3808 [1.0], 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 4602, HIST 4603, HIST 4604, HIST 4700 [1.0], HIST 4802 [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 Classics). 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

- 7.0 credits in history including 0.5 credit in each of four of the five history fields below the 4000-level and satisfying:
  - 1.0 credit at the 1000-level;
  - 3.0 credits at the 2000-level;
  - 3.0 credits at the 3000-level;
- 1.0 credit in HIST 3808 [1.0];
- 2.0 credits in 4000-level history seminars.

##### Honours Research Essay Pattern

- 5.0 credits in history including 0.5 credit in each of four of the five history fields below the 4000-level and satisfying:
  - 1.0 credit at the 1000-level;
  - 2.0 credits at the 2000-level;
  - 1.0 credit at the 3000-level;
  - 1.0 credit at the 2000- or 3000-level;
- 1.0 credit in HIST 3808 [1.0];
- 2.0 credits in 4000-level history seminars;
- 2.0 credits in HIST 4909 [2.0];

#### B. Credits Not Included in the Major CGPA (10.0 credits):

- 8.0 credits in electives not in HIST;
- 2.0 credits in free electives (may be HIST).

#### Notes:

- One of the history seminar credits in **Item 3** 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.
- Students should endeavour to have one course at the 2000- or 3000-level in the area of each fourth-year seminar.
- 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 4.

#### 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 2205 [1.0], HIST 2806 [1.0], HIST 3200 [1.0] HIST 3605, HIST 3700, HIST 3703, 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. 1.0 credit in HIST 3808 [1.0];
4. 1.0 credit in HIST 4802 [1.0];
5. 1.0 credit in 4000-level history seminar(s);

#### B. Credits Not Included in the Major CGPA (9.0 credits):

6. 8.0 credits in electives not in HIST;
7. 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. 1.0 credit in HIST 3808 [1.0];
3. 1.0 credit in HIST at the 4000-level;

#### B. Additional Credit Requirements (14.0 credits):

4. The requirements of the other discipline must be satisfied;
5. 5.0 credits not in HIST or the other field;
6. 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.

## 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.

## Mention : Français

Students in the B.A. (Honours) or B.A. program in history may qualify for the notation *Mention : Français* by fulfilling the requirements outlined below. Those wishing to pursue this path should consult with the Department's *Mention : Français* adviser. Approval of this adviser is required for all courses under *Mention : Français*.

History courses presented in fulfilment of *Mention : Français* requirement can double as courses to satisfy History B.A. (Honours) or B.A. requirements.

Students enrolling in courses at the University of Ottawa will do so through the University of Ottawa Exchange Program. To enrol in courses in French at another university, students must first obtain a Letter of Permission from the Registrar's Office.

### *Mention : Français*

#### B.A. Honours and B.A. Honours (Combined)

To graduate with the notation *Mention : Français* B.A. Honours History students must include in their program the following:

1. 1.0 credit in advanced study of the French language (FREN 2100);
2. 1.0 credit in French-Canadian culture and literature (FREN 2300);
3. 1.0 credit in history taught in French at the 3000-level, chosen from HIST 3900 [1.0] and HIST 3901, if available, or an equivalent course at the University of Ottawa or another university;



4. Either HIST 4908 [1.0], or a 1.0 credit history seminar at the 4000-level taught in French at the University of Ottawa or another university. All written work must be submitted in French;
5. Combined Honours students must meet the *Mention : Français* requirements of both Honours disciplines.

### *Mention : Français*

#### **B.A. General**

To graduate with the notation *Mention : Français* B.A. General History students must include in their program the following:

1. 1.0 credit in advanced study of the French language (FREN 2100);
2. 1.0 credit in French-Canadian culture and literature (FREN 2300);
3. 1.0 credit in history taught in French at the 3000-level, chosen from HIST 3900 [1.0] and HIST 3901, if available, or an equivalent course at the University of Ottawa or another university.

## Human Rights

### Human Rights Program Committee Faculty of Arts and Social Sciences

This section presents the requirements for:

- **Human Rights – B.A. Combined Honours**

Human Rights is available only as a Combined Honours program which can be taken in conjunction with any other B.A. Combined Honours discipline.

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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. (see the *Academic Regulations and Requirements 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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### Program Requirements

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#### Human Rights

#### B.A. Combined Honours (20.0 credits)

- Credits Included in the Major CGPA (7.0 credits):**
  - 1.0 credit in HUMR 1001 [1.0], FYSM 1104, or FYSM 1502 (specifically the section on Global Governance and Human Rights), or an approved First-Year Seminar (FYSM);
  - 1.5 credits in LAWS 2105, PHIL 2103, and PSCI 3307;
  - 1.0 credit from LAWS 3503, LAWS 3509, LAWS 3604, LAWS 4102, LAWS 4603, LAWS 4604, or LAWS 4606;
  - 0.5 credit from PHIL 2101, PHIL 2102, PHIL 2306, PHIL 3103, or PHIL 3300 [1.0];
  - 0.5 credit from PSCI 3109, PSCI 3802, PSCI 4109, or PSCI 4206;
  - 1.0 credit from SOCI 2010, SOCI/ANTH 2020, SOCI 2700/ANTH 2700 [1.0]; SOCI 3010, SOCI/ANTH 3020, ANTH 3025, SOCI/ANTH 3027, ANTH 3600, SOCI 4010, or SOCI/ANTH 4020;
  - 0.5 credit in Cultural and Cross-cultural Contexts (see list below);
  - 1.0 credit in Human Rights Electives (see list below);

- In **Items 1 to 8 above**, there must be at least 1.0 credit at the 4000-level;
- Additional Credit Requirements (13.0 credits):**
    - The requirements for the other discipline must be satisfied;
    - Sufficient free electives to make 20.0 credits total for the program.

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### Human Rights Electives

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#### *Human Rights Law, Institutions and Practices*

HUMR 4905, LAWS 2005 [1.0], LAWS 3401, LAWS 3501, LAWS 3503, LAWS 3603, LAWS 3604, LAWS 3509, LAWS 4006, LAWS 4102, LAWS 4304, LAWS 4309, LAWS 4604, LAWS 4605, LAWS 4607, PSCI 3600, PSCI 4109, SOWK 3206

#### *Contexts of Inequality and Power*

EURR 4002, EURR 4008, GEOG 2200, GEOG 3307, HIST 2801 [1.0], HIST 3106, HIST 3305 [1.0], HIST 3504, HIST 3506, HIST 3705, HIST 3706, DIST 4401, PSCI 2500, PSCI 2601, PSCI 2602, PSCI 3006, PSCI 3100, PSCI 3101 [1.0], PSCI 3105 [1.0], PSCI 3702, PSCI 3204, PSCI 3502, PSCI 3802, PSCI 4105, PSCI 4203, PSCI 4205, PSCI 4206, PSCI 4208, PSCI 4500, PSCI 4505, SOWK 2101, SOWK 3101, SOWK 3205, SOWK 4102, SOWK 4104, SOWK 4300, SOCI 2700/ANTH 2700 [1.0], ANTH 2040, SOCI 2200 [1.0], SOCI 2010, SOCI/ANTH 2020, SOCI/ANTH 3020, ANTH 2850, ANTH 3600, SOCI 3420, SOCI 3010, SOCI/ANTH 3027, SOCI 4010, SOCI 4040, SOCI/ANTH 4750, WOMN 2800

#### *Ethics and Political Theory*

PHIL 1804, PHIL 2101, PHIL 2102, PHIL 2104, PHIL 2306, PHIL 2804, PHIL 2900 [1.0], PHIL 3101, PHIL 3102, PHIL 3103, PHIL 3300 [1.0], PHIL 3408, PHIL 4105, PHIL 4106, PHIL 4403, PHIL 4404, PHIL 4407, PHIL 4408, PSCI 3109, PSCI 4306, PSCI 4307, LAWS 3101, LAWS 3102, LAWS 4101, LAWS 4102, LAWS 4103, LAWS 4104, LAWS 4800

#### *Cultural and Cross-Cultural Contexts*

HIST 1705 [1.0], HIST 2307 [1.0], HIST 2600 [1.0], HIST 2705 [1.0], HIST 2708 [1.0], HIST 2805 [1.0], HIST 2806 [1.0], HIST 3406, HIST 3407, HIST 3503 [1.0], RELI 1000, RELI 1001, RELI 2005, RELI 2106, RELI 2305 [1.0], RELI 2509, RELI 2702, RELI 2708, FYSM 1401[1.0], ANTH 2040, ANTH 3025, ANTH 3600

## Humanities

### College of the Humanities Faculty of Arts and Social Sciences

This section presents the requirements for:

- Humanities – B.Hum. Honours
- Humanities – B.Hum. Combined Honours
- Biology and Humanities – B.Hum. 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 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

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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

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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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### Program Requirements

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#### 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], and HUMS 4000 [1.0];
2. 7.0 credits in CLCV 2000 [1.0], HUMS 1005,  
HUMS 2101, HUMS 3101, HUMS 3102,  
HUMS 3103, HUMS 3200 [1.0], HUMS 4103,  
HUMS 4104, RELI 1402, and RELI 2208 [1.0];
3. 1.0 credit from ENGL 1000 [1.0],  
ENGL 1602 [1.0], HIST 1001 [1.0],  
PHIL 1600 [1.0], or PSCI 1000 [1.0];
4. 1.0 credit fulfilling the Language Requirement;
5. 1.0 credit from ENGL 3601, ENGL 3603,  
ENGL 4607, ENGL 4608; HIST 3200 [1.0],  
PHIL 3005, PSCI 4306, PSCI 4307, or  
HIST 2205 [1.0];
6. 1.0 credit from HUMS 4901, HUMS 4902,  
HUMS 4903, or HUMS 4904;
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 3210 [1.0], or  
PSCI 2300 [1.0];
8. 1.0 credit from ENGL 3304 [1.0], HIST 2203 [1.0],  
HUMS 3205 [1.0], PHIL 3002, or PHIL 3003;
9. 3.0 credits in electives.

#### 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 6 below may also be used to satisfy up to 2.0 credits of the requirements of the other discipline under Item 7. A core seminar in Humanities used to fulfil the requirements of the other discipline will satisfy the 1.5 resident 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. 7.0 credits in CLCV 2000 [1.0], HUMS 1005,  
HUMS 2101, HUMS 3101, HUMS 3102,  
HUMS 3103, HUMS 3200 [1.0], HUMS 4103,  
HUMS 4104; RELI 1402, and RELI 2208 [1.0];
3. 1.0 credit from ENGL 1000 [1.0],  
ENGL 1602 [1.0], HIST 1001 [1.0],  
PHIL 1600 [1.0], or PSCI 1000 [1.0];
4. 1.0 credit fulfilling the language requirement;
5. 0.5 credit from ENGL 3601, ENGL 3603,  
ENGL 4607, ENGL 4608; HIST 3200 [1.0],  
PHIL 3005, PSCI 4306, PSCI 4307, or  
HIST 2205 [1.0];
6. 0.5 credit from HUMS 4901, HUMS 4902,  
HUMS 4903, or HUMS 4904;

7. 6.0 credits in electives that include the requirements for the other discipline of the combined degree or the minor.

## **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. 6.0 credits in CLCV 2000 [1.0], HUMS 1005,  
HUMS 2101, HUMS 3101, HUMS 3102,  
HUMS 3103, HUMS 3200 [1.0]; RELI 1402, and  
RELI 2208 [1.0];
3. 0.5 credit from HUMS 4901, HUMS 4902, HUMS  
4903, or HUMS 4904;
4. 1.0 credit fulfilling the language requirement;
5. 0.5 credit from ENGL 3601, ENGL 3603,  
ENGL 4607, ENGL 4608; HIST 3200 [1.0],  
PHIL 3005, PSCI 4306, PSCI 4307, or  
HIST 2205 [1.0];

#### **B. Credits Included in the Biology CGPA (8.0 credits):**

6. 4.0 credits in BIOL 1003, BIOL 1004, BIOL 2001,  
BIOL 2104, BIOL 2200, BIOL 2303, BIOL 3201,  
and BIOL 3305;
7. 2.0 credits in CHEM 1000 [1.0], CHEM 2203,  
and CHEM 2204;
8. 2.0 credits in BIOL or BIOC at the 3000 level or  
above.

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### **Language Requirement**

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Normally GREK 2200 and GREK 2201, or LATN 2200 and LATN 2201, FREN 1100 [1.0], FREN 2100 [1.0], or GERM 2105 [1.0], or ITAL 2000 [1.0], or RELI 2902 [1.0], or RUSS 2100 [1.0], or SPAN 2105 [1.0], chosen in consultation with the College Academic Adviser. Students may need to fulfil a prerequisite before taking these courses.

# Industrial Design

## School of Industrial Design

### Faculty of Engineering and Design

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 and Requirements 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 and Requirements 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. (21.0 credits)

#### First Year

1. 6.0 credits in:  
IDES 1000, IDES 1001, IDES 1300, IDES 1301,  
ECON 1000 [1.0], MATH 1007, MATH 1107,  
PSYC 1001, PSYC 1002, PHYS 1007, PHYS 1008  
(PHYS 1007 and PHYS 1008 each require a grade  
of C- or higher);

#### 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, 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 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.

## Information Technology

### Carleton School of Information Technology Algonquin College of Applied Arts and Technology

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 and Requirements 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

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### Course Categories

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#### Arts and Humanities Electives

The following courses are recommended to satisfy the Arts and Humanities requirements in the B.I.T. programs below.

##### Interactive Multimedia and Design

- **Carleton University Electives**

ACUL 1105	Introduction to Media and Technology in Art and Culture
ACUL 2105	Survey of Computer Applications/ Programming in Music
PHIL 2104	Computer Ethics
PHIL 2106	Information Ethics

- **Algonquin College Electives**

Please check the current list of approved electives on the program web site.

##### Network Technology

Please check the current list of approved electives on the program web site.

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### Program Requirements

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#### Information Technology

##### B.I.T. (20.0 credits)

##### Interactive Multimedia and Design

###### A. 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 4004, IMD 4901 [1.5] and IMD 4902 [1.0];

###### B. 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 credit in IMD 3003, BIT 2002, and BIT 3003;
- 1.0 credit in BIT 4000 and IMD 4002;
- 1.5 credits in electives for IMD.

#### Information Technology

##### B.I.T. (20.0 credits)

##### Network Technology

###### A. 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 3900, and NET 3901;
- 2.5 credits in NET 4002, NET 4005, NET 4006, NET 4007, and NET 4900;

###### B. 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 3002, NET 3004, NET 3006, NET 3007, and NET 3009;
- 2.0 credits in NET 4000, NET 4001, NET 4003, and NET 4008;
- 0.5 credit in Arts and Humanities electives for NET.

## Integrated Science

### Integrated Science Institute Faculty of Science

This section presents the requirements for:

- **Integrated Science – B.Sc. Honours**
- **Integrated Science – B.Sc. Honours with concentrations in**
  - Forensic Science
  - Health Science
  - 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
  - Health Science
  - Information Science
  - Information Technology
  - Science and Ethics
  - Science and Policy
  - Science and Technology
  - Science and the Arts
  - Science Education

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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.Sc. programs including those relating to Science Continuation and Breadth requirements (see the *Academic Regulations for the Bachelor of Science Degree*),

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### General Information

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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 4908 [1.0], INSC 3909) as an important element in the program.

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### Academic Performance Evaluation for IS

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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.)

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### Program Requirements

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#### 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 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 1003, BIOL 1004, CHEM 1000 [1.0], EARTH 1006, EARTH 1007, PHYS 1007, PHYS 1008;
  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.

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, SYSC1100, SYSC 1101, SYSC 1102, SYSC 2001, SYSC 2002, SYSC 2003, SYSC 2004, SYSC 2100, SYSC 3001, SYSC 3006, SYSC 3100, SYSC 3200.

## 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 ;
  - 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, BIOL 1004, CHEM 1000 [1], EARTH 1006, EARTH 1007, PHYS 1007, PHYS 1008 ;
  - 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.

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, SYSC1100, SYSC 1101, SYSC 1102, SYSC 2001, SYSC 2002, SYSC 2003, SYSC 2004, SYSC 2100, SYSC 3001, SYSC 3006, SYSC 3100, SYSC 3200.

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## Concentrations

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### 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 (6.0 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 2004 [1.0] or SOCI 2445 and SOCI 2450.

### Health Science

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 (5.5 credits):

- 2.0 credits Biology: BIOL 2001, BIOL 2104, BIOL 2200, BIOL 3305;
- 1.0 credit in CHEM 2203, CHEM 2204;
- 1.0 credit in ENGL;
- 1.5 credits in PSYC 2200, PSYC 3204, PSYC 3406;
- 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 (7.0 credits):

- 2.5 credits in COMP 1002, 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;
- 3.0 credits in PSYC 1001, PSYC 1002, PSYC 2700, PSYC 2800, PSYC 3800 [1.0];

### Information Technology

A science sequence selected from Computer Science and Mathematics & 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 1002, 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 from TSES 3001, TSES 4001, TSES 4002, TSES 4003, TSES 4005, TSES 4006, TSES 4007;
- 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. 3.0 credits in PHIL 2101, PHIL 2102, PHIL 2106, PHIL 2380, PHIL 2804, PHIL 3408;
2. 1.0 credit from PHIL 3103, PHIL 3301, PHIL 4403, PHIL 4404;
3. 1.0 credit in PHIL.

### 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 credit in SOCI 1001, SOCI 1002, SOCI 2035;
2. 1.0 credit in TSES 2305, TSES 3001;
3. 2.0 credits from TSES 4001, TSES 4002, TSES 4005, TSES 4006, TSES 4007;
4. 0.5 credit in TSES.

### 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.

#### Required Courses (10.0 credits):

1. 5.0 credits in the chosen (for teaching) area of science at 2000-level or above;
2. 3.0 credits in the chosen (for teaching) non-science or second science;
3. 2.0 credits in PSYC 1001, PSYC 1002, PSYC 2500, PSYC 2700.

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. Two examples are:

**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.

**Integrated Science with a Minor in Mass Communication** - a study of media communications and the public sphere with particular emphasis on the communication of scientific issues and information by combining a science sequence with the requirements for the Minor in Mass Communication.



## Journalism

### School of Journalism and Communication Faculty of Public Affairs

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 for graduation by the School of Journalism.

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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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### 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 from: FREN 1002 [1.0], FREN 1100 [1.0];
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.

#### Notes:

1. 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.
2. **Item 7** above may be satisfied by an alternate French language credit approved by the School.

Those who already have capacity in French may fulfil this requirement by passing a language test administered on an *ad hoc* basis by the School of Journalism, but will be required to take an approved optional credit. Students who have completed French Immersion in High School, or who have obtained a Bilingual Diploma or Certificate will be regarded as having met this French language requirement, but will be required to take an approved optional credit.

Students from abroad whose mother tongue is other than English or students whose research interests

require another language may obtain permission from the Supervisor of Undergraduate Studies to substitute this language for French.

### 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 credit from: FREN 1002 [1.0], FREN 1100 [1.0];
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

Honours programs may be taken by students in the four-year undergraduate program in which Journalism is combined with other disciplines. Such programs are available with the following subjects:

Canadian Studies, Economics, English, French, History, Mass Communication, Political Science, Law, Philosophy, Sociology and Women's Studies. Details of the specific requirements for those programs may be obtained from the Department concerned. Special arrangements may be made for other combinations in consultation with the Supervisor of Undergraduate Studies (Journalism). 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 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 Combined Honours programs 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 as a Bachelor of Arts student, must also transfer to the Bachelor of Arts Honours program. Such students cannot request an Internal Degree Transfer until 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 credit from: FREN 1002 [1.0], FREN 1100 [1.0];
7. 1.0 credit from: HIST 1300 [1.0], HIST 2303 [1.0], HIST 2304 [1.0] or HIST 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.

## Law

### Department of Law Faculty of Public Affairs

Web site: [carleton.ca/law/](http://carleton.ca/law/)

This section presents the requirements for:

- Law - B.A. Honours
- Law - B.A. Honours with Concentration in Law, Policy and Government Business Law
- Law - B.A. Combined Honours
- Law - B.A. Combined Honours with Concentration in Law, Policy and Government Business Law
- 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. 3.0 credits in LAWS 2003 [1.0], LAWS 2004 [1.0], and LAWS 2005 [1.0];
  3. 0.5 credit in LAWS 3907;
  4. 3.0 credits in LAWS at the 4000-level or above;
  5. 1.5 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.

**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.

#### Law

#### B.A. Combined Honours (20.0 credits)

- A. Credits Included in the Law Major CGPA (6.0 credits):
  1. 1.0 credit in LAWS 1000 [1.0];
  2. 2.0 credits from LAWS 2003 [1.0], LAWS 2004 [1.0], or LAWS 2005 [1.0];
  3. 0.5 credit in LAWS 3907;
  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 (14.0 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.

#### 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 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 (10.0 credits):**

1. 1.0 credit in LAWS 1000 [1.0];
2. 1.0 credit in LAWS 2005 [1.0];
3. 2.0 credits in LAWS 2003 [1.0] and LAWS 2004 [1.0];
4. 0.5 credit in LAWS 3907;
5. 1.5 credits in LAWS 3506, LAWS 3005, and LAWS 4801;
6. 1.5 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 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 (10.0 credits):**

9. 8.0 credits in electives not in LAWS;
10. 2.0 credits in free electives.

**Notes:**

1. Students who count LAWS 4901, LAWS 4902 or LAWS 4908 [1.0] towards the requirements of **Item 7** above must complete an approved topic related to the theme of the Concentration.
2. 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.
3. 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 (7.0 credits):**

1. 1.0 credit in LAWS 1000 [1.0];
2. 1.0 credit in LAWS 2005 [1.0];
3. 1.0 credit from LAWS 2003 [1.0] or LAWS 2004 [1.0];
4. 0.5 credit in LAWS 3907;

5. 1.5 credit 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 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 (13.0 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. Students who count LAWS 4901, LAWS 4902 or LAWS 4908 [1.0] towards Req. 7 above must complete an approved topic related to the theme of the Concentration.
2. 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.

**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 (10.0 credits):**

1. 1.0 credit in LAWS 1000 [1.0];
2. 1.0 credit in LAWS 2003 [1.0];
3. 2.0 credits in LAWS 2004 [1.0] and LAWS 2005 [1.0];
4. 0.5 credit in LAWS 3907;
5. 1.5 credits in LAWS 3003, LAWS 3201, and LAWS 3206;
6. 1.0 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 (10.0 credits):**

9. 8.0 credits in electives not in LAWS;
10. 2.0 credits in free electives.

**Notes:**

1. Students who count LAWS 4901, LAWS 4902 or LAWS 4908 [1.0] towards **Item 7** above must



complete an approved topic related to the theme of the Concentration;

2. 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;
3. 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 (7.0 credits):

1. 1.0 credit in LAWS 1000 [1.0];
2. 1.0 credit in LAWS 2003 [1.0];
3. 1.0 credit from LAWS 2004 [1.0] or LAWS 2005 [1.0];
4. 0.5 credit in LAWS 3907;
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 (13.0 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. Students counting LAWS 4901, LAWS 4902 or LAWS 4908 [1.0] towards **Item 6** above must complete an approved topic related to the theme of the Concentration;
2. 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 B.A. General (15.0 credits)

#### A. Credits included in the Major CGPA (6.0 credits):

1. 1.0 credit in LAWS 1000 [1.0];
2. 2.0 credits from LAWS 2003 [1.0], LAWS 2004 [1.0], or LAWS 2005 [1.0];
3. 1.0 credit in LAWS at the 3000-level or above;

4. 2.0 credits in LAWS;

#### B. Credits not included in the Major CGPA (9.0 credits):

5. 7.0 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 2003 [1.0], LAWS 2004 [1.0], or LAWS 2005 [1.0];
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 2200 and FREN 2300);
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 towards 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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### Certificate in Law

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. Third-year standing in Law and completion of LAWS 1000 and two of LAWS 2003, LAWS 2004, and LAWS 2005 are the minimum requirements to be eligible for acceptance into 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.

In addition to receiving credits toward their B.A. (Honours), students who successfully complete 6 units in the LL.B. (Hons.) Law program in the Division of Applied Social Science at Level 5 or above will receive a Certificate in Law from Sheffield Hallam University. Interested students should contact the Department.

# Linguistics and Applied Language Studies

## School of Linguistics and Applied Language Studies Faculty of Arts and Social Sciences

This section presents the requirements for

- General Linguistics – B.A. Honours
- General Linguistics – B.A. Combined Honours
- General Linguistics – B.A. General
- Applied Language Studies – B.A. Honours
- Applied Language Studies – B.A. Combined Honours
- Applied Language Studies – B.A. General
- Minor in American Sign Language
- Minor in Applied Language Studies
- Minor in General Linguistics
- Minor in German
- Minor in Italian
- Minor in Japanese Language
- Minor in Russian
- Minor in Spanish
- *Mention : Français*
- Certificate in Teaching of English as a Second Language

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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 regulations common 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 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.

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### Program Requirements

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#### General Linguistics

##### B.A. Honours (20.0 credits)

- A. **Credits Included in the Major CGPA (9.5 credits):**
  1. 1.0 credit from LALS 1000 [1.0], (LALS 1001 and LALS 1002), or FYSM 1206 [1.0];
  2. 2.0 credits in LALS 2001, LALS 2003, LALS 3002, LALS 3004;
  3. 1.0 credit from: LALS 2203, LALS 2401, LALS 2703, LALS 2704, LALS 2705, LALS 2706, LALS 3401, LALS 3402, LALS 3705, LALS 3706, LALS 3903;

4. 1.0 credit from LALS 4001, LALS 4002 or LALS 4009;
  5. 1.5 credits in Linguistics and Applied Language Studies at the 4000-level;
  6. 3.0 credits in Linguistics and Applied Language Studies, chosen in consultation with the School;
- B. **Credits Not Included in the Major CGPA (10.5 credits):**
    7. 8.0 credits not in Linguistics and Applied Language Studies;
    8. 2.5 credits in free electives;
- C. **Additional Requirements:**
    9. School Language Proficiency Requirement must be satisfied.

#### General Linguistics

##### B.A. Combined Honours (20.0 credits)

- A. **Credits Included in the Major CGPA (6.0 credits):**
    1. 1.0 credit from LALS 1000 [1.0], (LALS 1001 and LALS 1002), or FYSM 1206 [1.0];
    2. 2.0 credits in LALS 2001, LALS 2003, LALS 3002, LALS 3004;
    3. 1.0 credit from: LALS 4001, LALS 4002 or LALS 4009;
    4. 0.5 credit in Linguistics and Applied Language Studies at the 4000-level;
    5. 1.5 credits in Linguistics and Applied Language Studies;
- B. **Additional Requirements:**
    6. The requirements of the other discipline must be satisfied;
    7. 5.0 credits not in Linguistics and Applied Language Studies 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.

#### General Linguistics

##### B.A. General (15.0 credits)

- A. **Credits Included in the Major CGPA (6.5 credits):**
    1. 1.0 credit from LALS 1000 [1.0], (LALS 1001 and LALS 1002), or FYSM 1206 [1.0];
    2. 2.0 credits in LALS 2001, LALS 2003, LALS 3002, LALS 3004;
    3. 1.0 credit from: LALS 2203, LALS 2401, LALS 2703, LALS 2704, LALS 2705, LALS 2706, LALS 3401, LALS 3402, LALS 3705, LALS 3706, LALS 3903;
    4. 2.5 credits in Linguistics and Applied Language Studies, chosen in consultation with the School;
- B. **Credits Not Included in the Major CGPA (8.5 credits):**
    5. 7.0 credits not in Linguistics and Applied Language Studies;
    6. 1.5 credits in free electives;

**C. Additional Requirement:**

- School Language Proficiency Requirement must be satisfied.

**Applied Language Studies**

**B.A. Honours (20.0 credits)**

**A. Credits Included in the Major CGPA (9.5 credits):**

- 1.0 credit from LALS 1000 [1.0], (LALS 1001 and LALS 1002), or FYSM 1206 [1.0];
- 1.0 credit in LALS 2003, and one of LALS 2001, LALS 3002, or LALS 3004;
- 2.0 credits from LALS 2203, LALS 2401, LALS 2703, LALS 2704, LALS 2705, LALS 2706, LALS 3401, LALS 3402, LALS 3705, LALS 3706, LALS 3903;
- 1.0 credit from: LALS 4201, LALS 4207, LALS 4402, LALS 4602, LALS 4801;
- 1.5 credits Linguistics and Applied Language Studies at the 4000-level;
- 3.0 credits in Linguistics and Applied Language Studies, chosen in consultation with the School;

**B. Credits Not Included in the Major CGPA (10.5 credits):**

- 8.0 credits not in Applied Language Studies;
- 2.5 credits in free electives;

**C. Additional Requirement:**

- School Language Proficiency Requirement must be satisfied.

**Applied Language Studies**

**B.A. Combined Honours (20.0 credits)**

**A. Credits Included in the Major CGPA (6.0 credits):**

- 1.0 credit from LALS 1000 [1.0], (LALS 1001 and LALS 1002), or FYSM 1206 [1.0];
- 1.0 credit in LALS 2003, and one of LALS 2001, LALS 3002, or LALS 3004;
- 1.5 credits in Linguistics and Applied Language Studies at the 4000-level;
- 2.5 credits in Linguistics and Applied Language Studies;

**B. Additional Requirements:**

- The requirements for the other discipline must be met;
- 5.0 credits not in Linguistics and Applied Language 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 Language Studies**

**B.A. General (15.0 credits)**

**A. Credits Included in the Major CGPA (6.5 credits):**

- 1.0 credit from LALS 1000 [1.0], (LALS 1001 and LALS 1002) or FYSM 1206 [1.0];

- 1.0 credit in LALS 2003, and one of LALS 2001, LALS 3002, or LALS 3004;
- 2.0 credits from LALS 2203, LALS 2401, LALS 2703, LALS 2704, LALS 2705, LALS 2706, LALS 3401, LALS 3402, LALS 3705, LALS 3706, LALS 3903;
- 2.5 credits in Linguistics and Applied Language Studies, chosen in consultation with the School;

**B. Credits Not Included in the Major CGPA (8.5 credits):**

- 7.0 credits not in Linguistics and Applied Language Studies;
- 1.5 credits in free electives;

**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 at the 3000-level or higher in another discipline relevant to the language may be substituted for the above;
- The remaining requirements of the major discipline(s) and degree must be satisfied.

**Minor in Applied Language Studies**

Open to all undergraduate degree students in programs other than Linguistics and Applied Language Studies.

**Requirements (4.0 credits):**

- 1.0 credit from LALS 1000 [1.0], (LALS 1001 and LALS 1002), or FYSM 1206 [1.0];
- 0.5 credit in LALS 2003;
- 1.5 credits from LALS 2203, LALS 2603, LALS 2604, LALS 2701, LALS 2704, LALS 2705, LALS 2706;
- 1.0 credit from LALS 3401, LALS 3402, LALS 3705, LALS 3706, LALS 3903;
- The remaining requirements of the major discipline(s) and degree must be satisfied.

**Minor in General Linguistics**

Open to all undergraduate degree students in programs other than Linguistics and Applied Language Studies.

**Requirements (4.0 credits):**

- 1.0 credit from LALS 1000, [1.0], (LALS 1001 and LALS 1002), or FYSM 1206 [1.0];
- 2.0 credits in LALS 2001, LALS 2003, LALS 3002, LALS 3004;

3. 1.0 credit from LALS 2603, LALS 3001, LALS 3009, LALS 3101, LALS 3504, LALS 3505, LALS 3601;
4. 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):

1. 3.0 credits in GERM;
2. 1.0 credit in GERM at the 3000-level or higher;
3. Subject to approval of the School, a maximum of 2.0 credits at the 3000-level or higher in another discipline relevant to the language may be substituted for the above;
4. 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):

1. 1.0 credit in ITAL 1000 [1.0] and/or ITAL 2000 [1.0], subject to placement testing;
2. A maximum of 3.0 credits from: ITAL 2602 [1.0], ITAL 3000 [1.0], ITAL 3501, ITAL 3503, ITAL 3600, ITAL 3601
3. Other courses in Italian language, literature or culture, offered in Italian, may be substituted for #2 above, with departmental approval from both the School of Linguistics and Applied Language Studies and the College of the Humanities.
4. 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):

1. 3.0 credits in JAPA;
2. 1.0 credit in JAPA at the 3000-level or higher;
3. Subject to approval of the School, a maximum of 2.0 credits at the 3000-level or higher in another discipline relevant to the language may be substituted for the above;
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 at the 3000-level or higher in another discipline relevant to the language may be substituted for the above;
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 at the 3000-level or higher in another discipline relevant to the language may be substituted for the above;
4. The remaining requirements of the major discipline(s) and degree must be satisfied.

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### Mention : Français

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Students in the B.A. Honours or B.A. General program in Linguistics may qualify for the notation *Mention : Français* by fulfilling the requirements outlined below. Those wishing to pursue this path should consult with the School's *Mention : Français* adviser.

Linguistics courses presented in fulfilment of the *Mention : Français* requirements can double as courses to satisfy Linguistics B.A. Honours or B.A. General requirements.

Students enrolling in courses at the University of Ottawa will do so through the University of Ottawa Exchange Program. To enrol in courses in French at another university, students must first obtain a Letter of Permission from the Registrar's Office.

### *Mention : Français* with B.A. Honours and B.A. Combined Honours (4.0 credits)

To graduate with the notation *Mention : Français* students in the B.A. Honours must include in their program the following:

1. 1.0 credit in French language chosen in consultation with the Department of French, for perfecting the students' command of French;
2. 1.0 credit linked to the study of the heritage and culture of French Canada taught in French at Carleton or the University of Ottawa. At Carleton: FREN 2200, FREN 2300, FREN 3002, FREN 3003, FREN 3302, FREN 3303; at the University of Ottawa: FRA 3799, LIN 2505, LIN 3502, LIN 3503;
3. 1.0 credit in the area of linguistics taught in French at Carleton, at the University of Ottawa or at another university. At Carleton, 1.0 credit chosen from FREN 3401, FREN 3402, FREN 3403, FREN 3602,

FREN 4401, FREN 4402, FREN 4403, FREN 3801, LALS 3907 [1.0];

4. 1.0 credit at the 4000-level in the area of linguistics taught in French at Carleton, at the University of Ottawa or at another university. At Carleton, 1.0 credit chosen from FREN 4401, FREN 4402, FREN 4403 (if not taken during the third year), LALS 4907 [1.0];

The focus of the tutorials (LALS 3907 [1.0] and LALS 4907 [1.0]) may be on any of the following topics: American Indian languages, sociolinguistique, bilinguisme, dialectologie, développement de la langue maternelle pendant les années scolaires, problèmes du bilinguisme scolaire, pragmatique, grammaire du texte, sémiotique, sémantique. All written work must be submitted in French;

5. Combined Honours students must meet the *Mention : Français* requirements of both Honours disciplines.

### *Mention : Français with*

#### **B. A. General Programs (3.0 credits)**

To graduate with the notation *Mention : Français* students in B.A. General must include in their program the following:

1. 1.0 credit in French language chosen in consultation with the Department of French, for perfecting the students' command of French;
2. 1.0 credit linked to the study of the heritage and culture of French Canada taught in French at Carleton or the University of Ottawa. At Carleton: FREN 2200, FREN 2300, FREN 3002, FREN 3003, FREN 3302, FREN 3303; at the University of Ottawa: FRA 3799, LIN 2505, LIN 3502, LIN 3503;
3. 1.0 credit in the area of linguistics taught in French at Carleton, at the University of Ottawa or at another university. At Carleton, 1.0 credit chosen from FREN 3401, FREN 3402, FREN 3403, FREN 3602, FREN 4401, FREN 4402, FREN 4403, FREN 3801, LALS 3907 [1.0].

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

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### **Admission**

1. The Certificate in Teaching English as a Second Language (CTESL) has restricted enrolment. Admission is at the discretion of the School of Linguistics and Applied Language Studies.
2. As part of the application process, a written submission is required and an interview may be required.
3. In addition, students in the CTESL program must be fluent in English, proficiency to be determined by an oral or written test given by the School.
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 better. Students should have completed or be enrolled in LALS 1000 [1.0], LALS 1001 and LALS 1002, or FYSM 1206 [1.0] before applying to be admitted to the concurrent

CTESL program. Students registered in the concurrent CTESL program who fail to complete their degree cannot receive the CTESL.

### **Graduation**

A candidate for the CTESL must obtain a grade of C or better in all courses taken at Carleton University under the CTESL program.

### **Requirements (5.0 credits)**

1. 1.0 credit from LALS 1000 [1.0], (LALS 1001 and LALS 1002), or FYSM 1206 [1.0];
2. 3.0 credits in LALS 4205 [1.0] and LALS 4206 [1.0] taken concurrently; LALS 4602; LALS 4801.
3. 1.0 credit from LALS 2001, LALS 2003, LALS 2203, LALS 2401, LALS 2603, LALS 2604, LALS 2701, LALS 2703, LALS 2704, LALS 2705, LALS 2706, LALS 3401, LALS 3402, LALS 3601, LALS 3705, LALS 3706, LALS 4201, LALS 4207, LALS 4208, LALS 4802, LALS 4906, or any other course approved by the Supervisor of CTESL.

**Note:** the courses LALS 1000 [1.0], (LALS 1001 and LALS 1002), or FYSM 1206 [1.0] must be taken before or concurrently with all other required courses.



## Mass Communication

### School of Journalism and Communication

### Faculty of Public Affairs

This section presents the requirements for the programs:

- Mass Communication – B.A. Honours
- Mass Communication – B.A. Combined Honours
- Journalism and Mass Communication – B.J. Combined Honours
- Mass Communication – B.A. General
- Minor in Mass Communication

A Co-operative Education Option is available within the Mass Communication 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:

- 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 and Requirements 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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### Academic Performance Evaluation for Mass Communication

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Students in Mass Communication are subject to the standard process of Academic Performance Evaluation, with the following additions:

#### 1. Continuation to Second Year in the Mass Communication Program

Continuation to second year in *Good Standing* requires that students successfully complete at least 5.0 credits, achieve a grade of B- or better in MCOM 1101 and have an Overall CGPA of at least 7.00.

Students who fail to meet these requirements when seeking continuation to 2nd year Mass Communication must leave the program with the status *Suspension*.

The School also maintains a number of places in second year for students who wish to transfer from Carleton University or elsewhere. These spaces are limited and it may not be possible to grant admission to all applicants. Admission therefore will be on a selective basis with preference given to those candidates who show the highest promise of success. Normally, offers are made to students with an Overall CGPA of 10.00 or better.

#### 2. Continuation in Good Standing at subsequent Academic Performance Evaluations

Continuation in Good Standing at subsequent Academic Performance Evaluations requires the standard minimum Major CGPA and Overall CGPA (see the Academic Regulations section of this Calendar for details).

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### Program Requirements

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#### Mass Communication B.A. Honours (20.0 credits)

##### A. Credits Included in the Major CGPA (9.0 credits):

- 1.0 credit in MCOM 1101 [1.0];
- 3.0 credits in MCOM 2001 [1.0], MCOM 2101 [1.0], MCOM 3101 [1.0];
- 2.0 credits from:  
FYSM 1207 [1.0], MCOM 2300, MCOM 2302, MCOM 2501, MCOM 2504, MCOM 2900 [1.0], MCOM 3000 [1.0], MCOM 3005, MCOM 3006, MCOM 3402, MCOM 3403, MCOM 3404, MCOM 3406, MCOM 3408, MCOM 3502, MCOM 3504, MCOM 3505, MCOM 3507;
- 3.0 credits from:  
MCOM 4000, MCOM 4002, MCOM 4100, MCOM 4102, MCOM 4103, MCOM 4104, MCOM 4105, MCOM 4106, MCOM 4107, MCOM 4108, MCOM 4109, MCOM 4200, MCOM 4305, MCOM 4500, MCOM 4501, MCOM 4907 [1.0];

##### B. Credits Not Included in the Major CGPA (11.0 credits):

- 8.0 credits in electives not in mass communication;
- 3.0 credits in free electives.

#### Mass Communication B.A. Combined Honours (20.0 credits)

##### A. Credits Included in the Mass Communication Major CGPA (7.0 credits):

- 1.0 credit in MCOM 1101 [1.0];
- 3.0 credits in: MCOM 2001 [1.0], MCOM 2101 [1.0], MCOM 3101 [1.0];
- 1.0 credit at the 2000- or 3000-level in MCOM, or FYSM 1207 [1.0];
- 2.0 credits from:  
MCOM 4000, MCOM 4002, MCOM 4100, MCOM 4102, MCOM 4103, MCOM 4104, MCOM 4105, MCOM 4106, MCOM 4107, MCOM 4108, MCOM 4109, MCOM 4200, MCOM 4305, MCOM 4500, MCOM 4501, MCOM 4907 [1.0];

##### B. Additional Requirements (13.0 credits):

- The requirements from the other discipline must be satisfied;
- 5.0 credits not in MCOM or the other discipline;
- Sufficient credits in free electives to total 20.0 credits for the program.

## Journalism and Mass Communication 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 Mass Communication Major CGPA (7.0 credits):

1. 1.0 credit in MCOM 1101 [1.0];
2. 3.0 credits in MCOM 2001 [1.0], MCOM 2101[1.0], MCOM 3101[1.0];
3. 1.0 credit at the 2000- or 3000-level in MCOM, or FYSM 1207 [1.0];
4. 2.0 credits from:  
MCOM 4000, MCOM 4002, MCOM 4100, MCOM 4102, MCOM 4103, MCOM 4104, MCOM 4105, MCOM 4106, MCOM 4107, MCOM 4108, MCOM 4109, MCOM 4200, MCOM 4305, MCOM 4500, MCOM 4501, MCOM 4907 [1.0];

### 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 3206 [1.0], 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 credit from: FREN 1002 [1.0], FREN 1100 [1.0];
8. 1.0 credit in approved Canadian history;
9. Approved options to make up a total of 20.0 credits.

#### Note:

1. Item 7 above may be satisfied by an alternate French language credit approved by the School;

## Mass Communication B.A. General (15.0 credits)

### A. Credits Included in the Major CGPA (6.0 credits):

1. 1.0 credit in MCOM 1101 [1.0];
2. 3.0 credits in MCOM 2001 [1.0], MCOM 2101 [1.0], MCOM 3101 [1.0];
3. 2.0 credits from: FYSM 1207 [1.0], MCOM 2300, MCOM 2302, MCOM 2501, MCOM 2504, MCOM 2900 [1.0], MCOM 3000 [1.0], MCOM 3005, MCOM 3006, MCOM 3402, MCOM 3403, MCOM 3404, MCOM 3406, MCOM 3408, MCOM 3502, MCOM 3504, MCOM 3505, MCOM 3507;

### B. Credits Not Included in the Major CGPA (9.0 credits):

4. 7.0 credits in electives not in MCOM;
5. 2.0 credits in free electives.

## Minor in Mass Communication

This Minor is open to students in B.A Honours and General programs. Admission requires that students have completed MCOM 1101 [1.0] with a grade of B- or better and have completed at least 5.0 credits with Overall CGPA of 7.00 or better.

### Requirements (4.0 credits)

1. 1.0 credit in MCOM 1101 [1.0];
2. 2.0 credits in MCOM 2101 [1.0] and MCOM 3101 [1.0];
3. 1.0 credit in MCOM at the 2000- or 3000-level, or FYSM 1207 [1.0];
4. The remaining requirements of the major discipline(s) and degree must be satisfied.

# Mathematics and Statistics

## School of Mathematics and Statistics

### Faculty of Science

This section presents the requirements for:

- Mathematics – B.Math. Honours
- Mathematics with Specialization in Stochastics – B.Math. Honours
- Computer Mathematics – B.Math. Honours
- Computer Mathematics Information Technology – B.Math. Honours
- Computer Statistics – B.Math. Honours
- Statistics – B.Math. Honours
- 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. Honours
- Economics and Mathematics – B.Math. Combined Honours
- Economics and Statistics – B.Math. Combined Honours
- Mathematics – Combined B.Math./M.Sc.
- Statistics – Combined B.Math./M.Sc.
- 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.

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## Graduation Requirements

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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.

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## Academic Performance Evaluation for Bachelor of Mathematics

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The standard procedures for Academic Performance Evaluation are followed, with the following additions.

1. *Good Standing* at the first Academic Performance Evaluation (0.0 - 5.0 Included Credits) requires that the Major CGPA be at least 5.00 for Honours programs and at least 4.00 for General programs.
2. *Good Standing* at any Academic Performance Evaluation requires that the CGPA over the courses MATH 1007, MATH 1107, MATH 2007, MATH 2107 be at least 7.00 for Honours programs and at least 5.00 for General programs.

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## Course Prerequisites

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The following courses central to B.Math. programs have grade requirements in their prerequisites:

- MATH 2000 requires C+ in (MATH 1002 or MATH 2007), and C+ in (MATH 1102 or MATH 1107)
- MATH 2100 requires C+ in (MATH 1102 or MATH 2107)
- MATH 2454 requires C+ in (MATH 1002 or MATH 2007), and C+ in (MATH 1102 or MATH 1107)
- STAT 2655 requires C+ in (MATH 1002 or MATH 2007), and C+ in (MATH 1102 or MATH 1107)
- 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)

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## Course Categories for B.Math. Programs

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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 3256, MATH 3306, MATH 3406, MATH 3805, MATH 3855, STAT 3505, 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.

**Program Requirements**

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 and MATH 2007)
2. MATH 1102 [1.0] may be replaced with (MATH 1107 and MATH 2107)

A higher standard must be achieved in the courses MATH 1007, 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.

**Computer Mathematics**

**B.Math. Honours (20.0 credits)**

**A. Credits Included in the Major CGPA (14.0 credits):**

1. 7.5 credits in MATH 1002 [1.0], MATH 1102 [1.0], MATH 2000 [1.0], MATH 2100 [1.0], MATH 2454, STAT 2559, STAT 2655, MATH 3001, MATH 3804, MATH 4806, MATH 4905;
2. 1.0 credit from (MATH 3106 and MATH 3158) or (MATH 3805 and MATH 3801);
3. 1.0 credit from: MATH 3705, MATH 3801, MATH 3802, MATH 3806, MATH 3807, MATH 3809, the 3000-level Honours Sequence, and Mathematics or Statistics at the 4000-level and above;
4. 0.5 credit from: STAT 3506, STAT 3558;
5. 0.5 credit from: MATH 4802, MATH 4803;



6. 0.5 credit from: MATH 4801, MATH 4802, MATH 4803, MATH 4805, MATH 4808;
  7. 2.5 credits in COMP 1402, COMP 1405, COMP 1406, COMP 2402, COMP 2404;
  8. 0.5 credit in COMP at the 2000-level or higher;
- B. Credits Not Included in the Major CGPA (6.0 credits):**
9. 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;
  10. 2.0 credits free electives.

**Computer Mathematics Information Technology**

**B.Math. Honours (20.0 credits)**

- A. Credits Included in the Major CGPA (13.5 credits):**
1. 2.0 credits in MATH 1002 [1.0], MATH 1102 [1.0];
  2. 2.5 credits in COMP 1402, COMP 1405, COMP 1406, COMP 2402, COMP 2404;
  3. 3.0 credits in MATH 2008, STAT 2507, STAT 2605, MATH 3804, MATH 3805; MATH 4905;
  4. 0.5 credit from: MATH 2108 or MATH 3101;
  5. 0.5 credit from: MATH 3801 or MATH 3806;
  6. 1.0 credit in MATH or STAT at the 3000-level (excluding STAT 3502);
  7. 0.5 credit in COMP at the 2000-level or higher;
  8. 0.5 credit in MATH, STAT or COMP at the 2000-level or higher;
  9. 1.0 credit in MATH or STAT at the 3000-level or higher;
  10. 1.0 credit in COMP at the 3000-level or higher;
  11. 1.0 credit in MATH or STAT at the 4000-level or higher;
- B. Credits Not Included in the Major CGPA (6.5 credits):**
12. 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;
  13. 2.5 credits in free electives.

**Computer Statistics**

**B.Math. Honours (20.0 credits)**

- A. Credits Included in the Major CGPA (13.5 credits):**
1. 2.0 credits in MATH 1002 [1.0], MATH 1102 [1.0];

2. 2.5 credits in COMP 1402, COMP 1405, COMP 1406, COMP 2402, COMP 2404;
  3. 1.0 credit in COMP at the 2000-level or higher;
  4. 0.5 credit in STAT 2655 or STAT 2605;
  5. 4.5 credits in STAT 2559, STAT 3553 (or STAT 3505), STAT 3558, STAT 3559, STAT 3506, MATH 2008, MATH 3804, MATH 3806, MATH 4905;
  6. 0.5 credit in MATH 2108 or MATH 3101;
  7. 1.5 credits in STAT at the 4000-level;
  8. 1.0 credit in COMP at the 3000-level or higher;
- B. Credits Not Included in the Major CGPA (6.5 credits):**
9. 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.
  10. 2.5 credits in free electives.

**Notes:**

1. STAT 2559 may be replaced by STAT 2507 and STAT 2509, with a minimum grade of B in each.
2. STAT 3558 and STAT 3559 may be replaced by STAT 3508 and STAT 3509, with a minimum grade of B in each.

**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 1002, COMP 1005, COMP 1006, COMP 2002, COMP 2004;
  - 3. 2.5 credits in MATH 2008, STAT 2507, STAT 2605, MATH 3804, MATH 3805;
  - 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 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 1402, COMP 1405, COMP 1406; 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)**

Continuation in the program after first year requires an average of at least 9.00 on MATH 1002 and MATH 1102 and at least 9.00 on PHYS 1001 and PHYS 1002 or the equivalent mathematics and physics courses.

**A. Credits Included in the Major CGPA  
(16.5 credits):**

- 1. 7.5 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 3002, MATH 3057, MATH 3106;
- 2. 1.0 credit in Mathematics (MATH, STAT) at the 4000-level or higher;
- 3. 1.0 credit from (PHYS 1001 and PHYS 1002) or (PHYS 1003 and PHYS 1004);
- 4. 1.5 credits in PHYS 2202, PHYS 2604, PHYS 3701;
- 5. 3.5 credits in PHYS 3007, PHYS 3308, PHYS 3606, PHYS 3802, PHYS 4409, PHYS 4707, PHYS 4708;
- 6. 1.0 credit in PHYS at the 4000-level or higher;
- 7. 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):**

- 8. 1.0 credit from (BIOL 1003 and BIOL 1004), or CHEM 1000 [1.0], or (ERTH 1006 and EARTH 1007);
- 9. 0.5 credit in COMP 1005 or COMP 1007;
- 10. 0.5 credit in COMP;
- 11. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;

- 12. 1.5 credits in Approved Arts or Social Sciences Electives;
- 13. 1.0 credit in free elective.

**Note:** in Item 2 above, MATH 4003 is highly recommended.

**Biostatistics  
B.Math. 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 1003, BIOL 1004, BIOL 2104, BIOL 2200, BIOL 2600, BIOL 3104, BIOL 3609, BIOL 4103;
- 5. 0.5 credit in BIOC 4006;
- 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 3100 [1.0];
- 8. 2.0 credits in CHEM 1000 [1.0]; 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 or STAT at the 3000- or 4000-level;
- 4. 1.0 credit in MATH or STAT at the 4000-level;
- 5. 4.0 credits in ECON 1000 [1.0]; ECON 2002, ECON 2003, ECON 2102, ECON 2103, ECON 4200, ECON 4201;
- 6. 1.0 credit in ECON 4901 and ECON 4902, or ECON 4908 [1.0];
- 7. 1.0 credit 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.

**Note:** ECON 2400 does not count for credit in this program.

**Economics and Statistics  
B.Math. Combined Honours (20.0 credits)**

**A. Credits Included in the Major CGPA (14.5 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 from: MATH 4905 or STAT at the 4000-level;
3. 4.0 credits in ECON 1000 [1.0], ECON 2002, ECON 2003, ECON 2102, ECON 2103, ECON 4200, ECON 4201;
4. 1.0 credit in ECON 4901 and ECON 4902, or ECON 4908 [1.0];
5. 1.0 credit in ECON at the 4000-level;

**B. Credits Not Included in the Major CGPA (5.5 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. MATH 2100 [1.0] may replace MATH 3107 and 0.5 credit in free electives in this program.
2. ECON 2400 does not 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  
B.Math. (15.0 credits)  
(Combined B.Math./M.Sc.)**

**A. Credits Included in the Major CGPA (9.5 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 3001, MATH 3057, MATH 3106, MATH 3158;
2. 0.5 credit in MATH 3002 or MATH 3008;
3. 0.5 credit from the 3000-level Honours Sequence or MATH or STAT at the 4000-level or higher;
4. 1.5 credits at the 4000-level or higher in MATH or STAT;

**B. Credits Not Included in the Major CGPA (5.5 credits):**

5. 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.
6. 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:

1. 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. 2.0 credits in MATH 3001, STAT 3506, STAT 3558, STAT 3559;
3. 0.5 credit from MATH 3002, MATH 3057, MATH 3008;
4. 1.5 credits at the 4000-level or higher in MATH or STAT.

**Statistics  
B.Math. (15.0 credits)  
(Combined B.Math./M.Sc.)**

**A. Credits Included in the Major CGPA (9.5 credits):**

1. 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;
2. 1.5 credits at the 4000-level or higher in Mathematics or Statistics;

**B. Credits Not Included in the Major CGPA (5.5 credits):**

3. 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.
4. 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.

- 5. 1.5 credits at the 5000-level or higher in MATH or STAT;
- 6. 1.0 credit at the 5000-level or higher in mathematics or statistics or from another department or school;
- 7. Either:
  - a) MATH 4905 and 1.5 credits in MATH or STAT at the 5000-level or higher
  - or
  - b) an M.Sc. thesis in Mathematics.

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### Minors

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#### 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. 1.0 credit in either:
  - a) MATH 2007 or MATH 1005, and 0.5 credit from MATH 1004, MATH 1007, or MATH 1009;
  - or
  - b) MATH 1002 [1.0];
- 2. 1.0 credit in either:
  - a) MATH 2107 and 0.5 credit from MATH 1104, MATH 1107, or MATH 1109; or
  - b) MATH 1102 [1.0];
- 3. 1.0 credit in MATH or STAT at the 2000-level or higher;
- 4. 1.0 credit in MATH or STAT at the 3000-level or higher;
- 5. 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):

- 1. 0.5 credit from: MATH 1004, MATH 1007, MATH 1009;
- 2. 0.5 credit from: MATH 1104, MATH 1107, MATH 1109, MATH 1119;
- 3. 1.0 credit from:
  - a) 0.5 credit from: STAT 2507, STAT 2606, STAT 3502; and 0.5 credit from: STAT 2509, 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, ECOR 1606;
- 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.

## Music

### School for Studies in Art and Culture Faculty of Arts and Social Sciences

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
- Diploma in Sonic Design

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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 and Requirements 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 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 3404, MUSI 4006, MUSI 4103, MUSI 4104, MUSI 4303, MUSI 4703, MUSI 4908 [1.0]

- **Theory and Composition**

MUSI 1106, MUSI 1107, MUSI 1701, MUSI 1702, MUSI 2601, MUSI 2602, MUSI 2700, MUSI 2701, MUSI 2702, MUSI 2703, MUSI 3600 [1.0], MUSI 3700, MUSI 3701, MUSI 4300, MUSI 4600 [1.0], 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 1902 [0.0], MUSI 1903 [0.0], MUSI 1904 [0.0], MUSI 1905 [0.0], MUSI 2902 [0.0], MUSI 2903 [0.0], MUSI 2904 [0.0], MUSI 2905 [0.0], MUSI 3902 [0.0], MUSI 3903 [0.0], MUSI 3904 [0.0], MUSI 3905 [0.0], MUSI 4902 [0.0], MUSI 4903 [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 (13.0 credits):

1. Performance:  
3.0 credits in MUSI 1900, MUSI 1901, MUSI 2900, MUSI 2901, MUSI 3900, MUSI 3901;
2. Music Theory:
  - a) 2.5 credits in MUSI 1701, MUSI 1702, MUSI 2700, MUSI 2701, MUSI 2702;
  - b) 0.5 credit from MUSI 3700, MUSI 3701, MUSI 4700 or MUSI 4701;
3. Music History and Musicology:
  - a) 1.0 credit in MUSI 1001, MUSI 1002;
  - b) 1.0 credit in Music History and Musicology at the 2000-level;
  - c) 1.0 credit in Music History and Musicology at the 3000-level;
4. 0.5 credit from one of the following Canadian music courses: MUSI 3103, MUSI 3104, MUSI 4103, MUSI 4104;
5. Choice:
  - a) 1.0 credit in MUSI at the 2000-level;
  - b) 1.0 credit in MUSI at the 3000-level;
  - c) 2.0 credits in MUSI at the 4000-level;

###### B. Credits Not Included in the Major CGPA (7.0 credits):

6. 7.0 credits in free electives;

###### C. Additional Non-Credit Requirements:

7. Ensembles:
  - a) Satisfactory performance in MUSI 1903 [0.0], MUSI 1905 [0.0], MUSI 2903 [0.0] and MUSI 2905 [0.0];



- b) Satisfactory performance in four of:  
MUSI 1902 [0.0], MUSI 1904 [0.0],  
MUSI 2902 [0.0], MUSI 2904, MUSI 3902 [0.0],  
MUSI 3903 [0.0], MUSI 3904 [0.0],  
MUSI 4902 [0.0], MUSI 4903, MUSI 4904 [0.0]  
and MUSI 4905 [0.0].

## Music

### B.A. Honours (20.0 credits)

- A. **Credits Included in the Major CGPA (10.0 credits):**
- 1.0 credit in MUSI 1001, MUSI 1002;
  - 1.0 credit in Music History and Musicology at the 2000-level;
  - 1.0 credit in Music History and Musicology at the 3000-level;
  - 2.0 credits in MUSI at the 2000-level;
  - 2.0 credits in MUSI at the 3000-level;
  - 2.0 credits in MUSI at the 4000-level;
  - 1.0 credit in MUSI;
- B. **Credits Not Included in the Major CGPA (10.0 credits):**
- 8.0 credits in electives not in MUSI;
  - 2.0 credits in free electives.

## Music

### B.A. Combined Honours (20.0 credits)

- A. **Credits Included in the Major CGPA (7.0 credits):**
- 1.0 credit in MUSI 1001, MUSI 1002;
  - 2.0 credits in MUSI at the 2000-level;
  - 2.0 credits in MUSI at the 3000-level;
  - 1.0 credit in MUSI at the 4000-level;
  - 1.0 credit in Music;
- B. **Additional Requirements:**
- The requirements from the other discipline must be satisfied;
  - 5.0 credits in electives not in MUSI or the other discipline;
  - 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):**
- 1.0 credit in MUSI 1001, MUSI 1002;
  - 1.0 credit in Music History and Musicology at the 2000-level;
  - 2.0 credits in MUSI at the 2000-level;
  - 2.0 credits in MUSI at the 3000-level;
  - 1.0 credit in Music;
- B. **Credits Not Included in the Major CGPA (8.0 credits):**
- 7.0 credits in electives not in MUSI;
  - 1.0 credit in free electives.

## Minor in Music

Open to all undergraduate degree students not in Music programs.

### Requirements (4.0 credits):

- 1.0 credit in MUSI 1001, MUSI 1002;
- 1.0 credit in MUSI at the 2000-level;
- 1.0 credit in MUSI at the 3000-level;
- 1.0 credit in MUSI;
- The remaining requirements of the major discipline(s) and degree must be satisfied.

## Diploma in Sonic Design

### Admission

Applicants must have successfully completed the OSSD, including six OACs or Grade 12 U or M (U/C) courses or equivalent. Equivalent courses may be substituted between the OAC and new curriculum courses. Admission may be screened or restricted. Students should have at least 75 per cent average on the six best OACs or Grade 12 U or M (U/C) courses. Students may complete this diploma in concurrent studies with a B.A. or B.Mus. degree, or follow the program independently.

Applicants must complete the Sonic Design Application form (available at [www.carleton.ca/artandculture](http://www.carleton.ca/artandculture)) and submit a letter to the Music Office of the School for Studies in Art and Culture outlining their experience in music, sound recording and computers, and their reasons for requesting admission to the program. Please contact the Music Office for additional information.

### Graduation

The minimum CGPA for graduation with the Diploma in Sonic Design is 6.00.

### Requirements (5.0 credits):

- 2.0 credits in ACUL 1105 [1.0], ACUL 2105 [1.0];
- 3.0 credits in MUSI 3603, MUSI 3604, MUSI 4800, MUSI 4801, MUSI 4909 [1.0].

The Diploma in Sonic Design is a 5.0-credit diploma that endeavours to provide students with a focused training in musical applications in the computing field. Areas covered include basic materials and techniques of the MIDI workstation and interfaces, multi-timbral sound modules, applications in standard software applications such as the sequencer, librarian, Open Music System, and MIDI Manager. In addition there are modules in analog synthesis, classic audio synthesis techniques including waveforms, additive and subtractive synthesis and the application of filters and signal modulation sources. Students gain practical hands-on experience in the use of particular software programs as well as general principles of synthesizer systems. At a more advanced level there is in-depth examination of Cubase VST, digital audio logic as applied to film and television production in a multi-track environment. As well there are applications in MIDI Orchestration, Opcode MAX, Softsynth and Opcode Cycling, digital editing and mastering, and automated mixing. The diploma features Practica in established studios to provide practical experience. The object is to prepare students to build and customize a variety of sonic design devices within a software environment.

## Philosophy

### Department of Philosophy Faculty of Arts and Social Sciences

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

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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 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.

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### Course Categories for Philosophy

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For purposes of program description the Philosophy courses are classified as follows.

- **History of Philosophy**  
PHIL 2005, PHIL 2202, PHIL 3001, PHIL 3002, PHIL 3003, PHIL 3005, PHIL 3009, PHIL 3010, PHIL 3104
- **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 2807, 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 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.

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### Program Requirements

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#### Philosophy B.A. Honours (20.0 credits)

- 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;
  - 1.0 credit in the History of Philosophy;
  - 2.0 credits in Ethics, Society and Aesthetics;
  - 2.0 credits in Language, Mind and World;
  - 2.0 credits in PHIL at the 4000-level or above;
- 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)

- 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, or PHIL 3804;
  - 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;
- 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 4300, PSCI 4301, PSCI 4302, PSCI 4305 [1.0], PSCI 4306, or PSCI 4307;
  - 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 Studies, Political Science, Psychology, Religion, Sociology-Anthropology and Women's 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.

## Mention : Français

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

This section presents the requirements for:

- **Physics (Experimental Stream) – B.Sc. Honours**
- **Physics (Theory Stream) – B.Sc. Honours**
- **Physics – B.Sc. General**
- **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 Co-operative Education Option is available in conjunction with the Honours Physics and Applied Physics programs of the Department of Physics (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 common regulations applying to all B.Sc. programs including those relating to Breadth requirements (see the *Academic Regulations and Requirements for the Bachelor of Science*).

Students should consult with the Department when planning their program and selecting courses.

See [www.physics.carleton.ca/programs](http://www.physics.carleton.ca/programs) 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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### 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. 1.0 credit from (PHYS 1001 and PHYS 1002) or (PHYS 1003 and PHYS 1004) or (PHYS 1007 and PHYS 1008 with an average grade of B- or better);
2. 1.0 credit in PHYS 2202 and PHYS 2604;
3. 1.0 credit in ELEC 2501 and ELEC 2507;

4. 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;
5. 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];
6. 1.0 credit in PHYS at the 4000-level or above (PHYS 4203 is recommended for 0.5 credit);
7. 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):

8. 1.0 credit from (BIOL 1003 and BIOL 1004), CHEM 1000 [1.0], or (ERTH 1006 and ERTH 1007);
9. 3.5 credits in MATH 1004, MATH 1005, MATH 1104, MATH 2004, MATH 3705, ECOR 2606 or MATH 3800, and STAT 3502;
10. 1.5 credits in COMP 1005, COMP 1002 and COMP 2004;
11. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences Elective;
12. 1.5 credits in approved Arts or Social Science Elective;
13. 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. 1.0 credit from (PHYS 1001 and PHYS 1002) or (PHYS 1003 and PHYS 1004) or (PHYS 1007 and PHYS 1008 with an average grade of B- or better);
2. 1.0 credit in PHYS 2202 and PHYS 2604;
3. 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 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 1000 [1.0], or (ERTH 1006 and ERTH 1007);



8. 4.5 credits in MATH 1004, MATH 1005, MATH 1104, MATH 2004, MATH 2107, (MATH 2108 or MATH 3107), MATH 3705, MATH 3806 and STAT 3502;
9. 1.5 credits in COMP 1005, COMP 1002 and COMP 2004;
10. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences Elective;
11. 1.5 credits in Approved Arts or Social Sciences Electives;
12. 1.0 credit in free electives.

## Physics

### B.Sc. General (20.0 credits)

#### A. Credits included in the Major CGPA (8.5 credits):

1. 1.0 credit in one of (PHYS 1001 and PHYS 1002) or (PHYS 1003 and PHYS 1004) or (PHYS 1007 and PHYS 1008 with an average grade of B- or better);
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 1000 [1.0], or (ERTH 1006 and EARTH 1007);
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 (11.5 credits):

1. 1.0 credit from (PHYS 1001 and PHYS 1002) or (PHYS 1003 and PHYS 1004) or (PHYS 1007 and PHYS 1008 with an average grade of B- or better);
2. 1.0 credit in PHYS 2202 and PHYS 2604;
3. 1.5 credits in ECOR 2606, ELEC 2501 and ELEC 2507;
4. 5.0 credits in PHYS 3007, PHYS 3308, PHYS 3608, PHYS 3701, PHYS 3802, PHYS 3807, PHYS 4409, PHYS 4008, PHYS 4707 and PHYS 4807;
5. 0.5 credit in ELEC 3908;
6. 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] ;
7. 1.0 credit in PHYS at the 4000-level, of which at least 0.5 credit must consist of PHYS 4203 or PHYS 4208;
8. 0.5 credit from COMP 3005, ELEC 3509 or PHYS at the 4000-level;

#### B. Credits Not Included in the Major CGPA (8.5 credits):

9. 1.0 credit from (BIOL 1003 and BIOL 1004), CHEM 1000[1.0], or (ERTH 1006 and EARTH 1007);
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. 1.0 credit in:
  - a) COMP 1002 and COMP 2004, or
  - b) COMP 1006 and COMP 2002, or
  - c) SYSC 2002 and SYSC 2004;
13. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences Electives;
14. 1.5 credits in Approved Arts or Social Sciences Electives;
15. 1.0 credit in free electives.

## Mathematics and Physics

### B.Sc. Double Honours (21.5 credits)

Continuation in the program after first year requires an average of at least 9.00 on MATH 1002 and MATH 1102 and at least 9.00 on PHYS 1001 and PHYS 1002 or the equivalent mathematics and physics courses.

#### A. Credits Included in the Major CGPA (16.5 credits):

1. 7.5 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 3002, MATH 3057, and MATH 3106;



2. 1.0 credit in Mathematics (MATH, STAT) at the 4000-level or above;
3. 1.0 credit from (PHYS 1001 and PHYS 1002) or (PHYS 1003 and PHYS 1004);
4. 1.5 credits in PHYS 2202, PHYS 2604, and PHYS 3701;
5. 3.5 credits in PHYS 3007, PHYS 3308, PHYS 3606, PHYS 3802, PHYS 4409, PHYS 4707, and PHYS 4708;
6. 1.0 credit in PHYS at the 4000-level or higher;
7. 1.0 credit in either:
  - 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):**

8. 1.0 credit from (BIOL 1003 and BIOL 1004), CHEM 1000 [1.0], or (ERTH 1006 and ERTH 1007);
9. 0.5 credit in COMP 1005 or COMP 1007;
10. 0.5 credit in COMP;
11. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
12. 1.5 credits in Approved Arts or Social Sciences Electives;
13. 1.0 credit in free elective.

**Note:** in Item 2 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. 1.0 credit from (PHYS 1001 and PHYS 1002), (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 1003, BIOL 1004, 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 from BIOL 4908 [1.0] or PHYS 4909 [1.0];

**B. Credits Not Included in the Major CGPA (7.5 credits):**

8. 1.0 credit in CHEM 1000 [1.0];
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.

**Chemistry 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), (PHYS 1003 and PHYS 1004) or (PHYS 1007 and PHYS 1008 with an average grade of B- or higher);
2. 3.5 credits in PHYS 2202, PHYS 2604, PHYS 3007, PHYS 3308, PHYS 3606, PHYS 3701, and PHYS 4707;
3. 1.0 credit in PHYS at the 4000-level;
4. 4.5 credits in CHEM 1000 [1.0], CHEM 2103, CHEM 2203, CHEM 2501, CHEM 3100, CHEM 3102, CHEM 3503, and CHEM 4102;
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 from CHEM 4908 [1.0], PHYS 4909 [1.0];

**B. Credits Not Included in the Major CGPA (7.5 credits):**

9. 3.0 credits in MATH 1004, MATH 1005, MATH 1104, MATH 2004, STAT 3502, and MATH 3705;
10. 0.5 credit in ECOR 2606;
11. 0.5 credit from COMP 1005 or COMP 1007;
12. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences elective;
13. 0.5 credit in CHEM, PHYS, MATH, STAT, COMP, or Engineering excluding CHEM 0100, CHEM 1003, PHYS 1901, PHYS 1902, MATH 1805, COMP 1805;
14. 1.5 credits in Approved Arts or Social Sciences electives;
15. 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

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 (Industrialized States)
  - Comparative Politics and Area Studies (Development and Underdevelopment)
  - 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.

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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 and Requirements 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 than French, arrangements may be made to examine the student in that language, depending on faculty resource availability. For students in the Canadian concentration, French must be used to satisfy the language requirement.

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### Categories of Courses

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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 3305, PSCI 3401, PSCI 3402, PSCI 3406, PSCI 3606, PSCI 3607, PSCI 4000 [1.0], PSCI 4001 [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 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
- **4000-level Seminar**  
All courses in the range PSCI 4000 [1.0] to PSCI 4809 [1.0]

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### Program Requirements

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#### Political Science B.A. Honours (20.0 credits)

- A. **Credits Included in the Major CGPA (9.0 credits):**
1. 1.0 credit in PSCI at the 1000-level or FYSM 1602;
  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 at the 1000-level, or FYSM 1602;
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 at the 1000-level, or FYSM 1602;
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 (7.0 credits):**

1. 1.0 credit from ECON 1000 [1.0] or FYSM 1003 [1.0];
2. 5.5 credits in: ECON 2002, ECON 2003, ECON 2102, ECON 2103, ECON 2201, ECON 2200, ECON 2400, ECON 4200, ECON 4201, ECON 4900 [1.0];
3. 0.5 credit in ECON at the 4000-level.

**B. Credits Included in the Political Science Major CGPA (7.0 credits):**

4. 1.0 credit in PSCI at the 1000-level, or FYSM 1602;

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 (6.0 credits):**

8. 1.0 credit in MATH 1009 and MATH 1119;
9. 4.0 credits in electives not in ECON or PSCI;
10. 1.0 credit free elective;

**D. Additional Requirements:**

11. 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 at the 1000-level, or FYSM 1602;
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 at the 1000-level, or FYSM 1602;
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 SOCI 1000 [1.0] or ANTH 1000 [1.0], with a grade of C+ or better;
6. 1.0 credit from SOAN 2005 [1.0] or SOCI 4006 [1.0];
7. 2.0 credits in SOCI and/or ANTH at the 4000- or 5000-level;
8. 1.0 credit in SOCI 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 SOCI 3700 [1.0];

**or**

- b) SOCI 2003 [1.0] or (ANTH 2003 [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 SOCI;
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 at the 1000-level, or FYSM 1602;
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. 2.0 credits in free electives;
6. 7.0 credits not in PSCI.

**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 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 (Industrialized States)

- 1.0 credit in PSCI 2101 and PSCI 2102;
- 2.5 credits in Comparative Politics and Area Studies (Industrialized States), 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 4200, PSCI 4201, 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 (Industrialized States) theme).

### Concentration in Comparative Politics and Area Studies (Development and Underdevelopment)

- 1.0 credit in PSCI 2101 and PSCI 2102;
- 2.5 credits in Comparative Politics and Area Studies (Development and Underdevelopment), 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 (Development and Underdevelopment) 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 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 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 4306, PSCI 4307, PSCI 4308, PSCI 4309, 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

#### Requirements:

1. 1.0 credit in PSCI at the 1000-level, or FYSM 1602;
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 2200 and FREN 2300;
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

This section presents the requirements for:

- Psychology – B.A. Honours
- Psychology with Concentration in Human-Oriented Technology – B.A. Honours
- Psychology – B.A. Combined Honours
- Psychology – B.A. General
- Psychology – B.Sc. Honours
- Neuroscience – B.Sc. Combined Honours
- Minor in Psychology
- *Mention : Français*
- Carleton University/Algonquin College Articulation Agreement

The B.Sc. Combined Honours in Neuroscience is offered jointly between the department of Biology and the department of Psychology.

The Cooperative Education Option is available to Honours students in Psychology with a concentration in Human-Oriented Technology.

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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) 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 (see *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 for B.A. Psychology

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#### 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 2500 or PSYC 2700;
  4. 1.0 credit from PSYC 2003, PSYC 2100, PSYC 2300, PSYC 2400, PSYC 2600 or PSYC 2800;
  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],

PSYC 3800 [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, MATH, STAT or PHYS;

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 9.00.

#### Psychology with Concentration in Human-Oriented Technology

##### B.A. Honours (20.0 credits)

**A. Credits Included in the Major CGPA (11.0 credits):**

1. 1.0 credit in PSYC 1001 and PSYC 1002;

2. 3.5 credits in Human-Oriented Technology: PSYC 2100, PSYC 2700, PSYC 2800, PSYC 3800[1.0], PSYC 4800, PSYC 4805;

3. 1.5 credit from PSYC 2003, PSYC 2200, PSYC 2301, PSYC 2400, PSYC 2500 or PSYC 2600;

4. 1.0 credit in PSYC 2001 and PSYC 2002;

5. 1.0 credit in PSYC 3000 [1.0];

6. 0.5 credit in PSYC at 3000-level or higher;

7. 1.5 credit in PSYC at 2000-level or higher;

8. 1.0 credit in PSYC 4905 [1.0] or PSYC 4908 [1.0] with a topic in Human-Oriented Technology;

**B. Credits Not Included in the Major CGPA (9.0 credits):**

9. 2.0 credits from BIOL, CHEM, COMP, EARTH, MATH, STAT or PHYS;

10. 2.0 credits from a discipline other than Psychology in the Faculty of Arts and Social Sciences or the Faculty of Public Affairs;

11. 3.0 credits at the 2000-level and above, not in PSYC;

12. 1.0 credit not in PSYC;

13. 1.0 credit in free electives (may be PSYC).

**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 2500 or PSYC 2700;
  4. 1.0 credit from PSYC 2003, PSYC 2100, PSYC 2400, PSYC 2600 or PSYC 2800;
  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], or PSYC 3800 [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, MATH, STAT or PHYS;
  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 SOCI 3700, ECON 2201 and ECON 2202, or both MCOM 4000 and MCOM 4002.
4. For **Item 7** above, acceptable alternatives to PSYC 4905 and PSYC 4908 in combined programs include ANTH 4905, ARTH 4909, BIOL 4907, BIOL 4908, ECON 4908, ENGL 4908, FILM 4905, (GEOG 4901 and GEOG 4902), GEOG 4909, GERM 4909, HIST 4909, MCOM 4907, MUSI 4908, PSCI 4905, RELI 4909, RUSS 4909, SOCI 4905, EURR 4908, WOMN 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 2500 or PSYC 2700;
  4. 1.0 credit from PSYC 2003, PSYC 2100, PSYC 2400, PSYC 2600 or PSYC 2800;
  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.

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**Course Categories for B.Sc. Programs**

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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

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**Program Requirements for B.Sc. Psychology**

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**Psychology**  
**B.Sc. Honours (20.0 credits)**

- A. Credits Included in the Major CGPA (9.0 credits):**
1. 4.5 credits in PSYC 1001, PSYC 1002, PSYC 2001, PSYC 2200, PSYC 2003, PSYC 2500, PSYC 2700 and PSYC 4907 [1.0];
  2. 0.5 credit in PSYC 2002 (for students who plan to complete PSYC 3000 - see Item 9 below); or 0.5 credit from: PSYC 3202, PSYC 3203, PSYC 3204, PSYC 3205, PSYC 3207, PSYC 3506, PSYC 3702, PSYC 4001 (with permission), PSYC 4207 (for students who plan to complete either STAT 2507 and STAT 2509, or MATH 2107 and STAT 2507 - see item 9 below).
  3. 1.0 credit from PSYC 3200 [1.0], PSYC 3500 [1.0], PSYC 3700 [1.0] or PSYC 3800 [1.0];
  4. 1.0 credit from PSYC 3202, PSYC 3203, PSYC 3204, PSYC 3205, PSYC 3207, PSYC 3506, PSYC 3702, PSYC 4001 or PSYC 4207;
  5. 2.0 credits in PSYC;
- B. Credits Not Included in the Major CGPA (11.0 credits):**
6. 1.0 credit in MATH 1007 and MATH 1107;



7. 2.0 credits from (BIOL 1003 and BIOL 1004), CHEM 1000 [1.0], GEOG 1010, EARTH 1006, or EARTH 1007, (PHYS 1007 and PHYS 1008) or (PHYS 1003 and PHYS 1004);
8. 1.0 credit from Science Faculty Electives or from a discipline other than Psychology in the Division of Arts and Social Sciences (NSCI 1000 recommended);
9. 1.0 credit in PSYC 3000 [1.0] (for students who have completed PSYC 2002); or 1.0 credit in (STAT 2507 and STAT 2509) or (MATH 2107 and STAT 2507);
10. 2.0 credits from a discipline other than Psychology in the Division of Arts and Social Sciences;
11. 1.0 credit in Science Continuation (not PSYC);
12. 1.0 credit in BIOL, CHEM, EARTH, MATH, STAT or PHYS at the 2000-level or above;
13. 2.0 credits in free electives.

### Neuroscience B.Sc. Combined Honours (20.0 credits)

#### A. Credits Included in the Major CGPA (12.5 credits):

1. 3.0 credits in BIOL 1003, BIOL 1004, BIOL 2001, BIOL 2200, BIOL 2104, 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 above;
4. 4.0 credits in PSYC 1001, PSYC 1002, PSYC 2001, PSYC 2200, PSYC 2700, PSYC 3200 [1.0] and PSYC 4200;
5. 0.5 credit in PSYC 2002 (for students who plan to complete PSYC 3000 - see item 10 below); or 0.5 credit from: PSYC 3202, PSYC 3203 (BIOL 3605), PSYC 3204, PSYC 3205, PSYC 3207, PSYC 4001 (with permission), PSYC 4207;
6. 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;
7. 0.5 credit from BIOL 3802, BIOL 4317 or BIOC 4007;
8. 1.0 credit in PSYC 4907 [1.0] or BIOL 4908 [1.0];

#### B. Credits Not Included in the Major CGPA (7.5 credits):

9. 1.0 credit in MATH 1007 and MATH 1107;
10. 1.0 credit in PSYC 3000 [1.0] (for students who have completed PSYC 2002) or 1.0 credit in STAT 2507 and STAT 2509;
11. 1.5 credits in CHEM 1000 [1.0] and CHEM 2203;
12. 1.0 credit from (PHYS 1007 and PHYS 1008) or (PHYS 1001 and PHYS 1002);
13. 0.5 credit in NSCI 1000 or approved Arts and Social Sciences, not in Psychology;
14. 1.5 credits in Approved Arts or Social Sciences, not in PSYC;
15. 1.0 credit in free electives.

Note: the topic for **Item 8** above must be in neurophysiology, animal behaviour, neuropsychology or a related topic.

## 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.

## Mention : Français

Students other than those in the B. Sc. Honours program in Neuroscience who wish to qualify for the *Mention : Français* notation in Psychology may do so. To qualify, students must undergo placement testing by the Department of French in order to satisfy the language requirement and to protect the integrity of the initiative.

To graduate with the notation *Mention : Français* students must include in their program the following:

#### Year 1

1.0 credit in the advanced study of the French language. This credit will be one of FREN 1100 [1.0], FREN 1405 [1.0], FREN 1600 [1.0], FREN 2100 [1.0]. This credit will fulfil Requirement 12 of the B.A. (Honours) in Psychology program, Requirement 8 of the B.A. in Psychology program and Requirement 4 in the B.Sc. (Honours) in Psychology program.

#### Years 2 and 3

1.0 credit at the 2000- or 3000-level offered entirely in French and approved by the Department of Psychology. This credit will fulfil 1.0 credit of Requirement 10 of the B.A. Psychology program and Requirement 13 of both the B.A. and B.Sc. (Honours) in Psychology programs.

1.0 credit at the 2000- or 3000-level in Psychology taken entirely in French to satisfy one of the elective requirements in the relevant Psychology degree program. This credit must be approved by the Department of Psychology and must be taken at the University of Ottawa under the Exchange Agreement or at a francophone institution on a Letter of Permission obtained from the Registrar's Office.

#### Year 4 (Honours)

1.0 credit at the 4000-level in Psychology taken entirely in French at Carleton University. Normally this will be PSYC 4900 and PSYC 4902 or one of PSYC 4905 [1.0], PSYC 4907 [1.0] or PSYC 4908 [1.0].

To obtain the notation, students in a B.A. degree program with combined majors must fulfil the requirements for *Mention : français* of both departments. The *Mention : Français* option is not available in combined degree programs in which the other department does not offer the notation.



## Public Affairs and Policy Management

Arthur Kroeger College of Public Affairs  
Faculty of Public Affairs

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 from MCOM 2300 or MCOM 2302;
3. 0.5 credit from BUSI 2400, ECON 2001, MCOM 2300, MCOM 2302, MCOM 2501, 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 3250, LAWS 3005, LAWS 3506, MCOM 3005, MCOM 3006, MCOM 3403, SOCI 3035/ANTH 3035, SOCI 3037/ANTH 3037;
7. 0.5 credit in MCOM 4305;

8. 2.0 credits from BUSI 4400, BUSI 4404, ECON 3250, LAWS 4204, LAWS 4507, PSCI 4003, PSCI 4401, 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), MCOM 2001 [1.0] or (ECON 2201 and ECON 2202);
  10. 1.0 credit in LAWS 2005 [1.0];
  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), MCOM 2001 [1.0] or (ECON 2201 and ECON 2202);
  6. 1.0 credit from LAWS 2005 [1.0] or (LAWS 3603 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.P.A.P.M. degree.

- **Environment and Development**  
ECON 3804, EURR 4005, GEOG 3209, GEOG 3306, GEOG 4004, GEOG 4400, GEOG 4405, LAWS 4800
- **Gender and Development**  
ANTH 2040, PSCI 3502, PSCI 4501

- **Indigenous Peoples and Development**  
ANTH 3600, ANTH 4600, HIST 3503, PSCI 4002, PSCI 4206, SOWK 4102
- **Social and Political Development Issues**  
ANTH 3850, EURR 4002, INAF 4102, PSCI 4505, SOWK 4104
- **Regional Foci**
  - Africa*  
GEOG 3300, GEOG 3602, 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 [1.0], ECON 4806, ECON 4807, EURR 4002, EURR 4006, EURR 4100, GEOG 3600, GEOG 3603, GEOG 4600, HIST 3600[1.0], PSCI 3208, PSCI 3209, PSCI 3704, PSCI 3705
  - Latin America and the Caribbean*  
HIST 2307[1.0], HIST 3607, 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 4604, 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 in LAWS 3101, PHIL 2101, PHIL 2102, PSCI 3109;
  6. 1.0 credit in Human Rights Electives at the 3000-level or above;
  7. 1.0 credit in Human Rights Electives;
- B. Credits Not Included in the Major CGPA (9.5 credits):**
8. 1.0 credit from (PSCI 2701 and PSCI 2702) or MCOM 2001[1.0];
  9. 1.0 credit in LAWS 2005 [1.0];
  10. 1.5 credits in ECON 1000 [1.0], BUSI 3602;
  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.

**Human Rights Electives**

- **Law Applications**  
LAWS 3401, LAWS 3501, LAWS 3504, LAWS 3603, LAWS 4304, LAWS 4309, LAWS 4603, LAWS 4605, LAWS 4607

- **Practice and Organizations**  
EURR 4002, GEOG 3307, 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], PHIL 2900[1.0]/MCOM 2900[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 PAPM 1000 [1.0], PAPM 2000 [1.0], PAPM 3000, PAPM 4000, PAPM 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), MCOM 2001 [1.0] or (ECON 2201 and ECON 2202);
  7. 1.0 credit in LAWS 3603 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, GEOG 4400, 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, GEOG 3307, GEOG 4400, 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, GEOG 4600, 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 PAPM 1000 [1.0], PAPM 2000 [1.0], PAPM 3000, PAPM 4000, PAPM 4908 [1.0];
  2. 1.5 credits in LAWS 3506, ECON 3403 and ECON 3405;
  3. 1.0 credit in PADM 3105, PADM 4703;
  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 4221, PADM 4224, PADM 4225, PADM 4226, PADM 4227, PADM 4228, PADM 4612, PADM 4616;
  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), MCOM 2001 [1.0] or ECON 2201 and ECON 2202;
  9. 1.0 credit in LAWS 2005 [1.0];
  10. 1.5 credits in ECON 1000 [1.0], BUSI 3602;

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;
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), MCOM 2001 [1.0] or (ECON 2201 and ECON 2202);
12. 1.0 credit in LAWS 2005 [1.0];
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 MCOM 3000 [1.0];
3. 0.5 credit from BUSI 2204 or BUSI 2400;
4. 2.0 credits from BUSI 3205, BUSI 3207, MCOM 3406, PSCI 3004, PSCI 3402, PSCI 3405, PSCI 3406, or PSCI 3407;
5. 1.0 credit from PSCI 4701, MCOM 4000, or MCOM 4002;
6. 1.5 credits from JOUR.4000 [1.0], PSCI 4000 [1.0]C, 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 MCOM 2001 [1.0];
8. 1.0 credit from LAWS 2005 [1.0] or LAWS 3603 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.



## Certificate in Nunavut Public Service Studies (C.N.P.S.S.)

School of Public Policy and Administration  
Faculty of Public Affairs

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.

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### Admission Requirements

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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.

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### Academic Standing

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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.

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### Program Requirements

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#### 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

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.

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### Admission Requirements

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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.

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### Academic Standing

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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.

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### Program Requirements

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#### 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

### Faculty of Arts and Social Sciences

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

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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 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 1000 and RELI 1001;
  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 4301;
    - 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 1000 and RELI 1001;
  2. 1.0 credit in RELI at the 2000-level;
  3. 1.0 credit in RELI at the 3000-level;
  4. 1.0 credit in RELI at the 4000-level, including RELI 4301;

5. 2.0 credits in RELI:
  - a) 0.5 credit in RELI at the 4000-level and 1.5 credits in RELI,

or

- b) RELI 4909 [1.0] and 1.0 credit 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 1000 and RELI 1001;
  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 1000;
2. 2.0 credits from RELI 2206, RELI 2508, RELI 2701, RELI 2708 [1.0], RELI 3505;
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.

## Sexuality Studies (Minor)

### Institute of Interdisciplinary Studies Faculty of Arts and Social Sciences

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:

- 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 and Requirements 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. 1.0 credit in DIST 2101 and DIST 4101;
2. 1.0 credit from Approved Sexuality Studies Electives at the 2000-level or higher;
3. 1.0 credit from Approved Sexuality Studies Electives at the 3000-level or higher;
4. 1.0 credit from Approved Sexuality Studies;
5. The remaining requirements of the major discipline(s) and degree must be satisfied.

##### Notes:

1. Courses used to fulfil **Items 2 through 4** above must be from more than one discipline.
2. 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

##### 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 2504, HIST 3106, HIST 3107, HIST 3406, HIST 3504, HIST 3602, HIST 3707, HIST 4505

##### Human Rights

HUMR 1001

##### Law

LAWS 3001, LAWS 3503, LAWS 3804, LAWS 4001, LAWS 4002, LAWS 4604, LAWS 5302, LAWS 5008/SOCI 5204

##### Mass Communication

MCOM 3505

##### 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

##### Religion

RELI 3205

##### 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 Studies

WOMN 1808, WOMN 2800, WOMN 3002

## Social Work

### School of Social Work Faculty of Public Affairs

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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### Off-Campus Program: Bachelor of Social Work in First Nations Communities

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Carleton's School of Social Work is involved in the presentation of undergraduate degree programs on location in First Nations communities. All of the programs have been developed as a result of discussions initiated by the communities themselves. In response to these requests, the School has set up B.S.W. programs at several sites in Ontario and Quebec. The School is involved in partnerships with Seven Generations Educational Institute in Fort Frances, Ontario, and the Moose Cree Education Authority in Moose Factory, Ontario.

### Academic Performance Evaluation for 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* 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 2500 [1.0] or approved substitute.
3. 2.0 credits 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 Field Practice 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

This section presents the requirements for:

- Sociology - B.A. Honours
- Sociology with Concentration in Applied Social Research – B.A. Honours
- Sociology with Concentration in Power and Everyday Life – B.A. Honours
- Sociology - B.A. Combined Honours
- Anthropology –B.A. Honours
- Anthropology with Concentration in Applied and Participatory 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 *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 2003 [1.0] and SOCI 3003 [1.0];
  3. 2.0 credits in SOCI 2005 [1.0], 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 with Concentration in Applied Social Research B.A. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (9.5 credits):
1. 1.0 credit from SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0];
  2. 2.0 credits in SOCI 2003 [1.0] and SOCI 3003 [1.0];
  3. 2.0 credits in SOCI 2005 [1.0] and SOCI 3005 [1.0];
  4. 1.5 credits in SOCI 2200, SOCI 3805 and SOCI 3810;
  5. 1.5 credits from SOCI 4003, SOCI 4810, SOCI 4820, SOCI 4830 and SOCI 4840;
  6. 1.5 credits in SOCI at the 2000-level or above;
- B. Credits Not Included in the Major CGPA (10.5 credits)
7. 0.5 credit ANTH 1001;
  8. 8.0 credits not in SOCI or ANTH;
  9. 2.0 credits in free electives.

#### Sociology with Concentration in Power and Everyday Life B.A. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (9.5 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. 1.0 credit in SOCI 2700 [1.0];
  5. 2.0 credits from SOCI 3005 [1.0], SOCI 4650 and either SOCI 4710 or SOCI 4720;
  6. 1.5 credits from SOCI/ANTH 3020, SOCI/ANTH 3035, SOCI/ANTH 3037, SOCI/ANTH 3045, SOCI/ANTH 3570, SOCI/ANTH 3710, SOCI 3730, SOCI/ANTH 3780;
  7. 2.0 credits from SOCI/ANTH 4020, SOCI/ANTH 4035, SOCI/ANTH 4036, SOCI 4038, SOCI/ANTH 4740, SOCI/ANTH 4750, SOCI/ANTH 4760, SOCI/ANTH 4770;

**B. Credits Not Included in the Major CGPA (10.5 credits):**

8. 0.5 credit ANTH 1001;
9. 8.0 credits not in SOCI or ANTH;
10. 2.0 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 2003 [1.0] 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 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 with Concentration in Applied and Participatory Anthropology**  
**B.A. Honours (20.0 credits)****A. Credits Included in the Major CGPA (10.0 credits):**

1. 1.0 credit from ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0];
2. 3.5 credits in ANTH 2001 [1.0], ANTH 2850, ANTH 3800, ANTH 4800 and ANTH 4900 [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. 2.5 credits in ANTH at the 2000-level or above;
6. 1.0 credit in ANTH at the 4000- or 5000-level;

**B. Credits Not Included in the Major CGPA (10.0 credits):**

7. 0.5 credit SOCI 1001;
8. 7.0 credits not in ANTH or SOCI;
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 2003 [1.0] 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

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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### 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 1002), 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;
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 1002 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. This 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.

Requirement 1 is mandatory for most first year B.A. students.

#### 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

#### *Chemistry*

CHEM 1000[1.0]

#### *Earth Sciences*

ERTH 1006, ERTH 1007, ERTH 1008

#### *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 Studies

### Pauline Jewett Institute of Women's Studies Faculty of Arts and Social Sciences

This section presents the requirements for:

- Women's Studies - B.A. Combined Honours
- Women's Studies - B.A. General
- Minor in Women's Studies

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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* 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.

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### Program Requirements

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#### Women's Studies

##### B.A. Combined Honours (20.0 credits)

###### A. Credits Included in the Women's Studies Major CGPA (7.0):

1. 1.0 credit in WOMN 1808[1.0] or FYSM 1402 [1.0] or FYSM 1403 [1.0];
2. 1.0 credit in WOMN 2800 and WOMN 2801;
3. 1.0 credit in WOMN 3808 [1.0];
4. 3.0 credits from:  
ANTH 2040, ARTH 3601, CDNS 3400, CLST 3002 [1.0], ECON 3810, ENGL 2108, ENGL 2109, FILM 3301, HIST 2504[1.0], HIST 3106, HIST 3406, HIST 3504[1.0], HIST 3603, HIST 3705, HIST 3707, LAWS 3001, LAWS 3503, LAWS 3804, LALS 2703, MCOM 3505, MUSI 3302, PHIL 2306, PHIL 2307, PSCI 2500, PSCI 3303, PSCI 3500, PSCI 3502, PSYC 3603, RELI 2003, RELI 3205, SOCI 2043, SOCI 2045, SOCI 3040, SOCI 3420, SOWK 2004, SOWK 3204, SOWK 3804, WOMN 2802, WOMN 3002[1.0], WOMN 3003;
5. 1.0 credit from: WOMN 4900, WOMN 4901, WOMN 4902, WOMN 4903, WOMN 4904[1.0], WOMN 4905, ARTH 4000, ARTH 4600, BUSI 4107, BUSI 4602, HIST 4505 [1.0], JOUR 4307, LAWS 4001, LAWS 4002, MUSI 4303, PHIL 4203, PHIL 4204, PSCI 4208, PSCI 4402, PSCI 4500, PSCI 4501, PSCI 4605, SOCI 4040, SOCI 4420, SOWK 4206;

###### B. Additional Requirements:

6. The requirements for Combined Honours in the other discipline must be met;
7. 5.0 credits in electives not in WOMN 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** when material on gender

and/or women is central to the course. Such substitutions must be individually approved by the Institute of Women's Studies.

#### Women's Studies

##### B.A. General (15.0 credits)

###### A. Credits Included in the Major CGPA (6.0 credits):

1. 1.0 credit in WOMN 1808 [1.0] or FYSM 1402 [1.0] or FYSM 1403 [1.0];
2. 1.0 credit in WOMN 2800 and WOMN 2801;
3. 1.0 credit in WOMN 3808 [1.0];
4. 1.0 credit from: ARTH 3601, CDNS 3400, CLST 3002 [1.0], ECON 3810, FILM 3301, HIST 3106, HIST 3406, HIST 3504 [1.0], HIST 3603, HIST 3705, HIST 3707, LAWS 3001, LAWS 3503, LAWS 3804, MCOM 3505, MUSI 3302, PSCI 3303, PSCI 3500, PSCI 3502, PSYC 3603, RELI 3205, SOCI 3040, SOCI 3420, SOWK 3204, SOWK 3804, WOMN 3002 [1.0], WOMN 3003;
5. 2.0 credits from the courses in Item 4 and: ANTH 2040, ENGL 2108, ENGL 2109, HIST 2504 [1.0], LALS 2703, PHIL 2306, PHIL 2307, PSCI 2500, RELI 2003, SOCI 2043, SOCI 2045, SOWK 2004, WOMN 2802;

###### B. Credits Not Included in the Major CGPA (9.0 credits):

6. 7.0 credits in electives not in WOMN;
7. 2.0 credits in free electives;

###### C. Additional Requirements:

8. Students must complete a Minor in another academic discipline.

**Note:** other courses may be substituted for the credits specified above in items 4 and 5 when material on gender and/or women is central to the course. Such substitutions must be individually approved by the Institute of Women's Studies.

#### Minor in Women's Studies

##### Requirements (4.0 credits):

1. 1.0 credit in WOMN 1808 [1.0] or FYSM 1402 [1.0] or FYSM 1403 [1.0];
2. 1.0 credit in WOMN 2800 and WOMN 2801;
3. 1.0 credit from: ARTH 3601, CDNS 3400, CLST 3002 [1.0], ECON 3810, FILM 3301, HIST 3106, HIST 3406, HIST 3504 [1.0], HIST 3603, HIST 3705, HIST 3707, LAWS 3001, LAWS 3503, LAWS 3804, MCOM 3505, MUSI 3302, PSCI 3303, PSCI 3500, PSCI 3502, PSYC 3603, RELI 3205, SOCI 3040, SOCI 3420, SOWK 3204, SOWK 3804, WOMN 3002 [1.0], WOMN 3003;
4. 1.0 credit from the courses in item 3, or ANTH 2040, ENGL 2108, ENGL 2109, HIST 2504 [1.0], LALS 2703, PHIL 2306, PHIL 2307, PSCI 2500, RELI 2003, SOCI 2043, SOCI 2045, SOWK 2004, WOMN 2802;
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 Studies.

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**Courses with substantial material on gender or women's experience offered within the Faculties of Arts and Social Sciences and Public Affairs**

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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 4000, ARTH 4600

*Canadian Studies*

CDNS 3400

*Comparative Literary Studies*

CLST 3002

*English Language and Literature*

ENGL 2108, ENGL 2109

*Film Studies*

FILM 3301

*History*

HIST 2504, HIST 3106, HIST 3406, HIST 3504, HIST 3603, HIST 3705, HIST 3707, HIST 4505

*Human Rights*

ISSC 1001

*Linguistics and Applied Language Studies*

LALS 2703

*Music*

MUSI 3302, MUSI 4303

*Philosophy*

PHIL 2306, PHIL 2307, PHIL 4203, PHIL 4204

*Psychology*

PSYC 3603

*Religion*

RELI 2003, RELI 3205

*Sociology-Anthropology*

ANTH 1010, ANTH 2040, SOCI 1010, SOCI 2043, SOCI 2045, SOCI 3040, SOCI 3420, SOCI 4040, SOCI 4420

**Faculty of Public Affairs**

*Business*

BUSI 4107, BUSI 4602

*Economics*

ECON 3810

*Journalism*

JOUR 4307

*Law*

LAWS 3001, LAWS 3503, LAWS 3804, LAWS 4001, LAWS 4002

*Mass Communication*

MCOM 3505

*Political Science*

PSCI 2500, PSCI 3303, PSCI 3500, PSCI 3502, PSCI 4208, PSCI 4402, PSCI 4500, PSCI 4501, PSCI 4605

*Social Work*

SOWK 2004, SOWK 3204, SOWK 3804, SOWK 4206





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# Courses

# Course Numbering System

Course numbers are prefixed by the letter code representing the course discipline, as shown below.

Prefix	Discipline
ACUL	Art and Culture
AERO	Aerospace Engineering
ANTH	Anthropology
ALSS	Applied Language Studies
ARCC	Architecture
ARCH	Architecture
ARCN	Architecture
ARCS	Architecture
ARCU	Architecture
ARTH	Art History
ASLA	American Sign Language
BIOC	Biochemistry
BIOL	Biology
BUSI	Business
CCDP	Communication Courses for Disciplines and Professions
CDNS	Canadian Studies
CGSC	Cognitive Science
CHEM	Chemistry
CHIN	Chinese
CHST	Child Studies
CIED	Centre for Initiatives in Education
CIVE	Civil and Environmental Engineering
CLCV	Classical Civilization
CLST	Comparative Literary Studies
CMPS	Computational Sciences
COMP	Computer Science
COOP	Cooperative Education
CRCJ	Criminology and Criminal Justice
DIST	Directed Interdisciplinary Studies
ECON	Economics
ELEC	Electronics
ENGL	English
ENSC	Environmental Science
ENST	Environmental Studies
ENVE	Environmental Engineering
ERTH	Earth Sciences
ESLA	English as a Second Language
EURR	European and Russian Studies
FILM	Film Studies
FREN	French
FYSM	First-Year Seminars
GEOG	Geography
GEOM	Geomatics
GERM	German
GREK	Greek

HIST	History
HUMR	Human Rights
HUMS	Humanities
IDES	Industrial Design
IASS	Interdisciplinary Arts and Social Sciences
INAF	International Affairs
INSC	Integrated Science
ISCI	Interdisciplinary Science
ISSC	Interdisciplinary Studies - Social Sciences
ITAL	Italian
JAPA	Japanese
JOUR	Journalism and Communication
LALS	Linguistics
LATN	Latin
LAWS	Law
MAAE	Mechanical and Aerospace Engineering
MATH	Mathematics and Statistics
MCOM	Mass Communication
MECH	Mechanical Engineering
MUSI	Music
NSCI	Natural Sciences
PADM	Public Policy and Administration
PAPM	Public Affairs and Policy Management
PHIL	Philosophy
PHYS	Physics
PSCI	Political Science
PSYC	Psychology
RELI	Religion
RUSS	Russian
SOCI	Sociology
SOWK	Social Work
SPAN	Spanish
STAT	Statistics
SYSC	Systems and Computer Engineering
TSES	Technology, Society, Environment Studies
WOMN	Women's Studies

## Course Numbering Pattern

The course numbering pattern is as follows:

0001-0999	Courses usually taken in Qualifying University year
1000-1999	Courses usually taken in first year
2000-2999	Courses usually taken in second year
3000-3999	Courses usually taken in third year
4000-4999	Courses usually taken in fourth year
5000-5999	Courses usually taken by graduate students
6000-6999	Courses usually taken by graduate students

# Course Listings

Not all courses are offered in a given year. For an up-to-date statement of course offerings and to determine the term of offering, consult the class schedule at [central.carleton.ca](http://central.carleton.ca)

Aerospace Engineering (AERO)	History (HIST)
American Sign Language (ASLA)	Humanities (HUMS)
Anthropology (ANTH)	Human Rights (HUMR)
Applied Language Studies (ALSS)	Industrial Design (IDES)
Architecture (ALSS, ARCC, ARCH, ARCN, ARCU)	Information Technology (BIT, IMD, NET)
Art and Culture (ACUL)	Integrated Science (INSC)
Art History (ARTH)	Interdisciplinary Science (ISCI)
Biochemistry (BIOC)	Interdisciplinary Studies (DIST, ISSC)
Biology (BIOL)	International Affairs (INAF)
Business (BUSI)	Italian (ITAL)
Canadian Studies (CDNS)	Japanese (JAPA)
Centre for Initiatives in Education (CIED)	Journalism and Communication (JOUR)
Chemistry (CHEM)	Latin (LATN)
Child Studies (CHST)	Law (LAWS)
Chinese (CHIN)	Linguistics (LALS)
Civil Engineering (CIVE)	Mass Communication (MCOM)
Classical Civilization (CLCV)	Mathematics (MATH)
Cognitive Science (CGSC)	Mechanical Engineering (MECH)
Communication Courses for Disciplines and Professions (CCDP)	Mechanical and Aerospace Engineering (MAAE)
Comparative Literary Studies (CLST)	Music (MUSI)
Computational Sciences (CMPS)	Natural Sciences (NSCI)
Computer Science (COMP)	Philosophy (PHIL)
Co-operative Education (COOP)	Physics (PHYS)
Criminology and Criminal Justice (CRCJ)	Political Science (PSCI)
Earth Sciences (ERTH)	Psychology (PSYC)
Economics (ECON)	Public Affairs and Policy Management (PAPM)
Electronics (ELEC)	Public Policy and Administration (PADM)
Engineering Core Courses (ECOR)	Religion (RELI)
English (ENGL)	Russian (RUSS)
English as a Second Language (ESLA)	Social Work (SOWK)
Environmental Engineering (ENVE)	Sociology (SOCI)
Environmental Science (ENSC)	Spanish (SPAN)
Environmental Studies (ENST)	Statistics (STAT)
European and Russian Studies (EURR)	Systems and Computer Engineering (SYSC)
Film Studies (FILM)	Technology, Society, Environment Studies (TSES)
First-Year Seminars (FYSM)	Women's Studies (WOMN)
French (FREN, FINS)	
Geography (GEOG)	
Geology - See Earth Sciences	
Geomatics (GEOM)	
German (GERM)	
Greek (GREK)	

## 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 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 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 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.

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.

Preclusion: 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 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, and fourth-year status in Engineering.



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## American Sign Language (ASLA)

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### School of Linguistics and Applied Language Studies Faculty of Arts and Social Sciences

ASLA 1000 [1.0 credit]

#### **Introduction to 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.

Precludes additional credit for ALSS 1901.

Three hours a week.

ASLA 2000 [1.0 credit]

#### **Intermediate American Sign Language**

Continuation of the study of American Sign Language. Study of targeted lexical and grammatical features, as well as specific conversational skills. Further exploration of the culture of deaf people.

Prerequisite: grade of C or higher in ASLA 1000, ALSS 1901, or permission of the School.

Three hours a week.

ASLA 3000 [1.0 credit]

#### **Advanced 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.

Prerequisite: grade of C or higher in ASLA 2000, or permission of the School.

Three hours a week.

ASLA 4000 [1.0 credit]

#### **Advanced American Sign Language for Specific Purposes**

Continuation of ASLA 3000, aimed at developing receptive and expressive skills above what is expected in everyday conversations. Skills in specific contexts such as social services, health, business and government.

Prerequisite: grade of B or higher in ASLA 3000 or equivalent.

Three hours a week.

## 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].

Prerequisite: ANTH 1001.

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 and ANTH 1002 or ANTH 1003 [1.0] and second-year standing.

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], and second-year standing.

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 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], and second-year standing.

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 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], and second-year standing.

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 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], and second-year standing.

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 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], and second-year standing.

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 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], and second-year standing.

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 2550.  
 Precludes additional credit for SOAN 2403 and RELI 2403.  
 Prerequisites: ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], and second-year standing.  
 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 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0] and second-year standing.  
 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 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], and second-year standing.  
 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 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0] and second-year standing.  
 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 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0] and second-year standing.  
 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 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], and second-year standing.  
 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 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0] and second-year standing.  
 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 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], and second-year standing.  
 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 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], and second-year standing.  
 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 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], and second-year standing.  
 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].

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 particular 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.

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.

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.

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 [0.5 credit]

**Work Term 1**

Prerequisite: Registration in the Co-operative Education Program option in the B.A. Honours Anthropology Program.

ANTH 3902 [0.5 credit]

**Work Term 2**

Prerequisite: Registration in the Co-operative Education Program option in the B.A. Honours Anthropology Program.

ANTH 3903 [0.5 credit]

**Work Term 3**

Prerequisite: Registration in the Co-operative Education Program option in the B.A. Honours Anthropology Program.

ANTH 3904 [0.5 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.

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.

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## Applied Language Studies (ALSS)

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### School of Linguistics and Applied Language Studies Faculty of Arts and Social Sciences

ALSS 1205 [2.0 credits]

#### **Introductory Korean**

For students with little or no knowledge of Korean. Introductory survival Korean; basic pronunciation, grammar, reading and writing. Four hours a week.

ALSS 1300 [2.0 credits]

#### **Intensive Introductory Arabic**

For learners with little or no knowledge of Arabic. Development of language skills and of strategies for comprehending oral and written texts in both Standard and colloquial Arabic; focus on media discourse. Lectures eight hours per week.

ALSS 1900 [1.0 credit]

#### **Introductory Study of an Indigenous Language**

An introduction to the study of an Indigenous language. Four hours a week.

## Architecture (ARCH, ARCC, ARCU, ARCN, ARCS)

### School of Architecture

- 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.

First offered 1998-1999.

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 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 special 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: ARTH 1100 and ARTH 1101, or permission of the School.

Lectures three hours a week.

First offered 1999-2000.

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 4100 [0.5 credit]

#### The Morphology of the City

Description and comparative analysis of the physical morphology of cities. Primary structural, spatial and formal organization and elements that characterize the morphology of cities studied in terms of their historical and contemporary significance for architecture and urban design. (Theory/History Course)

Precludes additional credit for ARCH 2004 and ARCH 3100.

Prerequisite: permission of the School of Architecture.

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 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 4300 [0.5 credit]

#### **Neo-Classical Architecture**

Eighteenth- and nineteenth-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**

This course examines the 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. The architecture and cities of 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. (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)

• **Technical (ARCC)**

ARCC 1305 [0.5 credit]

**The Behaviour of Materials**

An 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**

A 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. (Core Course)

Prerequisite: CIVE 2005 and concurrent registration in or successful completion of ARCS 3105 [1.5 credit]. Lectures three hours a week.

First offered 1999-2000.

ARCC 3004 [0.5 credit]

**Workshop: Energy and Form**

Relationship between environmental factors, energy and architectural form. Explorations into 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 concurrent registration in or successful completion of ARCS 4105 [1.5 credit] or ARCS 4106 [1.5 credit].

Lectures three hours a week.

First offered 2000-2001.

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**

An 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 of building costs and their prediction. Uncertainty and investment economics. Systems and techniques of creative cost control for buildings during schematic design, design development, construction document preparation and construction. Economic evaluation during all phases of design process. (Core Course)

Precludes additional credit for ARCC 3500.

Prerequisite: fourth-year standing in the B.A.S. program or permission of the School.

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)

#### • **Urban (ARCU)**

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 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 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 Third-World 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 4808 [0.5 credit]

#### **Independent Study**

(Elective Course)

#### • **Techniques (ARCN)**

ARCN 1001 [0.5 credit]

#### **Work Term 1**

Prerequisites: registration in the Co-op Option of the Bachelor of Architectural Studies Program

ARCN 2001 [0.5 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.

First offered 1999-2000.

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.

ARCN 3001 [0.5 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 [0.5 credit]

**Work Term 4**

Prerequisites: Registration in the Co-op Option of the Bachelor of Architectural Studies Program.

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)

Precludes additional credit for ARCN 3102.

Prerequisite: permission of the School.

Lectures two hours a week, laboratory 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.

First offered 1998-99.

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.

First offered 1998-99.

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.

First offered 1999-2000.

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.

First offered 1999-2000.

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.

First offered 2000-2001.

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 3105.

Twelve hours studio, plus one hour lecture per week.

First offered 2000-2001.

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.

First offered 2001-2002.

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.

First offered 2001-2002.



## Studies in Art and Culture: Art History, Film Studies, Music (ACUL)

### School for Studies in Art and Culture Faculty of Arts and Social Sciences

ACUL 1105 [1.0 credit]

#### Introduction to Media and Technology in Art and Culture

Introduction to the technological innovations which have had significant impact on the course of twentieth-century cultural and artistic practices. This introduction is achieved through a combination of academic and practical studio work.

Prerequisite: enrolment in one of the programs of the School for Studies in Art and Culture, or permission of the School.

Lectures and studio demonstrations three hours a week.

ACUL 2000 [1.0 credit]

#### Theories of Art and Culture

Major writings on art and culture in historical Western traditions with particular reference to the contents and concerns of the three disciplines of the School.

Prerequisite: second-year standing in the Program or permission of the School.

Lecture three hours a week.

ACUL 2105 [1.0 credit]

#### Survey of Computer Applications/Programming in Music

Introduction to various programming languages and systemic processes commonly used in sonic computer applications.

Prerequisite: enrolment in one of the programs of the School for Studies in Art and Culture or permission of the instructor.

Lectures and studio demonstrations three hours a week.

ACUL 3905 [1.0 credit]

#### Contemporary Visual and Performing Arts

This interdisciplinary course is designed to examine selected aspects of the creation, distribution and reception of the contemporary arts.

Prerequisite: third-year standing and permission of the School.

Lectures three hours a week.

ACUL 4000 [0.5 credit]

#### Topics in Cultural Studies

Selected topics in the development of cultural studies as an interrelated series of intellectual trajectories originating in England during the late 1950s. Topics may change from year to year.

Prerequisite: fourth-year standing in the Program or permission of the School.

Seminar three hours a week.

ACUL 4001 [0.5 credit]

#### Aspects of Modernism in Art and Culture

Selected aspects of modernist theory and practice in art and culture. Topics may change from year to year and may include the arts and European colonialism; 'primitivism'; practices and theories of the avant-garde; surrealism; expressionism; art and the popular; modernism and myth.

Prerequisite: fourth-year standing in the Program or permission of the School.

Seminar three hours a week.

ACUL 4002 [0.5 credit]

#### Topics in Audiovisual Cultures

Selected aspects of the audio-visual cultures of the late nineteenth and twentieth centuries. (Also listed as FILM 4002.)

Prerequisite: fourth-year standing in the Program or permission of the School.

Seminar three hours a week.

ACUL 4003 [0.5 credit]

#### Cultural Theory in Canadian Contexts

Established and contemporary theories of cultures developed within Canadian contexts.

Prerequisite: fourth-year standing in the Program or permission of the School.

Lectures three hours a week.

ACUL 4900 [0.5 credit]

#### Special Topic in the Study of Art and Culture

This course is designed specifically for Honours students in the School interested in interdisciplinary aspects of their course of study. The course offerings change from year to year.

Prerequisite: fourth-year standing in one of the School's degree programs or permission of the School.

Lectures and seminars three hours a week.

ACUL 4901 [0.5 credit]

#### Special Topic in the Study of Art and Culture

This course is designed specifically for Honours students in the School interested in interdisciplinary aspects of their course of study. The course offerings change from year to year.

Prerequisite: fourth-year standing in one of the School's degree programs or permission of the School.

Lectures and seminars three hours a 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 Art

Medieval art from the earliest Christian production through the late Gothic period. Reference to Western and Byzantine artistic monuments.

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.)

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]

**Visuality, 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.

Credit will not be given for BIOC 2200 or equivalent taken after BIOC 3100.

Prerequisites: BIOL 1003 and BIOL 1004 and CHEM 1000 or permission of the Institute.

Lectures three hours a week, laboratory or tutorial four hours a week.

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 2101 or 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 11.0 or higher in first year, approval of the Director and a Faculty supervisor.

Laboratory research for at least three hours a week over two terms.

BIOC 2909 [0.5 credit]

#### Co-operative Work Term Report 1

Practical experience for students enrolled in the co-operative option. To receive course credit, 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.

Precludes additional credit for BIOC 3005.

Prerequisites: CHEM 2203 and CHEM 2204; CHEM 2101 or BIOC 2200/BIOL 2200 with a grade of C- or better, or permission of the Institute. BIOC 3101 and BIOC 3102 or equivalent are recommended as a co-requisite.

Laboratory four hours a week.

BIOC 3008 [0.5 credit]

#### Introduction to Bioinformatics

Practical exploration of the broad scope of bioinformatics; theory, implementation, applications and limitations of computational approaches. Topics may include

introductory programming, data modeling, biological databases, sequence alignment, phylogeny, pathways and biological networks. Also listed as COMP 3308.

Precludes additional credit for BIOC 4006.

Prerequisites: BIOL 2104; BIOC 2200 or BIOL 2200; or permission of the Institute. Background in computer programming and/or evolutionary concepts is recommended.

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.

Prerequisites: CHEM 2203 and CHEM 2204; CHEM 2101 or BIOC 2300, or BIOC 2200/BIOL 2200 with a grade of C- or better, 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 2300 or CHEM 2101) and 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 11.0 or higher in second year, approval of the Director and Faculty supervisor.

Laboratory research for at least three hours a week over two terms.

BIOC 3909 [0.5 credit]

#### Co-operative Work Term Report 2

Practical experience for students enrolled in the co-operative option. To receive course credit, 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]

**Advanced Bioinformatics**

A computational course that explores the dynamic nature of proteins and cellular networks. Topics may include object oriented programming, integrated databases, protein structure prediction, drug discovery and cell simulation. Also listed as COMP 4308.

Prerequisites: BIOC 3008 or BIOC 4006 or permission of the Institute. Background in biomacromolecules, biochemical regulation and/or object-oriented programming are recommended.

Lecture one hour a week, computer workshop three 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, BIOC 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]

**Macromolecular Structure and Function**

An advanced lecture, discussion, and seminar course covering the theory, recent developments, and current techniques of macromolecular structure, function, and design. Emphasis is on proteins and nucleic acids. 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 the eukaryotic cell cycle. Topics include regulation of cell proliferation and cell death, and the molecular basis for morphological remodeling during cell division and death. Also listed as BIOL 4400.

Prerequisites: BIOL 3201 or (BIOC 3101 and BIOC 3102).

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 permission of the Institute.

Lectures three hours a week.

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 report and an oral defence of the report.

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 [0.5 credit]

**Co-operative Work Term Report 3**

Practical experience for students enrolled in the co-operative option. To receive course credit, 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 to be offered in the fall/winter session 2007-2008* and *Suggested Topics for BIOL 4908 Research Projects 2007-2008*. These information booklets may be obtained from the Biology Department office. All students are strongly advised to consult these information booklets when planning their future course patterns.

Students should 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, BIOL 1903 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.

Precludes additional credit for BIOL 1000, BIOL 1002, or the combination of BIOL 2009 and BIOL 2300.

Prerequisite: OAC Biology (or equivalent), or OAC Chemistry (or equivalent), or CHEM 0100.

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.

Precludes additional credit for BIOL 1000, BIOL 1002, or the combination of BIOL 2009 and BIOL 2300.

Prerequisite: BIOL 1003 or equivalent.

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: BIOL 1003 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.

Lectures 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 1903 [0.5 credit] The Natural History of Ontario

A study of Ontario's biodiversity. In addition to examining the makeup of the different communities of plants and animals found in Ontario, the course explores their adaptations to the forces that influence their distribution.

Prerequisite: BIOL 1902.

Lectures three hours a week.

### BIOL 2001 [0.5 credit] Animals: Form and Function

An investigation of invertebrates and vertebrates to relate their structure, function, behaviour and interactions with plants.

Precludes additional credit for BIOL 2000.

Prerequisites: BIOL 1003 and BIOL 1004 or permission of the Department.

Lectures three hours a week, laboratory or tutorial four hours a week.

### BIOL 2002 [0.5 credit] Plants: Form and Function

An introduction to the structure and development of higher plants (at molecular, cellular and organism levels) discussed in relation to their function.

Precludes additional credit for BIOL 2000.

Prerequisites: BIOL 1003 and BIOL 1004 or permission of the Department.

Lectures three hours a week, laboratory or tutorial three hours a week.

### BIOL 2005 [0.5 credit] Human Physiology

A lecture and computer laboratory course on 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. Students in Biology and Biochemistry programs may only take this course as a free elective.

Prerequisites: BIOL 1003 and CHEM 1000 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 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 or BIOL 2105.

Prerequisite: a general biology course at the OAC level or equivalent.

Lectures three hours a week.

BIOL 2200 [0.5 credit]

### Cell Physiology and Biochemistry

A lecture and laboratory course on cellular functions and their inter-relationships. Topics include thermodynamics, membrane structure and function, transport mechanisms, basic metabolic pathways, energy production and utilization, communications between cells. (Listed as BIOC 2200 for students enrolled in the Biochemistry and Biochemistry/Biotechnology programs.)

Prerequisites: BIOL 1003 and BIOL 1004, CHEM 1000 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 CHEM 1000 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 permission of the Department.

Lectures three hours a week, laboratory or tutorial four hours a week.

BIOL 2909 [0.5 credit]

### Co-operative Work Term Report

Practical experience for students enrolled in the Co-operative Option. To receive course credit 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, 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, 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 2200 and BIOL 2303, or permission of the Department.

Lecture/tutorial one hour a week, laboratory four hours a week.

BIOL 3305 [0.5 credit]

### Animal Physiology

The properties of physiological systems and components of animals with emphasis on their physico-chemical bases.

Prerequisites: BIOL 2200 and BIOL 2001.

Lectures three hours a week, laboratory four hours a week.

BIOL 3501 [0.5 credit]

### The Biophysics of Animal Movement

Topics include the properties of muscles, tendons, bones, joints and the co-ordinated use of these structures. Human locomotion and fitness, bird flight, especially the soaring of the vulture and the albatross, and animal migration are covered in detail.

Prerequisites: BIOL 2200 or CHEM 2101 and PHYS 1001 and PHYS 1002 or PHYS 1003 and PHYS 1004 or PHYS 1007 and PHYS 1008 or permission of the Department.

Lectures three hours a week.



BIOL 3601 [0.5 credit]

**Ecosystem Ecology**

A course utilizing the concepts presented in BIOL 2600 and selected ecological experiments to analyze ecosystem types and the major factors that characterize them.

Prerequisite: BIOL 2600.

Lectures three hours a week, laboratory four hours a week.

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: GEOG 2100, BIOL 2600, or permission of the Department.

BIOL 3609 [0.5 credit]

**Evolutionary Concepts**

Evolution as related to gene pools, isolation, speciation, natural selection, competition, dominance, and distributional patterns; examples from North American biota are emphasized.

Precludes additional credit for BIOL 4609.

Prerequisites: BIOL 2600 or permission of the Department.

Lectures two hours a week, laboratory four hours a week.

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 3909 [0.5 credit]

**Co-operative Work Term Report**

Practical experience for students enrolled in the Co-operative Option. To receive course credit 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**

Basic ideas of population structure, equilibrium, selection mutation, genetic drift.

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 2104 and BIOL 3104) or (BIOL 2105 and BIOL 2303).

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.

Precludes additional credit for BIOL 4107.

Prerequisites: BIOL 2303 or BIOL 3303 and BIOL 4106 or equivalent and a course in Biochemistry or permission of the Department. Enrolment limited.

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**

This laboratory course is complementary to BIOL 4200. 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. Also listed as BIOC 4201.

Precludes additional credit for BIOL 4302 (BIOC 4302).

Pre-requisites: BIOL 4200, which may be taken concurrently, or permission of the Department.

Laboratory four hours per 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 2200 (or BIOC 3100 taken concurrently) or BIOL 3104, or permission of the Department.

Lectures two hours a week and workshop two 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 2303 or BIOL 3303 or BIOC 3100, 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 2303 or BIOL 3303 or BIOC 3100 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, and PHYS 1007 and PHYS 1008, or PHYS 1001 and PHYS 1002, 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/BIOL 2200 and BIOC 3100, or permission of the Department.

Lectures two hours per week; workshop two hours per week.

BIOL 4500 [0.5 credit]

**Ornithology I**

This course is an introduction to ornithology, the study of birds, and will cover an array of topics including the evolution of birds, migration, geographic variation, adaptations for flight, feeding, reproduction, as well as 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. Coverage of 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.

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 are discussed.

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. Issues could 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 [0.5 credit]

**Co-operative Work Term Report**

Practical experience for students enrolled in the Co-operative Option. To receive course credit 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

**Note:** B.Com. and B.I.B. students should use Business (BUSI) prefix for registering in courses that are cross-listed with other Carleton units.

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 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]

#### Programming for Business Students I

Basic control structures of sequence, selection, and iteration. Focus on problem solving in the context of programming for Business. Structured and visual languages may be taught.

Prerequisite: registration in B. Com. or B.I.B.

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.

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 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).

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 2702 and BUSI 3602.

Lectures three hours a week.

BUSI 2204 [0.5 credit]

#### Basic Marketing

Basic problems and practices in marketing for students with no background in accounting and business. Marketing strategy, planning, packaging, branding and promotion at the level of the individual firm.

Precludes additional credit for BUSI 2208.

Prerequisite: restricted to students enrolled in B.I.D., B.P.A.P.M., Minor in Business or the Management Concentration in Engineering.

Lectures three hours a week.

BUSI 2208 [0.5 credit]

#### Introduction to Marketing

Overview of the marketing function within the firm. Promotion, product design, pricing and distribution channels are examined. Consumer buyer behaviour, trends in retailing, wholesaling, sales force management and marketing research are also reviewed. Case studies are used.

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 2300 [0.5 credit]

**Introduction to Management Science**

Management science techniques for business decision making. Linear and integer programming, network optimization, decision analysis, and simulation. Emphasizes underlying ideas, model formulation, computer implementation, and analysis of model results.

Precludes additional credit for ECON 4004 and SYSC 3200.

Prerequisites: MATH 1119 and ECON 2201 or STAT 2606, which may be taken concurrently with BUSI 2300.

Lectures three hours a week.

BUSI 2400 [0.5 credit]

**Introduction to 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]

**Programming for Business Students II**

Introduction to the Object-Oriented Paradigm. Fundamentals of object-oriented programming using C++. Objects, abstraction and inheritance. Event-driven programming. Advanced concepts of iteration, sequence and selection. Algorithms for searching, sorting, string processing and numerical analysis. Development of business applications in C++.

Precludes additional credit for COMP 1002.

Prerequisite: BUSI 1402 (with a grade of C or higher).

Lectures three hours and tutorial one hour a week.

BUSI 2503 [0.5 credit]

**Basic Financial Management**

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]

**Essentials of Business Finance**

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 Economics, Concentration in Financial Economics.

Lectures three hours and tutorial one hour a week.

BUSI 2505 [0.5 credit]

**Business Finance**

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 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 2101.

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 some 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 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: 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., and BUSI 2101 and BUSI 3103 (with a grade of C- or higher in each).

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: BUSI 3100 and BUSI 3104 (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 a communication process and marketing management tool. Effective integration of advertising, direct/internet marketing, sales promotion, public relations, and personal selling through a strategic planning process involving budgeting, research, creative and media strategy and execution, and campaign evaluation.

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**

Research design, questionnaire design, scales, sources of information and error, sampling techniques, basic statistical measures, measures of association, regression, and an overview of multivariate methods. Pragmatic implications of marketing research are stressed, with use of case studies and data analysis.

Precludes additional credit for BUSI 3100.

Prerequisites: BUSI 2204 or BUSI 2208 (with a grade of C or higher); ECON 2202 or 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.

BUSI 3300 [0.5 credit]

### **Introduction to Operations Management**

Mostly managerial activities in selecting, designing, operating, controlling and updating production systems.

Prerequisites: BUSI 1704 and BUSI 1705, or BUSI 2300, ECON 2201 or STAT 2606.

Lectures three hours a week.

BUSI 3304 [0.5 credit]

### **Forecasting Methods in Business**

Concepts and methods for short and long-term forecasts in both private and public sector organizations. Data analysis and transformation, univariate methods (including ARIMA), causal forecasting methods, qualitative and technology forecasting methods, evaluation and combination of forecasts.

Precludes additional credit for ECON 4803.

Prerequisites: ECON 2202 or STAT 2607 (with a grade of C- or higher).

Lectures: three hours a week.

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 in each).

Lectures: three hours a week.

BUSI 3400 [0.5 credit]

### **Database Analysis and Design**

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 1402 and BUSI 2400 (with a grade of C or higher in each).

Lectures three hours, tutorials one hour a week.

BUSI 3403 [0.5 credit]

### **Information Systems Analysis**

Methods of analysis of computer-based information systems. Requirements analysis, the systems development life cycle, object-oriented analysis, analysis of real-time systems, data analysis.

Precludes additional credit for SYSC 3100.

Prerequisites: BUSI 2402 or COMP 2004; BUSI 2503 or BUSI 2504 (with a grade of C- or higher in each).

Lectures three hours and tutorials one hour a week.

BUSI 3404 [0.5 credit]

### **Information Systems Design**

Continuation of BUSI 3403. Techniques to transform analysis into design. User interface design, object-oriented design, hardware, software and application design, integration and implementation.

Prerequisites: BUSI 3400 and BUSI 3403 (with a grade of C- or higher in each).

Lectures three hours and tutorials one hour a week.



BUSI 3405 [0.5 credit]

**Enterprise Processes Analysis**

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 3303 or BUSI 3403 (with a grade of C- or higher).

Lectures three hours a week.

BUSI 3407 [0.5 credit]

**Technology Project Management**

Organizational managerial and technical issues of information system and technology industry projects. Defining and setting up successful projects. Characteristics of successful project managers. Tracking and monitoring. Estimation techniques. Risk analysis. Learning from projects. Examples and case studies.

Precludes additional credit for BUSI 4407.

Prerequisites: BUSI 2400 and BUSI 3300 (with a grade of C- or higher in each).

Lectures three hours a week.

BUSI 3500 [0.5 credit]

**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. (Also listed as ECON 3500.)

Prerequisites: BUSI 2505, ECON 2002 and one of ECON 2202 or STAT 2607.

Lectures three hours a week.

BUSI 3502 [0.5 credit]

**Principles of 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. (Also listed as ECON 3502.)

Prerequisites: BUSI 2505, and ECON 2202 or STAT 2607.

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 2505 (with a grade of C- or higher).

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. The course will be graded as Satisfactory or Unsatisfactory.

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 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.

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 4007 [0.5 credit]

**Auditing I**

Auditing theory, methodology and application.

Prerequisite: BUSI 2002 (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: third-year standing in B.Com. or B.I.B., BUSI 3100 and BUSI 3103 (with a grade of C- or higher in each).

Lectures three hours a week.

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 4109 [0.5 credit]

**Practicum in Management**

In this capstone course students work on real human resource/organizational problems. This experience will allow students to integrate and apply the material learned in previous courses and learn how to manage client relationships.

Prerequisites: fourth-year standing in B.Com and BUSI 3105 and BUSI 4103 (with a grade of C- or higher in each).

Lecture and field work as needed.

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 and BUSI 3103 (with a grade of C- or higher in each).

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**

"Managerial" aspects of marketing. Market segmentation, social and regulatory aspects in marketing, channels of distribution, industrial marketing, sales force management and other current topics are discussed in detail.

Prerequisite: BUSI 3205 or BUSI 3207 (with a grade of C or higher).  
Lectures three hours a week.

BUSI 4302 [0.5 credit]

**Management of Quality**

Quality in manufacturing and service systems. Quality of design & of conformance, quality control & improvement tools, total quality, product and process design, continuous improvement, reengineering, ISO 9000 registration and assessment, management of quality in the global enterprise.

Precludes additional credit for BUSI 3302.  
Prerequisite: BUSI 1704 and BUSI 1705 or BUSI 2300; BUSI 3300 (with a grade of C or higher in each) and ECON 2202 or STAT 2607 (with a grade of C- or higher).  
Lectures three hours a week.

BUSI 4303 [0.5 credit]

**Supply Chain Management**

Managing the flows of material and the interactions between different organizations in supplier/manufacturer/distributor systems. Logistics, responsiveness, just-in-time, co-ordination of operations & marketing, information systems needs, strategic positioning, supply chain management in global enterprises.

Precludes additional credit for BUSI 3303.  
Prerequisites: BUSI 3300, and ECON 2202 or STAT 2607 (with a grade of C- or higher in each).  
Lectures three hours a week.

BUSI 4305 [0.5 credit]

**Operations Research II**

Dynamic programming, inventory models, queuing, simulation, non-linear programming. (Also listed as ECON 4005.)

Prerequisites: third-year standing, and BUSI 2300 or ECON 4004 or MATH 3801, and ECON 2202 or STAT 2607 (with a grade of C- or higher in each).  
Lectures 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.)

Prerequisite: fourth-year standing.  
Lectures three hours a week, problem analysis three hours alternate weeks.

BUSI 4400 [0.5 credit]

**Management of Information Systems**

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 4401 [0.5 credit]

**Advanced Programming for Electronic Businesses**

Analysis, design and implementation of Electronic Business Systems. Topics include advanced object-oriented programming (Java), advanced SQL programming, and XML, using ASP.NET, MTS and SQL Server.

Prerequisites: BUSI 2402 and BUSI 3400, or COMP 1002 and COMP 3005 (with a grade of C- or higher in each).

BUSI 4402 [0.5 credit]

**Information Systems Analysis and Design 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: BUSI 3403 and BUSI 3404 (with a grade of C- or higher in each).  
Lectures three hours a week.

BUSI 4404 [0.5 credit]

**Telecommunications: A Management Perspective**

Challenges and issues managers face in coordinating telecommunications and data networking services delivery to their organizations. Technical and managerial aspects of data communications, local, widearea, and wireless networks, network protocols, Internet/intranets, client/server computing, network security and management.

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: BUSI 3403, and BUSI 3404 or COMP 3008 (with a grade of C- or higher in each).  
Lectures three hours 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 (with a grade of C- or higher).  
Lectures three hours a week.

BUSI 4502 [0.5 credit]

### **Investment 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 3502 (with a grade of C- or higher).  
Lectures three hours a 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 3700 or 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]

### **History of Business in Canada 1850-1980**

The place of business in Canadian society, economics and politics. The internal dynamics of Canadian business, and its external implications. Students apply a historical perspective to issues and problems in the contemporary business environment. (Also listed as HIST 3205.)

Prerequisite: fourth-year standing in B.Com. or B.I.B.

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.

Precludes additional credit for BUSI 4704.  
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 4800 [0.5 credit]

**Business Case Analysis**

Analysis, solution, and presentation of business cases in a competitive environment focusing on a specific functional area, choosing from a number of functional areas. Participation in the Annual (Canadian) Inter-Collegiate Business Competition.

Prerequisites: enrolment in B.Com. or B.I.B. program or permission of the School.

Flexibly scheduled meetings and workshops with faculty.

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: CGPA of 10.00 or higher and permission of the School of Business.

BUSI 4905 [0.5 credit]

**Directed Studies II (Term Paper)**

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: 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: Aboriginal peoples, language and ethnicity, race, technology, gender, the arts, and international relations.

Two hour lecture, one hour weekly discussion group.

CDNS 2010 [0.5 credit]

#### **Introduction to Aboriginal-Canadian Relations**

Interdisciplinary introduction to the foundational relationship between Aboriginal Peoples and the state (1763 to 1982). Topics include historical treaties, Métis history, Inuit and Northern issues, Indian status, residential schools, colonial policy and constitutional participation. This is the foundational course to understanding contemporary Aboriginal issues.

Prerequisite: one of CDNS 1000, FYSM 1406, FYSM 1409, FYSM 1600 or permission of the School of Canadian Studies.

Two-hour lecture, one hour weekly discussion group.

CDNS 2011 [0.5 credit]

#### **Framing Contemporary Aboriginal Issues**

Aboriginal and non-Aboriginal perspectives on contemporary issues. Topics include: contemporary explorations of the treaty relationship and governance, cultural appropriation, identity politics, urban Aboriginality and contemporary social and cultural issues.

Precludes additional credit for CDNS 2100

Prerequisite: CDNS 2010 or permission of the School of Canadian Studies.

Two-hour lecture, one hour weekly discussion group.

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: one of CDNS 1000, FYSM 1406, FYSM 1409, FYSM 1600 or permission of the School of Canadian Studies.

Two-hour lecture, one hour weekly discussion group.

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: one of CDNS 1000, FYSM 1406, FYSM 1409, FYSM 1600 or permission of the School of Canadian Studies.

Two-hour lecture, one-hour weekly discussion group.

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: one of CDNS 1000, FYSM 1406, FYSM 1409

FYSM 1600 or permission of the School of Canadian Studies.

Two hour lecture, one hour weekly discussion group.

CDNS 2500 [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.

Prerequisite: one of CDNS 1000, FYSM 1406, FYSM 1409, FYSM 1600 or permission of the School of Canadian Studies.

Two hour lecture, one hour weekly discussion group.

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 3104 [0.5 credit]

#### **Aboriginal Peoples and the Knowledge Economy**

The dislocation of Aboriginal knowledge from its original context and its relocation within the knowledge economy. Prerequisite: one of CDNS 1000, FYSM 1406, FYSM 1409, FYSM 1600 or permission of the School of Canadian Studies.

Seminar three hours a week.

CDNS 3300 [0.5 credit]

#### **Globally Wired Canada: Cultural Issues**

How Canadians are shaped by global multimedia and use the media to articulate their identities. Examination of key Canadian thinkers on technology and media. Critical discussions of issues like education, consumerism, online culture, Diaspora, and the state.

Precludes additional credit for CDNS 3500.

Prerequisite: one of CDNS 1000, FYSM 1406, FYSM 1409, FYSM 1600 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: one of CDNS 1000, FYSM 1406, FYSM 1409, FYSM 1600 or permission of the School of Canadian Studies.

Seminar three hours a week.

CDNS 3510 [0.5 credit]

#### **Québec Studies**

Interdisciplinary examination of historical and contemporary aspects of Québec society, with attention to the construction of the Québec identity, Québec nationalism and tensions with Canadian nationalism, cultural production, and social mobilization.

Prerequisite: one of CDNS 1000, FYSM 1406, FYSM 1409, FYSM 1600 or permission of the School of Canadian Studies.

Seminar three hours a week.

CDNS 3600 [0.5 credit]

#### **Critical Perspectives on Diversity 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: one of CDNS 1000, FYSM 1406, FYSM 1409, FYSM 1600 or permission of the School of Canadian Studies.

Seminar three hours a week.

CDNS 4101 [0.5 credit]

**Selected Topics in Métis Studies**

Selected topics such as traditions, history, culture, and contemporary issues. Topics will vary depending upon the interests and expertise of the instructor.

Seminar three hours a week.

Prerequisite: fourth-year honours standing and two of CDNS 2010, CDNS 2011, CDNS 2100, CDNS 3104; or permission of the School of Canadian Studies.

CDNS 4104 [0.5 credit]

**Aboriginal Health and Healing**

Healing has become a cultural phenomenon among Aboriginal peoples even as good health eludes most. The collisions within and between traditional beliefs, symbols and practices are examined against that of the Canadian health care system.

Precludes additional credit for CDNS 2101.

Prerequisite: fourth-year honours standing and two of CDNS 2010, CDNS 2011, CDNS 2100, CDNS 3104; or permission of the School.

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 and CDNS 2500, 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 and CDNS 2400 or permission of the School of Canadian Studies.

Seminar three hours a week.

CDNS 4500 [0.5 credit]

**Globally Wired Canada: Political and Social Issues**

Interdisciplinary examination of the networking of Canada into the global political economy and its impact on issues like work, community, public services, and the state.

Precludes additional credit for CDNS 3301.

Prerequisite: fourth-year honours standing and CDNS 3300 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 0100 [1.0 credit]

#### Introductory Chemistry

Introduction to fundamental laws and principles of chemistry and the techniques needed to solve numerical problems. Laboratory component introduces common lab methods and techniques, and reinforces some of the lecture material.

Precludes additional credit for OAC Chemistry.

Prerequisite: Ontario Grade 11 Chemistry or equivalent.

Lectures three hours a week, tutorial one hour a week.

CHEM 1000 [1.0 credit]

#### General Chemistry

Solution equilibria, acid and base chemistry; electronic structure of atoms; energy states and spectra; descriptive chemistry and periodic properties of elements; structure of covalent and ionic substances; energy relationships and theories in bonding, equilibria, and rates of reactions. Experimental techniques in analysis and synthesis.

Precludes additional credit for CHEM 1101.

Prerequisites: OAC in Calculus and Chemistry, or equivalent. This course is intended for students in all programs who plan to take further chemistry courses. 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 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.

Prerequisites: OAC in Calculus and 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 1000, MATH 1007 and MATH 1107, OAC 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 1000.

Lectures three hours a week, laboratory 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 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 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 1000.

Lectures three hours 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.

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 1000 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 1000 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 1000.

Lectures three hours 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 1000 or CHEM 1101, and MATH 1007 or equivalents.

Lectures three hours a week, laboratory three hours a week.

CHEM 2909 [0.5 credit]

**Co-operative Work Term Report 1**

These work terms provide practical experience for students enrolled in the Co-operative option. To receive credit, 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 2101 and 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**

Use of PC Spartan. Molecular mechanics models. Geometry optimization, vibration frequencies, IR spectra, animation of normal modes. Ab initio and semi-empirical models. Selection of an appropriate model; comparison of results. Reaction thermochemistry. Molecular structure. Transition states and activation energies. Display of graphical surfaces.

Prerequisite: CHEM 3102 (may be taken concurrently).

Laboratory four hours a week.

CHEM 3107 [0.5 credit]

**Experimental Methods in Nanoscience**

Powder X-ray diffraction, theory and structure determination; thin film production and characterization, scanning electron microscopy, synthesis of metal nanoparticles and particle size determination, computational modelling of nanostructures.

Prerequisites: CHEM 3100.

Laboratories and tutorials three 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 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.

Prerequisite: CHEM 2501.

Lectures three hours a week and laboratory 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.

Prerequisite: CHEM 3503.

Lectures three hours a week and laboratory four hours 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 [0.5 credit]

#### Co-operative Work Term Report 2

These work terms provide practical experience for students enrolled in the Co-operative option. To receive credit, 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 4202 [0.5 credit]

#### Advanced Topics in Organic Chemistry I

Topics include 2-dimensional  $^1\text{H}$  and  $^{13}\text{C}$  NMR spectroscopy and structure determination of complex organic molecules. Also offered at the graduate level, with additional requirements, as CHEM 5407, for which additional credit is precluded.

Prerequisite: CHEM 3201.

Lectures and seminars three hours a week.

CHEM 4203 [0.5 credit]

#### Advanced Topics in Organic Chemistry II

Synthetic organic chemistry. The application of reactions to the synthesis of organic molecules. Emphasis on design of sequences, new reagents, and stereoselectivity.

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 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.

Given in alternate years with CHEM 4302.

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.

Given in alternate years with CHEM 4301.

Lectures and seminars three hours a week.

CHEM 4303 [0.5 credit]

**Scientific Data Processing and Evaluation**

Optimization of scientific measurements, calibration, uni-variate and multi-variate analysis of scientific data, "intelligent" spreadsheets for scientific data processing and presentation, noise reduction using spreadsheets, correction for signal drifts; examples from chemistry, spectroscopy and other scientific disciplines.

Prerequisites: CHEM 4301, or permission of the Department. Also offered at the graduate level, with different requirements, as CHEM 5904 for which additional credit is precluded.

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 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.

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 [0.5 credit]

**Co-operative Work Term Report 3**

These work terms provide practical experience for students enrolled in the Co-operative option. To receive credit, 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.

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## Child Studies (CHST)

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### Child Studies Committee Institute of Interdisciplinary Studies Faculty of Arts and Social Sciences

CHST 2502 [1.0 credit]

#### Issues in Child Studies

An interdisciplinary approach to Child Studies focusing on issues associated with non-maternal childcare. Emphasis is on developing academic skills and understanding methods of study employed by various disciplines, including psychology and sociology. Research ethics are introduced.

Precludes additional credit for CHST 2501 (no longer offered).

Prerequisite: restricted to students in the Child Studies program or permission of the Department.

Seminars 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.



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## Chinese (CHIN)

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### School of Linguistics and Applied Language Studies Faculty of Arts and Social Sciences

CHIN 1100 [2.0 credits]

#### **Intensive Introductory Mandarin Chinese**

For students with little or 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.

Precludes additional credit for CHIN 1101 and ALSS 1100.

Eight hours a week.

CHIN 1101 [1.0 credit]

#### **Low Intermediate Mandarin Chinese**

Continuation of the study of Chinese to reach by the end of the course a level of proficiency comparable to that of students who complete CHIN 1100. All skills; emphasis on the development of reading and writing.

Precludes additional credit for CHIN 1100 and ALSS 1100.

Prerequisite: at least one year of high school Chinese, or equivalent ability.

Eight hours a week (one term).

CHIN 2100 [1.0 credit]

#### **Intermediate Mandarin Chinese**

Continuation of the study of Chinese to reach a more advanced level of ability in a range of situations. Equal emphasis on oral and written language.

Prerequisite: grade of C or higher in ALSS 1100, CHIN 1100 or CHIN 1101 or equivalent, or a minimum of two years of Chinese as a second language at secondary school.

Four hours a week.

CHIN 3100 [1.0 credit]

#### **Advanced Mandarin Chinese**

Continuation of the study of Chinese to reach a more advanced level, including ability to handle authentic materials and primary texts required for academic studies.

Prerequisite: grade of C or higher in CHIN 2100 or equivalent.

Three hours a week.

CHIN 4100 [1.0 credit]

#### **Advanced Mandarin Chinese for Specific Purposes**

Focus on 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.

Prerequisite: grade of C+ or higher in CHIN 3100 or equivalent.

Seminars three hours a week.



## 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 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.

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 1000 CHEM 1101 or equivalent, MATH 1004, and PHYS 1004.

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.

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.

Lectures three hours a week, problem analysis three hours alternate weeks.

CIVE 3205 [0.5 credit]

#### Design of Structural Steel Components

Introduction to CAN/CSA - 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 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 status 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 status 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 by the General Method. 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 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.

Prerequisites: ECOR 2606 and fourth-year status in Engineering.

Lectures three hours a week, problem analysis three hours alternate weeks.

CIVE 4600 [0.5 credit]

**Advanced Building Systems**

Architecture as a multi-disciplinary endeavour with emphasis on the architect's role and responsibility. Relationship of design intentions to support, enclosure, services, interior finishes with emphasis on contemporary concerns and means in architecture. Basic concepts of structural analysis and design.

Precludes additional credit for ARCC 2103.

Prerequisites: ARCC 1001 and CIVE 1005.

Lectures three hours a week, laboratory one hour a week.

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.

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 seven 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

An introduction to the study of Greek 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 FYSM 1106, CLCV 1000, and CLCV 1109.

Lectures two 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 FYSM 1106, CLCV 1000, and CLCV 1109.

Lectures two 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).

Precludes additional credit for CLCV 3000.

Prerequisite: second-year standing or registration in the B.Hum. program or permission of the unit.

Lectures and discussion three hours a week.

CLCV 2006 [0.5 credit]

### Plato and Aristotle

An historical and critical study of some central issues in the philosophy of Plato and of Aristotle.

Precludes additional credit for PHIL 2005 and PHIL 2006 (no longer offered).

Prerequisite: at least 0.5 credit in Philosophy or second-year standing.

Lectures three hours a week.

CLCV 2007 [0.5 credit]

### Western Phil.: 300 BC - AD 1200

The evolution of western philosophy from the fourth through the twelfth century: theories of human nature, knowledge and reality are traced from the Hellenistic philosophers through the early medieval synthesis of reason with Christianity. Several thinkers (e.g. Plotinus, Augustine, and Anselm) are studied in depth.

Precludes additional credit for PHIL 2205 and PHIL 2007 (no longer offered).

Prerequisite: CLCV 2006 or permission of the Philosophy department.

Lectures 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.

Lectures two 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 2102.)

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.

Lectures two 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.

Lectures two hours a week.

CLCV 2305 [1.0 credit]

### Ancient Science and Technology

The development of science and technology in the ancient world and their practical application in such fields as ancient engineering, machinery, metallurgy, transport, building, agriculture and Hippocratic medicine; the position of the craftsman and artisan in society, the attitude of the intellectuals to science and manual labour, and the effect upon technological development of the institution 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 unit.

Lectures two hours a 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 her characteristic institutions. (Also listed as HIST 2900.)

Prerequisite: second-year standing or permission of the unit.

Lectures two hours a week.

CLCV 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. (Also listed as HIST 2901.)

Prerequisite: second-year standing or permission of the unit.

Lectures two hours a week.

CLCV 3001 [0.5 credit]

### Early Greek Philosophy

A study of the pre-Socratic Greek philosophers and of the Sophists and Socrates. (Also listed as PHIL 3001).

Prerequisite: CLCV 2006 or permission of the Philosophy department.

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.

Lectures 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.

Lectures two hours a week.

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.

Lectures two 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.)

Prerequisite: second-year standing or permission of the unit.

Lectures three hours a week.

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.

Prerequisite: CLCV 2009 or permission of the unit

Lectures two hours a week.

CLCV 3702 [0.5 credit]

**Studies in Roman Literature**

A study of an author or topic in Roman literature.

Prerequisite: CLCV 2009 or permission of the unit.

Lectures two 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 two 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 two 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 two 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 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.



## Cognitive Science (CGSC)

### Cognitive Science Committee Institute of Cognitive Science Faculty of Arts and Social Sciences

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 and seminars 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, SLALS 1000, 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

The major theories and empirical approaches within Cognitive Science are examined through a detailed consideration of selected topics. Students may be required to complete independent research projects.

Prerequisites: CGSC 2001 and CGSC 2002. Limited enrolment, intended for honours students in Cognitive Science.

Lectures, seminar and tutorials six hours per week.

CGSC 3100 [0.5 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]

#### Special Topics in Cognitive Science

Topics may vary from year to year, and between course sections. For more information, consult the Institute after March 1. Students may register in more than one section of CGSC 4001 but may register in each section only once.

Prerequisites: each section will have its own prerequisites and permission of the department if required.

Seminar three hours per week.

CGSC 4100 [0.5 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 [0.5 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 4908 [1.0 credit]

#### Honours Project

Interdisciplinary research project for Honours students in the fourth year of all IIS programs. 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. Faculty regulations governing Honours Research Essays and Honours Theses apply.

Prerequisite: registration in this course is limited to students in the fourth year of a B.A. (Honours) program in Cognitive Science.

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## Communication Courses for Disciplines and Professions (CCDP)

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**School of Linguistics and  
Applied 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).

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.

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.

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## Comparative Literary Studies (CLST)

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### Institute for Comparative Studies in Literature, Art and Culture Faculty of Arts and Social Sciences

CLST 1000 [1.0 credit]

#### **The Literatures of Europe: Representative Texts**

Study of major literary traditions in Europe and their interrelations from antiquity to the present. Homer, Sophocles, Virgil, Dante, Boccaccio, Machiavelli, Cervantes, Molière, Goethe, Flaubert, Austen, Dostoevsky, Proust, Joyce, Pirandello, Kafka, Woolf, Calvino. All texts in English.

Lectures and seminar three hours a week.

CLST 3002 [1.0 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. (Also listed as WOMN 3002.)

Prerequisite: second-year standing or permission of the Discipline.

Seminar 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 1002 [0.5 credit]

#### Introduction to Systems Programming

Introduction to programming with procedures and primitive data types. 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 1007, COMP 1402, SYSC 1102 and ECOR 1606.

Prerequisite: COMP 1005.

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 Object-Oriented Programming

A first course in problem solving and computer programming designed for students wishing to specialize in Computer Science. Introduction to object-oriented programming; syntactic constructs, data abstraction, classification and inheritance, typing and polymorphism, testing and debugging.

Precludes additional credit for COMP 1405 and SYSC 1100.

Prerequisite: COMP 1005.

Lectures three hours a week, tutorial one and a half hours a week.

COMP 1006 [0.5 credit]

#### Design and Implementation of Computer Applications

A continuation of COMP 1005, focusing on the design and implementation of complete applications. Topics

covered include persistence, graphical user interface design and implementation, event-driven programming, recursion, drawing and manipulating 2D graphics and networking.

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 1402 [0.5 credit]

#### Introduction to Systems Programming

Introduction to programming with procedures and primitive data types, designed for honours students in Computer Science. 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 1007, SYSC 1102, and ECOR 1606.

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 hour a week.

COMP 1405 [0.5 credit]

#### Introduction to Object-Oriented Programming

A first course in problem solving and computer programming designed for Honours students in Computer Science. Introduction to object-oriented programming; syntactic constructs, data abstraction, classification and inheritance, typing and polymorphism, testing and debugging.

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]

#### Design and Implementation of Computer Applications

A continuation of COMP 1405 focusing on the design and implementation of complete applications. Topics covered include persistence, graphical user interface design and implementation, event-driven programming, recursion, drawing and manipulating 2D graphics and networking.

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 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.)

Prerequisites: two OACs in Mathematics or two Grade 12 university preparation Mathematics courses (after Summer 2002), and one of COMP 1405, COMP 1005, COMP 1007 or Engineering SYSC 1100 (which may be taken concurrently).

Lectures three hours a week, tutorial one hour 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 (RISC, CISC, superscalar). Instruction sets and addressing modes. Assembly language. Basics of digital logic and hardware construction. Memory organization and cache principles. System buses. Input/output methods and devices.

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 1402, COMP 1002 or ECOR 1606.

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.

Prerequisites: COMP 1002 and COMP 1005.

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 1002 and COMP 1006 or equivalent.

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 1402 and COMP 1405. 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 1402 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.

Prerequisite: COMP 1405.

Lectures 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, complexity theory, graph theory, and algorithms.

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 3003.

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 2404.

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: COMP 2002 or COMP 2402, and COMP 2004 or COMP 2404; alternatively, SYSC 2100 and SYSC 2101.

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.

Precludes additional credit for 95.207\*.

Prerequisite: two of COMP 2402, COMP 2404, COMP 2405 or their equivalents.

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 3104 [0.5 credit]

**Foundations of Software Engineering**

A survey of the software engineering field. Possible topics include: processes, project management, requirements engineering, formal specifications, software design, software reliability, reuse, computer-aided software engineering, configuration management, maintenance and re-engineering.

Precludes additional credit for SYSC 4800.

Prerequisite: COMP 2004 or COMP 2404.

Lectures three hours a week.

COMP 3200 [0.5 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 [0.5 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 [0.5 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 3003.

Lectures three hours a week.

COMP 3308 [0.5 credit]

**Introduction to Bioinformatics**

Practical exploration of the broad scope of bioinformatics; theory, implementation, applications and limitations of computational approaches. Topics may include introductory programming, data modeling, biological databases, sequence alignment, phylogeny, pathways and biological networks. Also listed as BIOC 3008.

Precludes additional credit for BIOC 4006.

Prerequisites: BIOL 2104 and one of BIOC 2200 or BIOL 2200; or permission of the Biochemistry Institute. Background in computer programming and/or evolutionary concepts is recommended.

Lecture one and a half 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.

Prerequisite: MATH 1104.

Lectures 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 2805 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 and Euler trails. Error-correcting codes. Designs and finite geometries. Symmetry and counting. (Also listed as MATH 3805.)

Prerequisites: One of Mathematics MATH 2108 or MATH 3101, MATH 2100.

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.

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]

#### Computer Graphics

Principles and techniques of real-time 2D and 3D graphics: raster graphics algorithms, transformations (scaling, translation, rotations) and viewing, object modeling, texture mapped rendering, illumination, ray tracing, hidden line and surface elimination. Other possible topics include: camera control, collision detection, articulated figures, 3D game engine development.

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]

#### Parallel Computing

Introduction to algorithms, architectures, and languages for parallel computing. Topics include: models of computation, parallel programming languages, performance measures for parallel algorithms, shared memory parallel machines, VLSI design methodologies, processor arrays, hypercube multiprocessors, parallel algebraic operations, parallel data structures and parallel searching, parallel geometric processing.

Prerequisite: COMP 3804.

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 4101 [0.5 credit]

#### Distributed Object Management and Transaction Processing Systems

Study of the principles involved in the design and implementation of distributed object management, CORBA-based transaction services and distributed object-based applications. Topics include: Distributed Object Management Architectures, Transactional Middleware, Combining Java, Web and CORBA Objects within Heterogeneous Systems, Interoperability, Security, Scalability and Performance Measures.

Prerequisite: COMP 3000 and COMP 3005.

Lectures three hours a week.

COMP 4104 [0.5 credit]

#### Distributed Programming in Java

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 and COMP 4106.

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 3804.

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 3804.

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]

**Advanced Bioinformatics**

A computational course that explores the dynamic nature of proteins and cellular networks. Topics may include object oriented programming, integrated databases, protein structure prediction, drug discovery and cell simulation. (Also listed as BIOC 4008.)

Prerequisites: COMP 3308 or BIOC 4006 or permission of the Biochemistry Institute. Background in biomacromolecules, biochemical regulation and/or object-oriented programming are recommended.

Lecture one hour a week, computer workshop three 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 2501 or permission of the instructor.

Lectures 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. Also offered at the graduate level, with additional or different requirements, as COMP 5703, for which additional credit is precluded.

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 3100 or permission of the School.

Lectures three hours a week.

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**

B.C.S. students must select and complete a major project in computer science in fourth year. Students must submit written project proposals to the Honours Project Co-ordinator for approval, normally during the term preceding the term of registration.

Consult the School's Web site for strict deadlines and guidelines.

Prerequisite: registration in the B.C.S. 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 3000 [1.0 credit]

#### **Honours Seminar in Criminology**

Issues and research methodologies in the study of crime. Emphasis is on a critical evaluation of literature and methods used across disciplines. Topics of professional interest, including ethics, are also considered. Students may be required to complete independent research projects.

Prerequisites: third-year standing in the B.A. (Honours) program in Criminology and Criminal Justice and permission of the Institute.

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 and permission of the Institute.

Field placement eight hours a week, seminar three hours a week.

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 and permission of the Institute.

Field placement eight hours a week, seminar three hours a week.

CRCJ 4908 [1.0 credit]

#### **Honours Research Project**

A research project conducted under the direct supervision of a faculty adviser from Psychology, Law or Sociology. Mandatory workshops and symposiums are scheduled during the year.

Prerequisite: CRCJ 3000 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 1001 [0.5 credit]

#### Discovering Earth Sciences

Introduction to study of the earth sciences using geological field sites in the Ottawa region. Topics include rock and mineral identification and formation, the link between global plate tectonics, faults, and local earthquakes, geological time, fossils, and resource geology.

Precludes additional credit for ERTH 1006, GEOG 1100, or equivalent.

Prerequisite: permission of the Department.

Lectures, in-class laboratories, and field-based laboratories.

ERTH 1003 [0.5 credit]

#### Natural Disasters

Physical characteristics and causes of natural disasters of geological origin such as volcanic eruptions, earthquakes, tsunami, landslides and meteor impacts. Discussion on historical perspective, societal impact and mitigation strategies. Emphasis on Canadian case histories.

Available only as free elective in Science programs.

Lectures three hours a week.

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, GEOG 1100 or equivalent.

Prerequisites: OAC in Calculus and one of Biology, Chemistry, Earth and Space Sciences, or Physics; or permission of the Department.

Lectures three hours a week, a laboratory three hours a week, and a field excursion.

ERTH 1007 [0.5 credit]

#### The Dynamic Earth: Plate Tectonics

Plate tectonic processes that drive our planet, create the interior structure of the Earth, and form the oceanographic, geological, and geophysical characteristics of plate boundaries; origin of earthquakes, seismic hazards, and use of seismicity to explore the subsurface.

Precludes additional credit for GEOG 1100 or equivalent.

Prerequisites: OAC in Calculus and one of Biology, Chemistry, Earth and Space Sciences or Physics; or permission of the Department.

Lectures three hours a week and a laboratory 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 2101 [0.5 credit]

#### Geochemistry of Earth Systems

Origin and distribution of elements in the Earth; introduction to thermodynamics and solution chemistry

of sedimentary, igneous, and metamorphic rock systems.

Precludes additional credit for GEOL 2205 (no longer offered)

Prerequisites: ERTH 1001 or ERTH 1006 or ERTH 1007 and CHEM 1000, or permission of the Department.

Lectures three hours a week and a tutorial one hour a week.

ERTH 2102 [0.5 credit]

#### Mineralogy to Petrology

Origin and classification of common rock-forming minerals and their host igneous, metamorphic and sedimentary rocks using hand specimen and petrographic analysis.

Lectures and laboratory five hours a week.

Prerequisite: ERTH 2101

Precludes additional credit for GEOL 2203 (no longer offered).

ERTH 2311 [0.5 credit]

#### Earth's Paleogeography

Earth's changing patterns of continent and ocean basin distribution related to plate tectonics, and resulting change in global sedimentation, paleoclimates and life on Earth.

Precludes additional credit for GEOL 2301 (no longer offered)

Prerequisites: ERTH 1001 or ERTH 1006 or ERTH 1007; or permission of the Department.

Lectures 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 or ERTH 1006 or ERTH 1007; or permission of the Department.

Lectures two hours a week and a laboratory 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.

Not available as Science credit in Earth Sciences programs, except Honours concentration in Vertebrate Paleontology and Paleocology.

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.

Not available as Science credit in Earth Sciences programs.

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.

Not available as Science credit in Earth Sciences programs.

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 ERTH 2414.

Prerequisites: i) ERTH 1001, ERTH 1006 or ERTH 1007; or ii) (PHYS 1004, PHYS 1007 or PHYS 1008) and (CHEM 1101 or CHEM 1000 [1.0]).

Lectures three hours a week and a laboratory three hours a week.

ERTH 2405 [0.5 credit]

#### **Geophysical Methods**

An introduction to the tools of applied geophysics including seismology, electrical, magnetic, and gravitational surveying methods.

Prerequisites: One of ERTH 1001, ERTH 1006, ERTH 1007, PHYS1001, PHYS 1003, PHYS1007; or permission of the Department.

Lectures three hours a week.

ERTH 2414 [0.5 credit]

#### **Applied Geoscience**

Applications of the basic concepts of geology, earth materials and earth processes to practical engineering, environmental, and geological resource science. Rock and soil mechanics, slope stability, mapping applications, applications of hydrogeology, geological hazards, and site investigations. Overview of related geophysical methods.

Prerequisites: ERTH 1001 or ERTH 1006 or ERTH 1007; or permission of the Department.

Not available as credit in Earth Sciences programs.

Lectures three hours a week.

ERTH 2801 [0.5 credit]

#### **Outcrops to Basins**

Introduction to field techniques used to link the geological history of rocks exposed in outcrop to their regional distribution in geological basins. A ten-day field camp preceding fall term classes, with additional field trips during the fall term.

Precludes additional credit for ERTH 2805 or ENSC 2000 as a science credit.

Prerequisites: at least 1.0 credit from ERTH 1001, ERTH 1006, ERTH 1007, or equivalent.

ERTH 2802 [0.5 credit]

#### **Field Geology**

Analysis and interpretation of geological features and processes using geological, geophysical, and computational methods.

Prerequisite: ERTH 2801 or permission of the Department.

A two week field camp in early May.

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 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 or concurrent enrolment; or permission of the Department.

Lectures two hours a week and a laboratory three hours a week.

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, or concurrent enrolment; or permission of the Department

Lectures two hours a week and a laboratory three hours a week.

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, or permission of the Department.

Lectures three hours per week.

ERTH 3201 [0.5 credit]

#### **Applied Sedimentology**

Principles of siliciclastic and carbonate sedimentary geology used to create facies and sediment transport models as diagnostic tools for ancient environmental analysis, resource exploration, and modern surface environmental analysis.

Prerequisites: ERTH 1001 or ERTH 1006 or ERTH 1007; or permission of the Department.

Lectures and laboratory five hours a week.

ERTH 3202 [0.5 credit]

#### **Igneous/Metamorphic Petrology**

The origin of igneous and metamorphic rocks with emphasis on the chemical and mineralogical characteristics of these rocks and the processes involved in their evolution.

Prerequisite: ERTH 2101, ERTH 2102, ERTH 2802.

Lectures two hours a week, laboratory three hours a week, and a field excursion.

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: 3000-level standing in Earth Sciences; or permission of the Department.

Lectures and laboratory five hours a week.

ERTH 3205 [0.5 credit]

#### **Physical Hydrogeology**

Principles of groundwater flow in the Earth's crust, and introduction to the exploration, development and management of groundwater as a global resource.

Prerequisite: 1.0 credit from ERTH 1001, ERTH 1006, ERTH 1007 or equivalent.

Lecture two hours a week and a laboratory three hours a week.

ERTH 3805 [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.

Prerequisites: 3000-level standing in Earth Sciences; or permission of the Department.

Lectures two hours a week and a laboratory 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: 3000-level standing in Earth Sciences.  
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 honours standing and permission of the Department.  
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, or permission of the Department.

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 2404 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: 3000-level standing in any program.

Lectures 3 hours a week.

ERTH 4304 [0.5 credit]

**High Resolution Stratigraphy**

Methods and applications incorporating biostratigraphy, lithostratigraphy, and chemostratigraphy to define high resolution variation of environmental and evolutionary paleoecological change.

Lectures two hours a week, laboratory three hours a week.

Prerequisite: ERTH 2311, ERTH 2312, and ERTH 3201; or permission of the Department.

Lectures and laboratory five 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; and, petrographic and geochemical analysis of limestones and dolostones.

Prerequisites: ERTH 3201; or permission of the Department.

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: 4000-level standing in Earth Sciences, or permission of the Department.

Lectures, seminars and laboratory five hours a week.

ERTH 4307 [0.5 credit]

**Coastal Geology**

Geologic and oceanographic processes attending carbonate and siliciclastic coastal depositional systems; application of remediation measures to counter coastal change; measurement and significance of sea level change in the recent past and near future.

Prerequisites: ERTH 3201; or permission of the Department.

Lectures 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 3805 and 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: 4000-level standing in Earth Sciences, or permission of the Department.

Lectures and seminars three hours a week.

ERTH 4503 [0.5 credit]

**Crystalline Rock Petrogenesis**

The genesis of igneous and metamorphic rocks: tectonic settings, field and geochemical relationships, mineral assemblages, isotopic studies.

Prerequisites: ERTH 3202; or permission of the Department.

Lectures, laboratories five hours per 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: 4000-level standing in Earth Sciences or B.Eng. or permission of the Department.

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 3805; or permission of the Department.

Lectures three hours a week.

ERTH 4802 [0.5 credit]

**Geochemistry and Isotope Geology**

Chemical evolution of the Earth, meteorites, development of the continental crust, origin of the atmosphere and



hydrosphere, radiometric dating, stable isotopes, origin of life.

Prerequisites: 4000-level standing in Earth Sciences or permission of the Department.  
Lectures and seminars five hours a 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 2405.  
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.

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.

Prerequisite: completion of the third-year Earth Sciences course requirements.

## 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 FYSM 1003.

Lectures three hours a week, discussion groups one hour every two weeks.

ECON 2001 [0.5 credit]

#### Intermediate Microeconomics for Non-Majors

The main topics in microeconomic theory with illustrations of their applications. Not open to students in any Economics or B.Com. program.

Precludes additional credit for ECON 2002 and ECON 2003, which are recommended to students in B.C.S., B.Eng., B.I.D., B.Math., and B.Sc. programs.

Prerequisite: ECON 1000 or FYSM 1003, or permission of the Department.

Lectures three hours a week.

ECON 2002 [0.5 credit]

#### Intermediate Microeconomics I

An analysis of consumer demand, production, costs, and an introduction to market structures, with special reference to the determination of conditions that maximize social welfare.

Precludes additional credit for ECON 2001.

Prerequisites: ECON 1000 or FYSM 1003 with a grade of C- or higher; and MATH 1009 (or equivalent), which may be taken concurrently with ECON 2002.

Lectures three hours a week.

ECON 2003 [0.5 credit]

#### Intermediate Microeconomics II

An analysis of distribution, market structures, and general equilibrium theory, with special reference to the determination of conditions that maximize social welfare.

Precludes additional credit for ECON 2001.

Prerequisites: ECON 2002 with a grade of C- or higher, and MATH 1009 (or equivalent).

Lectures three hours a week.

ECON 2101 [0.5 credit]

#### Intermediate Macroeconomics for Non-Majors

The main topics in macroeconomic theory with illustrations of their application. Not open to students in any Economics or B.Com. program.

Precludes additional credit for ECON 2102 and ECON 2103, which are recommended to students in B.C.S., B.Eng., B.I.D., B.Math., and B.Sc. programs.

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 MATH 1009 (or equivalent), which may be taken concurrently with ECON 2102.

Lectures three 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 MATH 1009 (or equivalent).

Lectures three 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 ECON 2200, GEOG 2006, STAT 2507, STAT 2606, PSYC 3000, and SOCI 3700.

Prerequisites: MATH 1009 (or equivalent) and MATH 1119 (or equivalent), which may be taken concurrently with ECON 2201.

Lectures three hours a week, tutorials one hour a week.

ECON 2202 [0.5 credit]

#### Statistical Methods in Economics and Business II

Continuation of ECON 2201. Topics covered 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, GEOG 2006, STAT 2509, STAT 2607, PSYC 3000, and SOCI 3700.

Prerequisites: ECON 2201 (or equivalent) with a grade of C- or higher; MATH 1009 (or equivalent) and MATH 1119 (or equivalent).

Lectures three hours a week, tutorials one hour a week.

ECON 2400 [0.5 credit]

#### Mathematical Methods of Economics

Optimization, with and without constraints, and comparative static methods applied to models such as utility maximization and least-cost production; homogenous functions; compounding and exponential functions; economic models involving integration; the use of matrix algebra and differential equations.

Prerequisites: ECON 1000 or FYSM 1003, with a grade of C- or higher; registration in a B.A.

Economics or B.Com. program; MATH 1009 (or equivalent) and MATH 1119 (or equivalent).

Lectures three hours a week.

ECON 2504 [0.5 credit]

#### Essentials of Business Finance

Business firms' financing, capital investment, and dividend policy decisions; cost of capital and short-term asset management problems. (Also listed as BUSI 2504.)

Precludes additional credit for BUSI 2503.

Prerequisites: ECON 1000 or FYSM 1003, BUSI 1002 or BUSI 1005, and registration in one of the following programs: B.Com., B.I.B., B.A. Honours in Economics or Applied Economics with Concentration in Financial Economics.

Lectures three hours a week, tutorials one hour a week.

ECON 2505 [0.5 credit]

#### Business Finance

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 BUSI 2505.)

Prerequisites: ECON 1000 or FYSM 1003 with a grade of C- or higher, BUSI 1002 or BUSI 1005 with a grade

of C or higher, ECON 2504 with a grade of C or higher, MATH 1009 (or equivalent) with a grade of C- or higher, and MATH 1119 (or equivalent) with a grade of C- or higher.

Lectures three hours a week.

ECON 3104 [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.

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).

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) and ECON 3203.

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.

Prerequisite: ECON 1000 or FYSM 1003, or permission of the Department.

Lectures three hours a week.

ECON 3250 [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, ECON 4205, and ECON 4250.

Prerequisite: ECON 1000 or FYSM 1003.

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 4301.

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, wage determination.

Precludes additional credit for ECON 3506.

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 and ECON 3507.

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, ECON 3408, ECON 4402, 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, ECON 3407, ECON 4401, 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.

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.

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.

ECON 3500 [0.5 credit]

**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. (Also listed as BUSI 3500.)

Prerequisites: ECON 2002, ECON 2505, and ECON 2202 (or equivalent).

Lectures three hours a week.

ECON 3502 [0.5 credit]

**Principles of Investments**

Procedures and methods of investment analysis. The stock and bond markets. Government regulation of securities markets. Valuation of common stocks and fixed income securities. Options, warrants, convertibles, and commodities. (Also listed as BUSI 3502.)

Precludes additional credit for ECON 3501.

Prerequisites: ECON 2505 and ECON 2202 (or equivalent).

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.

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.

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.

ECON 3520 [0.5 credit]

**The Economic Development of Canada**

A general survey of Canadian economic development from 1534 to 1970.

Precludes additional credit for ECON 3205.

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.

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, and ECON 2202 (or equivalent) with a grade of C+ or higher.

Lectures three 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.

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.

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.

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, ECON 3701, and ECON 3702.

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.



ECON 3810 [0.5 credit]

**Women in the Economy**

Topics include women's and men's paid work and earnings; discrimination; unpaid work and the value of household production; family decision making and intra-household resource allocation; gender and macroeconomic policy; women and poverty; feminist approaches to economic theory.

Precludes additional credit for ECON 3100.

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.

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.

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.

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.

ECON 3880 [0.5 credit]

**Special Studies in Economics**

Content varies year by year; topics to be determined by the instructor invited to offer the course.

Precludes additional credit for ECON 3402.

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.

ECON 3981 [0.5 credit]

**Co-operative Work Term 1**

Graded Sat/Uns.

Prerequisites: registration in the Honours Economics Co-operative Education option, satisfactory completion of COOP 1000, and permission of the Department.

ECON 3982 [0.5 credit]

**Co-operative Work Term 2**

Graded Sat/Uns.

Prerequisites: registration in the Honours Economics Co-operative Education option, satisfactory completion of ECON 3981, and permission of the Department.

ECON 3983 [0.5 credit]

**Co-operative Work Term 3**

Graded Sat/Uns.

Prerequisites: registration in the Honours Economics Co-operative Education option, satisfactory completion of ECON 3982, and permission of the Department.

ECON 3984 [0.5 credit]

**Co-operative Work Term 4**

Graded Sat/Uns.

Prerequisites: registration in the Honours 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.

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, STAT 3508, and STAT 3558.

Prerequisite: ECON 2202 (or equivalent) with a grade of C+ or higher.

Lectures three 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, MATH 3801, and SYSC 3200.

Prerequisites: MATH 1009 (or equivalent) with a grade of C- or higher, and MATH 1119 (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. (Also listed as BUSI 4305.)

Prerequisites: ECON 4004 or BUSI 2300 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 4105 [1.0 credit]

**History of Economic Thought**

Crucial achievements in economic theory and doctrine in the nineteenth and twentieth centuries are studied. Special emphasis is given to the interrelationship between the social environment and economic thought, especially to the role of economics in the development of the national state and international institutions.

Also offered at the graduate level, with additional or different requirements, as ECON 5106 and ECON 5107, for which additional credit is precluded.

Prerequisites: ECON 2003 with a grade of C- or higher, and ECON 2103 with a grade of C- or higher.

Lectures and seminars three hours a week.



ECON 4200 [0.5 credit]

**Microeconomic Theory**

Theory of individual economic behaviour in production, consumption, and general equilibrium. Elementary tools of mathematics are employed in the exposition of most topics.

Prerequisites: ECON 2002 and ECON 2003 with an average 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 4200.

Lectures three hours a week.

ECON 4201 [0.5 credit]

**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.

Prerequisites: ECON 2102 and ECON 2103 with an average 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 4201.

Lectures three hours a week.

ECON 4230 [0.5 credit]

**Economic History**

An examination of methodology applicable to the analysis of economic history. Intensive examination of selected topics in the economic history of North America or Europe or other possible sets of countries.

Prerequisites: ECON 2003 with a grade of C- or higher, and ECON 2103 with a grade of C- or higher.

Lectures three hours a week.

ECON 4250 [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, its use in private and public organizations. An analysis of telecommunications, broadcasting, copyright, privacy, and Internet policy.

Precludes additional credit for ECON 3200, ECON 3250, and ECON 4205.

Prerequisite: ECON 2003 with a grade of C- or higher.

Lectures three hours a week.

ECON 4260 [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.

Prerequisites: ECON 2003 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 4301 [0.5 credit]

**Industrial Organization I: Theory and Evidence**

An examination of 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 3300 and ECON 4300.

Prerequisite: ECON 2003 with a grade of C- or higher.

Lectures three hours a week.

ECON 4302 [0.5 credit]

**Industrial Organization II: Policy and Applications**

This course extends the theoretical material developed in ECON 4301 and applies it to the examination of public policies toward business in Canada and in other

market economies with emphasis on policies relating to regulation, competition, and innovation.

Precludes additional credit for ECON 4300.

Prerequisite: ECON 4301.

Lectures three hours a week.

ECON 4309 [0.5 credit]

**Applied Industrial Economics**

This course examines 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 2003 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 and ECON 4306.

Prerequisite: ECON 2003 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.

Prerequisite: ECON 2003 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, and ECON 4402.

Prerequisite: ECON 2003 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, and ECON 4401.

Prerequisite: ECON 2003 with a grade of C- or higher.

Lectures three hours a week.

ECON 4407 [0.5 credit]

**Project Evaluation**

An analytic treatment of the principles of project evaluation and their applications. Also offered at the graduate level, with additional or different requirements, as ECON 5407, for which additional credit is precluded.

Prerequisites: ECON 2002 and ECON 2003 with an average grade of C+ or higher; ECON 2202 (or equivalent, or STAT 2605 or STAT 3502) with a grade of C+ or higher; and ECON 2400 (or MATH 2000 or MATH 2004) with a grade of C+ or higher.

Lectures three hours a week.

ECON 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 BUSI 4500.)

Precludes additional credit for ECON 4008.

Prerequisite: ECON 3500 with a grade of C- or higher.  
Lectures three hours a week.

ECON 4502 [0.5 credit]

### **Investment 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 BUSI 4502.)

Precludes additional credit for ECON 4101.

Prerequisite: ECON 3502 with a grade of C- or higher.  
Lectures three hours a week.

ECON 4504 [0.5 credit]

### **Financial Markets**

Issues in financial markets. Topics may include: optimal portfolio choice, the consumption-based capital asset pricing model, arbitrage theory, financial incentives, the equity premium puzzle, asset prices and monetary policy, options and futures markets, real options, regulation of financial markets.

Precludes additional credit for BUSI 4503 and ECON 4100.

Prerequisites: ECON 2003 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 and seminars 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 2003 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 2003 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 2003 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 2003 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 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 2003 with a grade of C- or higher, ECON 2103 with a grade of C- or higher, and ECON 2400 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.

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]

### **Applied Time Series Analysis in Economics and Business**

Basic concepts of time series analysis with emphasis on model building and forecasts in economics and business. Topics include: models for stationary and nonstationary time series, model identification, estimation, computation of forecasts and transfer function models. Also offered at the graduate level, with additional or different requirements, as ECON 5713, for which additional credit is precluded.

Precludes additional credit for ECON 4803.

Prerequisites: ECON 2201 (or equivalent) and ECON 2202 (or equivalent) with an average 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.

Prerequisites: ECON 4706 and ECON 4707 with an average grade of C- or higher.

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 2003 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 4806 [0.5 credit]

**Comparative Economic Systems I**

This course builds a framework for comparing economic systems, and considers the interaction between economic and political systems. The traditional Soviet-type economy, industrial policy, and problems of transition receive particular attention. Also offered at the graduate level, with additional or different requirements, as ECON 5806, for which additional credit is precluded.

Prerequisite: ECON 2003 with a grade of C- or higher.

Lectures three hours a week.

ECON 4807 [0.5 credit]

**Comparative Economic Systems II**

A comparison of contemporary economic systems. Such diverse economies as mainland China, Japan, Germany, Sweden, Russia, Taiwan and Hungary may be explored. Also offered at the graduate level, with additional or different requirements, as ECON 5807, for which additional credit is precluded.

Prerequisite: ECON 2003 with a grade of C- or higher.

Lectures 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, ECON 4901, and ECON 4902.

Prerequisites: ECON 2003 with a grade of C- or higher, ECON 2103 with a grade of C- or higher, ECON 2202 (or equivalent) with a grade of C- or higher, and ECON 2400 with a grade of C- or higher.

Lectures 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.

Prerequisites: ECON 4200 with a grade of C- or higher; registration in an Honours Economics program; ECON 4201 and ECON 4706, which may be taken concurrently with ECON 4901.

Lectures 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.

Prerequisites: ECON 4201 with a grade of C- or higher; registration in an Honours Economics program; ECON 4200 and ECON 4706, which may be taken concurrently with ECON 4902.

Lectures 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, biasing and simple circuit applications. Transistor structure of digital logic gates.

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 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 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 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, BJTs and MOSFETs. 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, idB 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.

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 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.

## Engineering Common Core Courses (ECOR)

### 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, converting algorithms to C++ programs, testing, debugging. Program style, documentation, reliability. Numeric methods: representation of data, rounding and truncation errors, root finding, curve fitting. 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. Lectures three hours a week, laboratory one hour 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 4000 [1.0 credit]

#### Industrial Experience Report

Students participating in the Industrial Experience Program must submit a formal report upon returning. This report should describe the organization in which the internship took place, the role of the student, the experience obtained and an appraisal of the effectiveness

of the training received. ECOR 4000 is a course with a 0.0 credit value and carries no weight. Grades for the course are Sat (satisfactory) or Uns (unsatisfactory). This course is extra to the degree requirements.

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]

#### Survey of English Literature

A study of significant works of English literature from the fourteenth to the twentieth centuries, presented as a general historical survey.

Precludes additional credit for FYSM 1004.

Lectures three hours a week.

ENGL 1001 [1.0 credit]

#### English and Continental Texts

A study of works by English and continental writers. The list of authors to be read usually includes Dante, Boccaccio, Chaucer, Shakespeare, Byron, Flaubert, Tolstoy, Ibsen, and O'Casey. Consult the instructor or the Department for complete reading lists. The continental texts are read in translation.

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.

Lectures and workshop three hours a week.

ENGL 1602 [1.0 credit]

#### 20th-Century Literature

An introduction to literary study, examining the poetry, drama, and fiction of the twentieth century, against the background of the social, cultural, and artistic issues that have determined the concerns of its writers. This course or FYSM 1006 is recommended for English Honours and General students.

Precludes additional credit for FYSM 1006.

Lectures three hours a week.

ENGL 2003 [1.0 credit]

#### Introduction to the Novel

A historical and critical study of the novel from its beginnings in the eighteenth century to the present. Twelve to fifteen novels are studied.

Prerequisite: a 1000-level credit in English, or second-year standing.

Lectures three hours a week.

ENGL 2004 [0.5 credit]

#### Classical, Medieval and Early Modern Drama

A study of selected significant plays from classical, medieval, and early modern (sixteenth-century) theatres.

Precludes additional credit for ENGL 2904.

Lectures three hours a week.

ENGL 2006 [1.0 credit]

#### Children's Literature

A historical and critical study of children's literature. Introduction to critical analysis and assessment of classics of children's literature.

Prerequisite: a 1000-level credit in English, or second-year standing.

Lectures two hours a week.

ENGL 2008 [1.0 credit]

#### Myth and Symbol

A study of myth and its appearance in literature. The great myths that gave form to man's search for meaning, and that still strike a deep response in the psyche. A wide range of texts demonstrates the nature and vitality of myth.

Prerequisite: a 1000-level credit in English, or second-year standing.

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 in English literature through a study of representative plays, novels and short stories. The theory of comedy and satire in relation to the texts: types, techniques, and themes.

Prerequisite: a 1000-level credit in English, or second-year standing.

Lectures three hours a week.

ENGL 2105 [0.5 credit]

#### History of the Language

The nature and development of the sounds, grammar, and spelling of the English language, together with some study of its cultural and stylistic evolution.

Prerequisite: a 1000-level credit in English, or second-year standing.

Lectures three hours a week.

ENGL 2107 [0.5 credit]

#### Science Fiction

A course concentrating on certain points of intersection between literature and science, using texts from various periods and genres.

Prerequisite: a 1000-level credit in English, or second-year standing.

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.

Prerequisite: a 1000-level credit in English, or 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.

Prerequisite: a 1000-level credit in English, or second-year standing.

Lectures three hours a week.

ENGL 2300 [1.0 credit]

#### British Literature I

A study of major writers of non-dramatic literature from Chaucer to the nineteenth century.

Prerequisite: a 1000-level course in English.

Lecture three hours a week.

ENGL 2502 [1.0 credit]

#### South Asian Literatures

Introduction to the literatures of South Asia from the colonial and postcolonial eras, and to a related body of philosophic and religious texts.

Prerequisites: a 1000-level credit in English, or second year standing.

Lectures three hours a week.

ENGL 2602 [0.5 credit]

#### Literature of Ireland

Selected writers of modern Ireland.

Prerequisite: a 1000-level course in English, or second-year standing.

Lecture three hours a week.

ENGL 2606 [0.5 credit]

**Literature of Scotland**

Selected writers of modern Scotland.

Prerequisite: a 1000-level course in English, or second-year standing.

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 a 1000-level credit in ENGL.

Three hours lecture and screening, one hour lecture.

ENGL 2702 [1.0 credit]

**American Literature**

Introduction to the major authors and traditions of American literature from its beginnings to the present.

Prerequisite: a 1000-level credit in English, or second-year standing.

Lectures three hours a week.

ENGL 2802 [1.0 credit]

**Canadian Literature**

A survey of the development of Canadian literature in English from its nineteenth-century beginnings to the present.

Prerequisite: a 1000-level credit in English, or second-year standing.

Lectures three hours a week.

ENGL 2808 [1.0 credit]

**English & French Canadian Lit.**

Introduction to and comparison of the two major literatures of Canada. Lectures in both English and French. Students are encouraged to use the French language for self-expression but need not do so. (Also listed as CDNS 2808 and FREN 2808.)

Precludes additional credit for ENGL 1808.

Prerequisite: a 1000-level credit in English, or second-year standing.

Lectures three hours a week.

ENGL 2900 [0.5 credit]

**Literature of the Self**

A study of the forms, themes, and meaning of autobiographical literature, with attention to the history of autobiographical writing and to the autobiography as a social document, but the main focus is on autobiography as part of the modern search for the self.

Prerequisite: a 1000-level credit in English, or 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.

Prerequisites: a 1000-level credit in English and permission of the Department.

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.

Prerequisites: a 1000-level credit in English and permission of the Department.

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. The roles adopted by the writer in society will

also be considered. Texts are chosen primarily from the 19th and 20th century.

Precludes additional credit for ENGL 2906 [1.0].

Prerequisite: a 1000-level credit in English, or second-year standing.

Lectures three hours a week.

ENGL 2909 [1.0 credit]

**Literature of the Americas**

Survey of key texts from European contact to the present, illuminating such themes as: "discovery" and exploration, slavery, revolution, and diaspora. The course adopts a transnational approach, bringing into dialogue writing from Latin America, the Caribbean, and North America.

Prerequisite: a 1000-level credit in English, or second-year standing.

Lectures three hours a week.

ENGL 3001 [0.5 credit]

**History of Literary Theory**

Issues shaping the fundamental assumptions of literary study, including the definition and value of literature, the nature of aesthetics, and the role of authors, ranging from Classical writers such as Aristotle to T. S. Eliot and the New Critics of the mid-twentieth century.

Precludes additional credit for ENGL 3000.

Prerequisite: ENGL 2300 or permission of the Department.

ENGL 3002 [0.5 credit]

**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.

Prerequisite: third-year standing, or permission of the Department.

Lectures three hours a week.

ENGL 3202 [0.5 credit]

**Chaucer**

A study of Chaucer's works and of the English language and literature between the Norman Conquest and the fifteenth century.

Prerequisite: ENGL 2300 or permission of the Department.

Lectures three hours a week.

ENGL 3300 [1.0 credit]

**British Literature: 16C-19C**

A study of major authors from the Early Renaissance to the Romantics.

Precludes additional credit for ENGL 2300.

Prerequisite: Enrolment in the B. Humanities program.

Lecture and seminar three hours a week.

ENGL 3302 [0.5 credit]

**Renaissance Literature**

A study of the great age of English literature. Selected Poetry and/or prose from Wyatt and More to Donne and Milton.

Precludes additional credit for ENGL 3302 [1.0], ENGL 3307 [1.0], ENGL 3308 [1.0].

Prerequisite: ENGL 2300, or permission of the Department.

Lectures three hours a week.

ENGL 3304 [1.0 credit]

**Shakespeare**

Selected plays by Shakespeare and his contemporaries.

Prerequisites: a 1000-level course in English and second-year standing, or permission of the Department.

Lecture 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 Literature II**

A study of major writers of the nineteenth century.

Prerequisite: ENGL 2300, or permission of the Department.

Lectures three hours a week.

ENGL 3503 [0.5 credit]

**The Novel: Dickens to Conrad**

The English novel from the High Victorian period of Dickens, Thackeray, and Eliot to World War I.

Precludes additional credit for ENGL 3503 [1.0].

Prerequisites: third-year standing and a 1000-level credit in English, or permission of the Department.

Lectures three hours a week.

ENGL 3601 [0.5 credit]

**20th-Century British Poetry**

A course in twentieth-century British Poetry.

Prerequisites: third-year standing and a 1000-level credit in English, or permission of the Department.

Lectures three hours a week.

ENGL 3603 [0.5 credit]

**20th-Century British Fiction**

A study of twentieth-century British fiction.

Prerequisites: third-year standing and a 1000-level credit in English, or permission of the Department.

Lectures three hours a week.

ENGL 3604 [1.0 credit]

**Modern Drama**

The study of drama from the late nineteenth century to the present.

Precludes additional credit for ENGL 2604.

Prerequisite: third year standing.

Lectures three hours a week.

ENGL 3701 [0.5 credit]

**American Poetry**

A study of American poetry.

Prerequisites: third-year standing and a 1000-level credit in English, or permission of the Department.

Lectures three hours a week.

ENGL 3703 [0.5 credit]

**American Fiction**

A study of American fiction.

Prerequisites: third-year standing and a 1000-level credit in English, or permission of the Department.

Lectures three hours a week.

ENGL 3801 [0.5 credit]

**Canadian Poetry**

A study of Canadian poetry.

Prerequisite: ENGL 2802, or permission of the Department.

Seminar or lecture three hours a week.

ENGL 3803 [0.5 credit]

**Canadian Fiction**

A study of Canadian fiction.

Prerequisite: ENGL 2802, or permission of the Department.

Seminar or lecture three hours a week.

ENGL 3901 [0.5 credit]

**Intermediate Poetry Workshop**

An intermediate workshop involving regular assignments in writing poetry and practical criticism.

Prerequisites: a 2000-level creative writing workshop or permission of the Department.

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.

Prerequisites: a 2000-level creative writing workshop or permission of the Department.

Workshop three hours a week.

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 LALS 3401.)

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 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 LALS 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.

**Topics of courses at the 4000-level change from year to year. The 2007/2008 guide is available on the Web at [carleton.ca/english](http://carleton.ca/english).**

ENGL 4000 [0.5 credit]

**Studies in Literary Theory**

Study of a selected topic in literary theory and criticism.

Prerequisite: fourth-year standing in Honours English, or permission of the Department.

Seminar or lecture.

ENGL 4001 [0.5 credit]

**Studies in Poetry**

A study of a selected topic in poetry.

Prerequisite: fourth-year standing in Honours English, or permission of the Department.

Seminar or lecture.

ENGL 4003 [0.5 credit]

**Studies in the Novel**

The art of the novel as exemplified by major works of fiction. Varieties of form and pattern, modes of narration, imagery and symbolism, realism, and naturalism.

Prerequisite: fourth-year standing in Honours English, or permission of the Department.

Seminar or lecture.

ENGL 4105 [0.5 credit]

**Old English Language & Literature**

Introduction to Old English Language and Literature. Students should emerge from the course with a knowledge of Old English grammar and syntax, an ability to translate the language, and an initial acquaintance with key Old English prose and poetry texts.

Precludes additional credit for ENGL 3102.

Prerequisite: fourth-year standing in Honours English, or permission of the Department.

Seminar or lecture.

ENGL 4208 [0.5 credit]

**Studies in Medieval Lit.**

A study of a selected topic in Medieval literature.  
Prerequisites: ENGL 3202 and fourth-year standing in Honours English or permission of the Department.  
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; or permission of the Department.  
Seminar or lecture.

ENGL 4306 [0.5 credit]

**Studies in Shakespeare**

A seminar for Honours students, concentrating on critical and scholarly approaches to Shakespeare's work.  
Prerequisite: fourth-year standing in Honours English, or permission of the Department.  
Seminar or lecture.

ENGL 4401 [0.5 credit]

**Studies in 18th-Century Lit.**

A study of a selected topic in Restoration or Eighteenth-Century literature.  
Prerequisite: fourth-year standing in Honours English or permission of the Department.  
Seminar or lecture.

ENGL 4407 [0.5 credit]

**Studies in Romantic Lit.**

A study of a selected topic in Romantic literature.  
Prerequisite: fourth-year standing in Honours English or permission of the Department.  
Seminar or lecture.

ENGL 4501 [0.5 credit]

**Studies in Victorian Lit. I**

A study of a selected topic in Victorian Literature.  
Prerequisite: fourth-year standing in Honours English or permission of the Department.  
Seminar or lecture.

ENGL 4502 [0.5 credit]

**Studies in Victorian Lit. II**

A study of a selected topic in Victorian Literature.  
Prerequisite: fourth-year standing in Honours English, or permission of the Department.  
Seminar or lecture.

ENGL 4607 [0.5 credit]

**Studies in 20th-Century Lit.**

A study of a selected topic in literature of the twentieth century.  
Prerequisite: fourth-year standing in Honours English or permission of the Department.  
Seminar or lecture.

ENGL 4608 [0.5 credit]

**Studies in 20th-C British Lit.**

A study of a selected topic in British literature of the twentieth century.  
Prerequisite: fourth-year standing in Honours English, or permission of the Department.  
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, or permission of the Department.  
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, or permission of the Department.  
Seminar or lecture.

ENGL 4802 [0.5 credit]

**Canadian Ethnic Minority Lit.**

A study of selected works by Canadian ethnic minority writers.  
Prerequisite: fourth-year standing in Honours English, or permission of the Department.  
Seminar or lecture.

ENGL 4803 [0.5 credit]

**English & French Canadian Lit.**

A study of selected works of the literatures of Quebec and English Canada.  
Prerequisites: fourth-year standing in Honours English, or permission of the Department.  
Seminar or lecture.

ENGL 4806 [0.5 credit]

**Studies in Canadian Lit.**

A study of a selected topic in Canadian literature.  
Prerequisite: fourth-year standing in Honours English or permission of the Department.  
Seminar or lecture.

ENGL 4808 [0.5 credit]

**First Nations Literatures I**

Dominant discourse about native people in Canadian writing and the literatures produced by storytellers and writers of the First Nations, with focus on the oral tradition, work produced prior to contact, until the modern post-contact period.  
Prerequisite: fourth-year standing in Honours English, or permission of the Department.  
Seminar or lecture.

ENGL 4809 [0.5 credit]

**First Nations Literatures II**

This course focuses solely on the contemporary period of First Nations literature in Canada, examining historical and mythic influences on this literature.  
Precludes additional credit for ENGL 4808 [1.0].  
Prerequisite: fourth-year standing in Honours English, or Permission of the Department.  
Seminar or lecture.

ENGL 4900 [0.5 credit]

**Culture & the Text I**

A course in applied literary theory.  
Prerequisite: fourth-year standing in Honours English, or permission of the Department.  
Seminar or lecture.

ENGL 4901 [0.5 credit]

**Culture & the Text II**

A course in applied literary theory.  
Prerequisite: fourth-year standing in Honours English, or permission of the Department.  
Seminar or lecture.

ENGL 4902 [0.5 credit]

**Culture & the Text III**

A course in applied literary theory.  
Prerequisite: fourth-year standing in Honours English, or permission of the Department.  
Seminar or lecture.

ENGL 4903 [0.5 credit]

**Culture & the Text IV**

A course in applied literary theory.  
Prerequisite: fourth-year standing in Honours English, or permission of the Department.  
Seminar or lecture.

ENGL 4906 [0.5 credit]

**World Literature I**

A study of a selected topic in African or Caribbean literature.  
Prerequisite: fourth-year standing in Honours English, or permission of the Department.  
Seminar or lecture.

ENGL 4907 [0.5 credit]

**World Literature II**

A study of a selected topic in Australian and New Zealand literature or Indian literature in English.

Prerequisite: fourth-year standing in Honours English, or permission of the Department.  
Seminar or lecture.

ENGL 4908 [1.0 credit]

**Independent Study**

Independent research and writing, under the supervision of English faculty. An essay of approximately 10,000 words is the usual assignment. A written request outlining the project must be submitted by the last day of the fall registration period.

Prerequisites: fourth-year Honours standing in English with a CGPA of 10.0 or better in English courses, and permission of the Department.

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## English as a Second Language (ESLA)

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School of Linguistics and Applied  
Language Studies  
Faculty of Arts and Social Sciences

ESLA 1300 [1.0 credit]

### **Introductory English as a Second Language for Academic Purposes**

Skills and strategies in ESL for students with little or no experience with academic English. General proficiency development. Integrated language skills and strategies for academic success at university.

Prerequisite: placement by the Canadian Academic English Language Assessment.

Nine hours a week (one term).

ESLA 1500 [1.0 credit]

### **Intermediate English as a Second Language for Academic Purposes**

Skills and strategies in ESL for students with basic grammatical and oral competence but limited experience with academic English. Focus on reading, listening and writing. Introduction to research skills.

Prerequisite: grade of C or higher in ESLA 1300 or placement by the Canadian Academic English Language Assessment.

Six hours a week (one term).

ESLA 1900 [1.0 credit]

### **Advanced English as a Second Language for Academic Purposes**

Development of research and analytic skills, primarily through reading and writing of academically-oriented texts.

Prerequisite: grade of C+ or higher in ESLA 1500 or placement by the Canadian Academic English Language Assessment.

Six hours a week (one term).

ESLA 1905 [1.0 credit]

### **Advanced English as a Second Language for Engineering Students**

Development of technical communication skills specific to Engineering and Industrial Design: reports, design projects, oral presentations.

Prerequisite: grade of C+ or higher in ESLA 1500 or placement by the Canadian Academic English Language Assessment.

Three hours a week (two terms).

ESLA 1906 [0.5 credit]

### **Advanced Writing for English as a Second Language**

Strategies for writing academic papers and professional text.

Three hours a week (one term).



## Environmental Engineering (ENVE)

### Department of Civil and Environmental Engineering Faculty of Engineering

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 1000 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 1000 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: MAAE 2300.

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 1000 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. Availability of groundwater. Storm water management.

Prerequisites: CIVE 3208 (concurrent) and 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 2800, 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: CHEM 2800, MAAE 2300, MAAE 2400.

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: ENVE 2002, ENVE 3001, ENVE 3002.

Lectures three hours a week, problem analysis one hour a week, laboratory three hours alternate weeks.

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 3002 and ENVE 3004.

Lectures three hours a week, problem analysis 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.

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 seven 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: registration 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, hydrogeological, chemical, biological, and geographic aspects of environmental science.

Precludes additional credit for EARTH 2805.

Prerequisites: GEOG 2100 or GEOG 2013, and one of EARTH 1006, EARTH 1007, or EARTH 1008; and 1.0 credit from BIOL 1003, BIOL 1004, CHEM 1000; 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 and group sessions/seminars 4 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: registration in third year of 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: registration in third year of 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: registration in fourth year of the Environmental Science program.

ENSC 4700 [0.5 credit]

#### Topics in Environmental Science

Prerequisite: third-year standing.

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: registration in fourth year of the 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.

Precludes additional credit for ENST 1020, GEOG 1001, GEOG 1010, GEOG 1020.

Lecture two hours and workshops/tutorials one hour 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 ENST 1001 and GEOG 1001.

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.

Hours to be arranged.

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.

Hours to be arranged.

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.

Prerequisite: registration is restricted to students eligible for fourth-year standing in the B.A. (Environmental Studies) Honours program.



## European and Russian Studies (EURR)

### Institute of European and Russian Studies Faculty of Public Affairs

EURR 2000 [1.0 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. Lecture and discussion three hours a week.

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 3600, or permission of the Institute.

Seminar three hours a week.

EURR 4003 [0.5 credit]

#### Social and Political Perspectives in Europe

The emergence of a European polity, identity and culture. Examination of whether "Europe" as a defined entity exists and the ways in which we may try to understand its evolution. 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, 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 3600; 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 3509, HIST 3600; 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.)

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. Particular emphasis will be placed 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.)

EURR 4205 [0.5 credit]

**Gender and Politics in Post-Communist Societies**

Topics may include: the legacy of communism; the dynamics of women's participation during democratization; the impact of market capitalism on society; and gender and nationalism. (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 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 3205 [1.0 credit]

#### Studies in American Cinema

Focus on features such as the major production companies, the star system, genres, film style, and the role of the individual filmmaker. The course may also examine the relationship between cinema and television.

Precludes additional credit for FILM 2208.

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 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 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 JOUR 3303.)

Prerequisite: 1.0 credit in FILM and third-year standing,

or permission of the Discipline or the School.  
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.

Prerequisites: FILM 2000 and third-year standing, or permission of the Discipline.

Lecture and screening three hours a week, seminar two hours 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 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 4000 [1.0 credit]

**Modes of Historical Research**

This course develops the critical and archival skills necessary for individual research in the field of film history, and includes practical research related to the course material.

Prerequisite: FILM 3505 or permission of the Discipline.

Lecture and screening three hours a week, seminar 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.

## First-Year Seminars (FYSM)

### 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.

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]

#### Survey of English Literature

Historical study of selected authors and works from all periods of British Literature. Communication skills are emphasized.

Precludes additional credit for ENGL 1000.

Prerequisite: normally restricted to students entering the first year of a B.A. program.

Seminars three hours a week.

FYSM 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 ENGL 1005.

Prerequisite: normally restricted to students entering the first year of a B.A. program.

Seminars three hours a week.

FYSM 1006 [1.0 credit]

#### 20th-Century Literature

Selected authors and works from twentieth-century literature. Recommended for English majors.

Precludes additional credit for ENGL 1602.

Prerequisite: normally restricted to students entering the first year of the B.A. program.

Seminars three hours a week.

FYSM 1100 [1.0 credit]

#### It's Your Environment

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 1102 [1.0 credit]

#### Western Civilization

Major events, ideas and movements that have shaped western civilization from the fall of Rome to the twentieth century. Emphasis on the development of writing, research and analytical skills.

Precludes additional credit for HIST 1001.

Prerequisite: normally restricted to students entering the first year of a B.A. program.

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 world. Themes will be drawn from literature, history, art, religion and social life. All texts are in English.

Precludes additional credit for CLCV 1000, CLCV 1002 and CLCV 1003.

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 1206 [1.0 credit]

#### **Intensive Introductory Linguistics**

Language as the defining human characteristic. Universal and specific linguistic features in language and adults, children and second-language learners. Precludes additional credit for LALS 1000. 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. 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.

FYSM 1309 [1.0 credit]

#### **Parents and Parenting Theories, Concepts and Applications from Developmental Psychology**

Parents and parenting from infancy to adolescence. Potential topics include: establishing a relationship with your child, child discipline, historical perspectives, child care issues, and the impact of marital conflict and divorce. Applied issues relevant to parents and "future" parents. Prerequisite: normally restricted to students entering the first year of a B.A. program. Seminars three hours a week.

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 Studies**

Emphasis on the development of writing, research and analytical skills through the intensive examination of selected topics in women's studies (e.g. 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**

Students will discover the many literatures of the francophone world (Europe, Middle East, Canada, Africa, Caribbean) and their treatment of identity. Critical approaches to literature. Reading strategies and writing an undergraduate literary essay in French. Taught in French and English; readings and assignments in French.

Prerequisite: Grade 12 enriched or immersion French; francophone students, or by permission of the instructor.

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 1500 [1.0 credit]

**The Literatures of Europe: Representative Texts**

Study of major literary traditions in Europe and their interrelations from antiquity to the present. Authors, such as Homer, Sophocles, Virgil, Dante, Boccaccio, Machiavelli, Cervantes, Molière, Goethe, Flaubert, Austen, Dostoevsky, Proust, Joyce, Pirandello, Kafka, Woolf, Calvino. All texts in English.

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.

Precludes additional credit for RELI 1205 [1.0], RELI 1205 or RELI 2002.

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

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 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.

## French (FREN)

### Department of French Faculty of Arts and Social Sciences

#### French Placement for Language Students

Students who have not previously taken a language course in the Department and who wish to enrol in FREN 1001, FREN 1002, FREN 1100 or FREN 2100 must read and follow the guidelines for choosing French language courses that can be found at [carleton.ca/french](http://carleton.ca/french) under Self Assessment Questionnaire and then register. 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. Compulsory attendance. Limited enrolment. No auditors.

Precludes additional credit for FREN 1006 and FREN 1007.

Lecture five hours a week.

FREN 1002 [1.0 credit]

#### French I

This course emphasizes both oral expression and comprehension leading to the development of reading and writing skills. Level: low intermediate. Compulsory attendance. Limited enrolment. No auditors.

Prerequisite: Self-assessment questionnaire.

Lecture: three hours a week plus two hours of workshops and/or directed studies.

FREN 1100 [1.0 credit]

#### Français I: First-Year University French

Enrichment of written and oral skills using audio-visual materials and written texts. Language in context and in situation. Level: intermediate. Compulsory attendance. Limited enrolment. No auditors.

Prerequisite: FREN 1002 or French Placement.

Lecture: three hours a week plus two hours of workshops and/or directed studies.

FREN 2100 [1.0 credit]

#### Français II: Second-Year University French

Perfectionnement du français à partir de documents audio-visuels et de textes littéraires, culturels et spécialisés. Développement du discours oral et écrit. Niveau : avancé. Présence obligatoire. Inscription contingentée. Pas d'auditeurs.

Cours : trois heures par semaine plus deux heures d'ateliers et/ou de travaux dirigés.

FREN 2200 [0.5 credit]

#### Initiation aux études françaises A

Lecture et appréciation du texte littéraire. Choix de textes représentatifs de plusieurs littératures nationales. Traditions et ruptures : approches critiques, contexte, thèmes, les nouvelles littératures, la littérature populaire. Travaux pratiques.

Precludes additional credit for FREN 2700.

Prerequisite: FREN 1100, or completion of self-assessment questionnaire, or permission of the Department.

Cours : trois heures par semaine.

FREN 2300 [0.5 credit]

#### Initiation aux études françaises B

La culture du Québec et du Canada français. Dimensions culturelles de la littérature, des médias oraux et

des nouvelles technologies. Approches théoriques et interdisciplinaires. Travaux pratiques.

Prerequisite: FREN 1100, or completion of self-assessment questionnaire, or permission of the department.

Cours : trois heures par semaine.

FREN 2400 [0.5 credit]

#### Initiation aux études françaises C

Le fonctionnement de la langue française. Survol descriptif de la langue: son histoire, sa situation actuelle, ses variétés, les mots, les phrases, langue écrite et langue parlée. Travaux pratiques.

Precludes additional credit for FREN 2800.

Prerequisite: FREN 1100, or completion of self-assessment questionnaire or permission of the Department.

Cours : trois heures par semaine.

FREN 2500 [0.5 credit]

#### Initiation aux études françaises D

Les principales différences entre l'anglais et le français. Initiation à l'étude comparée des deux langues. Langues en contact. Travaux pratiques de traduction.

Precludes additional credit for FREN 2806

Prerequisite: FREN 1100, or completion of self-assessment questionnaire, or permission of the Department.

Cours : trois heures par semaine.

FREN 3001 [0.5 credit]

#### Littératures nationales A

Sujet pour 2007-2008 : *La littérature québécoise depuis 1960*. Depuis la Révolution tranquille, la société québécoise a évolué à un rythme étonnant, rejetant foi, traditions, domination masculine, identité coloniale. Dans la littérature, cela se manifeste par une innovation au niveau des thèmes, du style et de la langue, éléments à l'étude dans ce cours.

Prerequisite: permission of the Department.

FREN 3002 [0.5 credit]

#### Littératures nationales B

Sujet pour 2007-2008 : *La littérature franco-ontarienne*. Une étude de la genèse et du développement de la culture franco-ontarienne à travers une sélection d'œuvres littéraires. André Païement, Jean Marc Dalpé, Michel Ouellette, Robert Marinier, Robert Dickson et Patrice Desbiens figureront parmi les auteurs étudiés.

Prerequisite: permission of the Department.

FREN 3003 [0.5 credit]

#### Littératures nationales C

Sujet pour 2007-2008 : *Récrire la modernité : le Nouveau Roman*. Le Nouveau Roman a marqué en France le dernier grand mouvement de l'avant-garde littéraire. Nous en étudierons les principales caractéristiques formelles telles qu'elles concernent structure du récit, fonctions du personnage et voix narrative chez des auteurs comme Nathalie Sarraute, Alain Robbe-Grillet, Michel Butor, Claude Simon.

Prerequisite: permission of the Department.

FREN 3101 [0.5 credit]

#### Thèmes A

Sujet pour 2007-2008 : *Le mythe du bon sauvage dans la littérature française (16e-18e siècles)*. Principales incarnations de cette figure littéraire, née du contact avec l'Amérique (Brésil, Nouvelle-France) et Tahiti; histoire et théories de la rencontre avec l'altérité; réflexion philosophique; Montaigne, de Léry; Lahontan, Diderot; traces contemporaines.

Prerequisite: permission of the Department.

FREN 3102 [0.5 credit]

#### Thèmes B

Le contenu précis de ce cours varie selon les années. Consulter le site Web.

Prerequisite: permission of the Department.

FREN 3103 [0.5 credit]

**Thèmes C**

Le contenu précis de ce cours varie selon les années. Consulter le site Web.

Prerequisite: permission of the Department.

FREN 3201 [0.5 credit]

**Approches A**

Sujet pour 2007-2008 : *Histoire de l'enseignement du français*. Examens des grands moments de l'enseignement du français à travers les composantes d'une situation pédagogique et les choix effectués quant aux enjeux et aux ensembles pédagogiques ainsi qu'à leur aboutissement didactique.

Prerequisite: permission of the Department.

FREN 3202 [0.5 credit]

**Approches B**

Le contenu précis de ce cours varie selon les années. Consulter le site Web.

Prerequisite: permission of the Department.

FREN 3301 [0.5 credit]

**Dimensions culturelles A**

Le contenu précis de ce cours varie selon les années. Consulter le site Web.

Prerequisite: permission of the Department.

FREN 3302 [0.5 credit]

**Dimensions culturelles B**

Le contenu précis de ce cours varie selon les années. Consulter le site Web.

Prerequisite: permission of the Department.

FREN 3303 [0.5 credit]

**Dimensions culturelles C**

Le contenu précis de ce cours varie selon les années. Consulter le site Web.

Prerequisite: permission of the Department.

FREN 3401 [0.5 credit]

**Réflexions linguistiques A**

Sujet pour 2007-2008 : *Français populaire canadien: formes et usages*. Ce cours vise à permettre une meilleure connaissance du français populaire parlé au Canada, à partir de sa variété la plus connue: le français québécois basilectal, improprement nommé "joual". Étude de ses formes et usages, au plan phonétique, morphologique, syntaxique. Comparaisons avec le français standard.

Prerequisite: permission of the Department.

FREN 3402 [0.5 credit]

**Réflexions linguistiques B**

Le contenu précis de ce cours varie selon les années. Consulter le site Web.

Prerequisite: permission of the Department.

FREN 3403 [0.5 credit]

**Réflexions linguistiques C**

Le contenu précis de ce cours varie selon les années. Consulter le site Web.

Prerequisite: permission of the Department.

FREN 3501 [0.5 credit]

**Traduction A**

Traduction avancée de textes d'intérêt général, de l'anglais au français et du français à l'anglais.

Prerequisite: permission of the Department.

FREN 3502 [0.5 credit]

**Traduction B**

Traduction de textes spécialisés, de l'anglais au français et du français à l'anglais. Initiation à l'étude de la terminologie.

Prerequisite: permission of the Department.

FREN 3601 [0.5 credit]

**Enseignement et apprentissage du français A**

Spécificité et fonction du texte littéraire; stratégies de lecture; jeux et plaisir de lire. Mise en scène du texte: comment amener les étudiants à interroger un

texte; motivation et analyse, outils d'analyse. Formes d'évaluation.

Prerequisite: permission of the Department.

FREN 3602 [0.5 credit]

**Enseignement et apprentissage du français B**

Les concepts essentiels puisés dans les théories linguistiques du XXe siècle. Explication en fonction de l'apprentissage et de l'enseignement de la langue, ainsi que d'une lecture critique des méthodologies et des méthodes d'enseignement du français langue seconde.

Prerequisite: permission of the Department.

FREN 3701 [0.5 credit]

**Langue A**

Techniques avancées d'expression orale.

Prerequisite: permission of the Department.

FREN 3702 [0.5 credit]

**Langue B**

Techniques avancées d'expression écrite.

Prerequisite: permission of the Department.

FREN 4001 [0.5 credit]

**Littératures nationales D**

Le contenu précis de ce cours varie selon les années. Consulter le site Web.

Prerequisite: fourth-year standing or permission of the Department.

FREN 4002 [0.5 credit]

**Littératures nationales E**

Le contenu précis de ce cours varie selon les années. Consulter le site Web.

Prerequisite: fourth-year standing or permission of the Department.

FREN 4003 [0.5 credit]

**Littératures nationales F**

Le contenu précis de ce cours varie selon les années. Consulter le site Web.

Prerequisite: fourth-year standing or permission of the Department.

FREN 4101 [0.5 credit]

**Thèmes D**

Sujet pour 2007-2008 : *Le Graal dans la littérature française*. Étude en diachronie du thème du Graal. L'émergence du thème : la littérature arthurienne et le Graal. Le premier roman du Graal, le *Perceval de Chrétien de Troyes* (roman inachevé). Les continuations.

Prerequisite: fourth-year standing or permission of the Department.

FREN 4102 [0.5 credit]

**Thèmes E**

Sujet pour 2007-2008 : *La résistance dans le roman caribéen*. Du marronnage aux résistances linguistique, spirituelle et culturelle, nous allons étudier les nombreuses façons dont les sociétés caribéennes ont résisté à des forces visant à évacuer la culture à divers moments de leur histoire. Romans, textes historiques et théoriques.

Prerequisite: fourth-year standing or permission of the Department.

FREN 4103 [0.5 credit]

**Thèmes F**

Le contenu précis de ce cours varie selon les années. Consulter le site Web.

Prerequisite: fourth-year standing or permission of the Department.

FREN 4201 [0.5 credit]

**Approches C**

Sujet pour 2007-2008 : *Mondialisation culturelle et littérature*. Ce cours aborde la mondialisation culturelle dans une double perspective littéraire. On étudiera tout d'abord les ressources théoriques dont dispose l'analyse

littéraire pour concevoir le rapport entre mondialisation et littérature. On analysera ensuite l'expression littéraire, dans le roman français, des principaux phénomènes de mondialisation culturelle.

Prerequisite: fourth-year standing or permission of the Department.

FREN 4202 [0.5 credit]

**Approches D**

Le contenu précis de ce cours varie selon les années. Consulter le site Web.

Prerequisite: fourth-year standing or permission of the Department.

FREN 4301 [0.5 credit]

**Dimensions culturelles D**

Le contenu précis de ce cours varie selon les années. Consulter le site Web.

Prerequisite: fourth-year standing or permission of the Department.

FREN 4302 [0.5 credit]

**Dimensions culturelles E**

Le contenu précis de ce cours varie selon les années. Consulter le site Web.

Prerequisite: fourth-year standing or permission of the Department.

FREN 4303 [0.5 credit]

**Dimensions culturelles F**

Le contenu précis de ce cours varie selon les années. Consulter le site Web.

Prerequisite: fourth-year standing or permission of the Department.

FREN 4401 [0.5 credit]

**Réflexions linguistiques D**

Sujet pour 2007-2008: *Le français en contact avec l'anglais à travers le temps et l'espace*. Depuis plus de 1000 ans le français et l'anglais s'influencent mutuellement. : les mots, les prononciations, les structures. Contacts au Canada, en Europe et ailleurs dans le monde. Anglicismes et gallicismes. Le mécanisme de l'emprunt. Domaines d'emploi. Purisme, résistance aux emprunts.

Prerequisite: fourth-year standing or permission of the Department.

FREN 4402 [0.5 credit]

**Réflexions linguistiques E**

Sujet pour 2007-2008 : Les langues françaises. La linguistique historique comparative classe les langues du monde en familles : parmi les langues indo-européennes, le latin a donné naissance aux langues romanes, parmi lesquelles le français donne naissance, à son tour, sous nos yeux presque, à une nouvelle famille: les langues françaises. Ce cours visera à tracer la genèse des mondes francophones et à en décrire les états actuels. Also offered at the graduate level, with different requirements, as FREN 5003, for which additional credit is precluded.

Prerequisite: fourth-year standing or permission of the Department.

FREN 4403 [0.5 credit]

**Réflexions linguistiques F**

Le contenu précis de ce cours varie selon les années. Consulter le site Web.

Prerequisite: fourth-year standing or permission of the Department.

FREN 4501 [0.5 credit]

**Traduction C**

Traduction de textes littéraires, de l'anglais au français et du français à l'anglais.

Prerequisite: fourth-year standing or permission of the Department.

FREN 4502 [0.5 credit]

**Traduction D**

Étude différentielle de l'anglais et du français. Analyse de textes parallèles. Ressources en traduction. Cours traitant de textes écrits et oraux.

Prerequisite: fourth-year standing or permission of the Department.

FREN 4601 [0.5 credit]

**Enseignement et apprentissage du français C**

Didactique fondamentale et appliquée du français langue seconde. Aperçu des données théoriques et des principes généraux relatifs à l'acte didactique et à la planification de situations pédagogiques. Travaux pratiques dirigés : observation de classes, études de matériel d'enseignement, préparations de cours, travaux en situation.

Prerequisite: fourth-year standing or permission of the Department.

FREN 4602 [0.5 credit]

**Enseignement et apprentissage du français D**

Didactique des quatre habiletés en enseignement/ apprentissage d'une langue seconde. Aperçu de la didactique de la production et de la compréhension de l'oral et de l'écrit. Principaux modèles théoriques. Stratégies et schémas d'enseignement/ apprentissage et leur application vers le français langue seconde.

Prerequisite: fourth-year standing or permission of the Department.

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.



## 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 language course in the Department and who wish to enrol in FINS 2105, FINS 2205, FINS 3105 or FINS 3205 must read and follow the guidelines for choosing French language courses that can be found at [www.carleton.ca/french](http://www.carleton.ca/french) under Self Assessment Questionnaire and then register. 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 2500 [0.5 credit]

#### Interfaces between English and French Canadian Cultures

Exploring 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 2500)

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 2007-2008: 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 2007-2008: 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 3510 [0.5 credit]

**Quebec Studies**

Interdisciplinary examination of historical and contemporary aspects of Quebec society, with special attention to the construction of the Quebec identity, Quebec nationalism and tensions with Canadian nationalism, cultural production, and social mobilization. (Also listed as CDNS 3510.)

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.

## 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 and ENST 1010.

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. 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 two hours a week, laboratory one hour 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 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 third-year standing or permission of the Department.

Lecture three hours a week.

GEOG 3101 [0.5 credit]

**Biophysical Resource Assessment**

The acquisition and interpretation of biophysical information, with regard to defining limitations on the use of the environment; field and laboratory techniques with an emphasis on the biophysical resources of a local area. A supplementary charge may apply.

Prerequisite: one of GEOG 1005 (taken before 2002-03)/ERTH 1005, GEOG 1100 (taken before 2002-03), GEOG 2100, GEOG 2101 or permission of the Department.

Lectures, laboratory and fieldwork five hours a week.

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 1005 (taken before 2002-03)/ERTH 1005, GEOG 1100 (taken before 2002-03) or GEOG 2100 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 1100 (taken before 2002-03) or GEOG 2100, 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 2100 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 1100 (taken before 2002-03) or GEOG 2100; or permission of the Department.

Lecture two hours a week, laboratory two hours a week.

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 1005 (taken before 2002-03) / EARTH 1005, or GEOG 1100 (taken before 2002-03), or GEOG 2100, or permission of the Department.

Lectures and laboratory five hours a week.

GEOG 3200 [0.5 credit]

**The Canadian City: Environment, Structure and Contemporary Problems**

Internal structure of the Western city with specific application to Canadian cities; current urban problems with particular focus on inner city revitalization, peripheral expansion, metropolitan organization and transportation systems and their interaction with land use.

Prerequisite: GEOG 2200 or permission of the Department.

Lectures three 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 3305 [1.0 credit]

**The Development of Canada: The Historical Geographical Perspective**

Canada from pre-history to the present; issues of culture and economy in a geographical context; methodology in historical geography.

Prerequisite: GEOG 2300 or HIST 2303 or HIST 2304; or permission of the Department.

Lectures three hours a week.

GEOG 3306 [0.5 credit]

**Resource Analysis in Geography**

Human dimensions of resource assessment, use and management; topics relating to resource allocation theory and methods, carrying capacity, environmental



and social impact assessment, public participation and resources policies; emphasis on Canadian case studies.

Prerequisite: at least third-year standing in Geography or Environmental Studies or Environmental Science, or permission of the Department.

Lectures and laboratory four hours a week.

GEOG 3307 [0.5 credit]

### Contemporary Geopolitics

Geographical understandings of power and conflict at the global scale; geographical discourses of peace and violence in the contemporary world system, critical perspectives on the world political map, geographical patterns of inequity and global order.

Prerequisites: third-year standing.

Lecture three hours 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 3602 [0.5 credit]

### Geography of Southern Africa

Broad geographical coverage of the subcontinent from Zambia southwards, with reference to the environmental, historical, economic, cultural and political dimensions of and around South Africa.

Prerequisite: third-year standing or permission of the Department.

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.

GEOG 3905 [0.5 credit]

### Selected World Regional Problems

Geographical analysis of topical problem areas in the world community.

Prerequisite: third-year standing or permission of the Department.

Lectures 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 3101 or GEOG 3306 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 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 4203 [0.5 credit]

**Urban Revitalization**

Recent revitalization of inner cities from an internationally comparative perspective; residential, commercial and institutional dimensions of revitalization, with reference to waterfronts and heritage conservation issues.  
Prerequisites: GEOG 3200 and fourth-year Honours Geography standing, or permission of the Department.  
Seminar three hours a week; optional residential field week.

GEOG 4207 [0.5 credit]

**Urban Development and Analysis**

The relationship between changes in urban development and geographic theory, emphasizing contemporary critical perspectives on selected urban issues.  
Prerequisite: fourth-year Honours Geography standing or permission of the Department.  
Seminar three hours a week.

GEOG 4208 [0.5 credit]

**Geographical Analysis of Health Information**

Integration of theory and application through extensive, quantitative methods of analyzing geographical data on disease, and intensive, qualitative methods of producing primary information on health, space, and place.  
Prerequisites: GEOG 3003 and GEOG 3206 and fourth-year Honours standing in Geography or Environmental Studies, or permission of the Department.  
Lecture two hours a week, laboratory two hours a week.

GEOG 4300 [0.5 credit]

**Comparative Environmental Movements**

The emergence of contemporary, locally based, environmental movements in Canada, Africa, Asia, and Latin America. Case studies to analyze local environmental

action in relation to the broader political economy and long term sustainability of land use.

Prerequisites: fourth-year Honours standing and GEOG 3209 or GEOG 3300 or permission of the Department.  
Seminar three hours a week.

GEOG 4301 [0.5 credit]

**Advanced Cultural Geography**

Cross-cultural examination of regions, landscape, place, nationalism, identity, geographies of power and the cultural dimensions of human-environment interactions in an increasingly globalized world.  
Prerequisite: GEOG 2300 or permission of the Department.  
Seminar 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 4305 [0.5 credit]

**Cultural/Historical Geography**

Methodological approaches in cultural and historical geography emphasizing the use of primary documents and cartographic and statistical methods in the study of Canada and Ontario.  
Precludes additional credit for GEOG 5405.  
Prerequisite: GEOG 2300 or GEOG 3305, or permission of the Department.  
Seminar/lecture three hours a week.

GEOG 4400 [0.5 credit]

**Environmental Geopolitics**

Environment and conflict in geopolitical perspective, ecological change and security policies of the industrial world, the geography of environmental threats, the political consequences and world order implications of environmental degradation and environmental refugees.  
Prerequisites: fourth-year Honours standing and two of GEOG 2101, GEOG 2200, GEOG 3307, or permission of the Department.  
Seminar three hours a week.

GEOG 4401 [0.5 credit]

**Geographies of Globalization**

Theories of globalization in geographic perspective; local consequences of global processes, interconnections and patterns of social, economic, environmental, political and cultural change.  
Prerequisites: fourth-year Honours standing, or permission of the Department.  
Seminar three hours a week.

GEOG 4405 [0.5 credit]

**Rural Land Use Analysis**

Rural land use issues from physical and socio-economic perspectives, contemporary methods for rural land use evaluation; rural land use policies.

Prerequisite: GEOG 3306 and fourth-year Honours standing, or permission of the Department.

Lectures and seminars three hours a week.

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 4407 [0.5 credit]

**Canadian Agriculture**

Trends in farm organization and production; issues arising from farming's relationships to the physical resource base, land market pressures, government policies and regulations, and agribusiness and marketing organizations.

Prerequisites: GEOG 2505 or GEOG 3306 and fourth-year Honours standing, or permission of the Department.

Lectures and seminars three hours 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 4600 [0.5 credit]

**Post-Communist Eastern Europe**

Geographical dimensions of political and economic transition in the post-communist societies of Eastern Europe and the former USSR. Topics may include environmental degradation, resource management, population, quality of life, industrial restructuring and regional development, urban and rural changes, energy, transportation, and foreign trade.

Prerequisites: fourth-year Honours standing, GEOG 3600 or GEOG 3601 (taken before 1999-2000), or permission of the Department.

Lectures and seminars three hours 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.

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 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.

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.



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.

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## German (GERM)

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### School of Linguistics and Applied Language Studies

### College of the Humanities

### Faculty of Arts and Social Sciences

GERM 1105 [1.0 credit]

#### **Introductory German**

For students with no knowledge of German. Oral skills, reading and writing. Compulsory attendance. Offered either intensively in one term (eight hours per week plus out-of-class requirements) or over two terms (four hours per week plus out-of-class requirements).

GERM 2105 [1.0 credit]

#### **Intermediate 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 1200 [2.0], GERM 2005 [1.0], GERM 2006 [1.0], GERM 2009, GERM 2103 [1.0]. Prerequisite: grade of C or higher in GERM 1105 or equivalent. Offered either intensively in one term (eight hours per week plus out-of-class requirements) or over two terms (four hours per week plus out-of-class requirements).

GERM 3105 [1.0 credit]

#### **Advanced 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 German GERM 3001, GERM 3002. Prerequisite: grade of C or higher in GERM 2105 or equivalent. Offered either intensively in one term (six hours per week plus out-of-class requirements) or over two terms (three hours per week plus out-of-class requirements).

GERM 3605 [1.0 credit]

#### **Functional Contemporary 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. Precludes additional credit for GERM 3001, GERM 3002. Prerequisite: grade of C+ or higher in GERM 3105 or equivalent. Offered either intensively in one term (six hours per week plus out-of-class requirements) or over two terms (three hours per week plus out-of-class requirements).

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 or equivalent, and permission of the School of Linguistics and Applied Language Studies and/or the College of Humanities.

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 or equivalent, and permission of the School of Linguistics and Applied Language Studies and/or the College of Humanities.

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## Greek (GREK)

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### 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)**

## History (HIST)

Department of History  
Faculty of Arts and Social Sciences

Please note: not all of the following courses are offered in a given year. For an up-to-date statement of course offerings and to determine the term of offering, consult the Registration Instructions and Class Schedule booklet, published in the summer and also available online at [carleton.ca/cu/programs/sched\\_dates/](http://carleton.ca/cu/programs/sched_dates/).

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. Topics for 2007-08 are posted on the department's website at [carleton.ca/history](http://carleton.ca/history)

### HIST 1001 [1.0 credit] Western Civilization

A survey of the major events, ideas and movements that have shaped western civilization from the fall of Rome to the twentieth century. (Field a or b)  
Precludes additional credit for FYSM 1102.  
Prerequisite: registration is restricted to first-year students.  
Lectures 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 three hours a week.

### HIST 1009 [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 FYSM 1405.  
Prerequisite: normally restricted to students entering the first year of a B.A. program.  
Seminar 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)  
Precludes additional credit for FYSM 1103.  
Prerequisite: registration is restricted to first-year students, except for those students who need the course to satisfy the degree requirements of their department, faculty, or school.  
Three hours a week.

### HIST 1705 [1.0 credit]

#### The Atlantic World

This course examines the interactions between the Americas, Africa, and Europe since the late fifteenth century. Focusing on themes such as migration and diasporas, environmental and economic exchange, colonial settlement and postcolonial societies, it investigates the development of the Atlantic World as a "regional system." (Field a or d)  
Lectures 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 three hours a week.

### HIST 2100 [1.0 credit]

#### Introduction to the History of Ideas

A study of Western intellectual development which considers such movements as humanism, the Enlightenment, romanticism, Darwinism and contemporary ideologies. (Field e)  
Lectures three hours a week.

### HIST 2202 [1.0 credit]

#### The Industrial Revolution

A study of industrialization in Europe and North America, with emphasis on technological innovation. Key developments in power production; their application to manufacturing, transport and communications; new forms of business organization and marketing; science and industry; political and social responses to industrialization. (Field b or c)  
Lectures three hours a week.

### HIST 2203 [1.0 credit]

#### Early Modern Europe 1450-1789

The cultural, religious, and political development of Western Europe from the fifteenth to eighteenth centuries. Focus is upon key episodes of the period: Renaissance, Reformation, Scientific Revolution, Enlightenment and French Revolution. A particular emphasis on developments in art, culture and intellectual life. (Field a)  
Lectures three hours a week.

### HIST 2205 [1.0 credit]

#### Europe 1815-1914

A history of continental Europe in the nineteenth century: the Restoration era; liberalism, nationalism and socialism; the revolutions of 1848; national unification in Italy and Germany; the reform era in Russia; poverty and social policy; industrialization and urbanization; science and secularization; overseas expansion and imperialism. (Field b)  
Lectures 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 three hours a week.

### HIST 2304 [1.0 credit]

#### Canadian Social History

Historical insights into the structures and values inherent in Canadian society and culture from the eighteenth to the twentieth centuries. Second-year standing recommended. (Field c)  
Lectures three hours a week.

### HIST 2306 [1.0 credit]

#### Environmental History

An introduction to environmental history from the eighteenth century to the present, with emphasis on North America. The course is intended to provide



historical context to current uses of the natural world and to contemporary environmental movements. (Field c or e)

Lectures three hours a week.

HIST 2307 [1.0 credit]

**History of Latin America**

Beginning with the Maya, Aztec, and Inca civilizations, this course follows the transformation of these societies by colonialism, the impact of Spanish, Portuguese and African cultures, and by their transition to modern nation-states. (Field d)

Lectures 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 three hours a week.

HIST 2500 [1.0 credit]

**History of Modern England**

A survey of significant political and social developments in England from the mid-fifteenth to the early twentieth century. (Field a or b)

Lectures three hours a week.

HIST 2504 [1.0 credit]

**Introduction to Women's History**

A survey of themes in the history of women with emphasis on their European experience, from the early modern period to the present. (Field e)

Lectures three hours a week.

HIST 2505 [1.0 credit]

**History of France**

A survey of French history from the seventeenth century to the present, with emphasis on the post-1750 period. (Field b)

Lectures three hours a week.

HIST 2509 [1.0 credit]

**History of Germany**

A history of the German-speaking peoples from the rise of the Holy Roman Empire to the present. (Field b)

Lectures 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 three hours a week.

HIST 2700 [1.0 credit]

**History of the Middle East**

An introduction to the historical development of the Middle East from the rise of Islam to the present. (Field d)

Lectures 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 three hours a week.

HIST 2705 [1.0 credit]

**History of Africa**

An introduction to the history of Africa. The first half is devoted to the period prior to European colonization with emphasis on West African states and empires; the second half deals with resistance to colonization, European colonial rule, independence and liberation movements. (Field d)

Lectures three hours a week.

HIST 2708 [1.0 credit]

**The Middle East since 1798**

Development of the civilization and culture of the Middle East from 1798 to the present emphasizing 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. (Field d) (Also listed as RELI 2708.)

Lectures 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 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 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 6000 B.C. to the end of World War Two. (Field d)

Lectures three hours a week.

HIST 2808 [1.0 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. Highly recommended for Honours students. Not open to first-year students. (Field e)

Lectures and workshops 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 2909 [1.0 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 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.

Lectures three hours a week.

HIST 3002 [1.0 credit]

**The Later Roman Empire**

A study of major developments-administrative, ecclesiastical, cultural and societal-of the later Roman Empire. (Field a) (Also listed as CLCV 3002.)

Prerequisite: a 2000-level history course or third-year standing.

Lectures three hours a week.

HIST 3006 [0.5 credit]

**Early Medieval Thought**

A general examination of medieval European intellectual life from the fifth to the twelfth century, with special reference to its setting in the monastery and the cathedral school. (Field a or e)

Precludes additional credit for HIST 3005.

Prerequisite: a 2000-level history course or third-year standing.

Lectures three hours a week.

HIST 3007 [0.5 credit]

**Later Medieval Thought**

A general examination of medieval European intellectual life in the thirteenth and fourteenth centuries, with special reference to its setting in the university. (Field a or e)

Precludes additional credit for HIST 3005.

Prerequisite: a 2000-level history course or third-year standing.

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 3100 [1.0 credit]

**Modern Intellectual History**

An intensive study of selected aspects of American, Canadian and European intellectual history in the nineteenth and twentieth centuries, with emphasis on twentieth-century social thought. (Field e)

Prerequisite: a 2000-level history course or third-year standing.

Lectures 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.

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.

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.

Lectures three hours a week.

HIST 3108 [1.0 credit]

**The French Revolution**

Study of the main social, economic and political developments in eighteenth-century France, with emphasis on the origins and course of the Revolution up to 1799. (Field b)

Prerequisite: a 2000-level history course or third-year standing.

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.

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.

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.

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.

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.

Lectures three hours a week.

HIST 3201 [1.0 credit]

### **The Enlightenment**

An intellectual and cultural history of eighteenth-century Europe, with particular attention to Scotland, France and Italy. Representative themes include the shaping of historical knowledge, gender and sensibility; manners and private life; the literature of travel and ethnography, science and medicine. (Field e)

Prerequisite: a 2000-level history course or third-year standing.

Lectures three hours a week.

HIST 3202 [0.5 credit]

### **Capital Cities in History**

An examination of capital cities from the early modern period to the present. Ottawa and the provincial capitals of Canada will be a particular focus. (Field c)

Prerequisite: a 2000-level history course or third-year standing.

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.)

Precludes additional credit for HIST 2305 (or ECON 2305).

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.)

Precludes additional credit for HIST 2305 (or ECON 2305).

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.

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.

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.

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.

Lectures three hours a week.

HIST 3210 [1.0 credit]

### **History of Science**

An introduction to the history of science from antiquity to the twentieth century. Readings include works by Plato, Aristotle, Galileo, Newton, Darwin, and Einstein. (Field a or b or e) Precludes additional credit for HIST 2201.

Prerequisite: a 2000-level history course or third-year standing.

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.

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.

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.

Lectures three hours a week.

HIST 3306 [0.5 credit]

### **Canadian External Relations**

The development of Canadian attitudes and policies toward external affairs, with emphasis on the twentieth century. (Field c)

Prerequisite: a 2000-level history course or third-year standing.

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.

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.

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.

Lectures three hours a week.

HIST 3404 [1.0 credit]

**20th-Century United States**

Major economic, social, political and cultural developments in twentieth-century America; the United States' growing economic and cultural involvement with the rest of the world. (Field c)

Prerequisite: a 2000-level history course or third-year standing.

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.

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.

Lectures three hours a week.

HIST 3407 [0.5 credit]

**Blacks in the United States**

A study of blacks in the United States, which concentrates on their experience under slavery and the recurring themes of integration and separatism after emancipation. (Field c)

Prerequisite: a 2000-level history course or third-year standing.

Lectures three hours a week.

HIST 3408 [1.0 credit]

**American 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.

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.

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.

Lectures three hours a week.

HIST 3504 [1.0 credit]

**Women in North America**

An examination of the changes that have taken place in the position of women in North America and the relationship of these changes to other social, economic and intellectual developments. (Field c or e)

Prerequisite: a 2000-level history course or third-year standing.

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.

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.

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.

Lectures three hours a week.

HIST 3600 [1.0 credit]

**History of the U.S.S.R.**

A history of the politics, diplomacy, culture and society of Soviet Russia from 1917 to the end of the U.S.S.R. in 1991. (Field b)

Prerequisite: a 2000-level history course or third-year standing.

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.

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.

Lectures three hours a week.

HIST 3605 [0.5 credit]

**The U.S.S.R. in Int'l. Affairs**

Study of Soviet diplomatic activity and foreign policy principles from the founding of Comintern in 1919 to the end of the U.S.S.R. in 1991. (Field b)

Prerequisite: a 2000-level history course or third-year standing.

Lectures three hours a week.

HIST 3700 [0.5 credit]

**The International Oil Industry**

Origins and growth of the "seven sisters": Rockefeller and Standard Oil (Exxon, Mobil, Chevron); Royal Dutch/Shell and British Petroleum; Gulf and Texaco; spread of transnational operations; frontier producing regions in Latin America and the Middle East; cartels and the international structure of corporate control. (Field b or c)

Prerequisite: a 2000-level history course or third-year standing.

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.

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.

Lectures three hours a week.

HIST 3703 [0.5 credit]

**Oil and International Politics**

Petroleum as a factor in war and diplomacy: Oil in the world wars, development of Middle Eastern oil, nationalization crises in Mexico and Iran, rise of OPEC, nationalist challenges to international corporate control the oil crisis of the 1970s, oil and the Gulf War. (Field b or c)

Prerequisite: a 2000-level history course or third-year standing.

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.

Lectures three hours a week.

HIST 3705 [0.5 credit]

**Latin American Women to 1825**

An introduction to the history of women and the family in Latin America from pre-Hispanic cultures to the wars of independence. This course will examine the lives of indigenous, Spanish, and African women within the

context of colonialism. (Field d or e)

Prerequisite: a 2000-level history course or third-year standing.

Lectures three hours a week.

HIST 3707 [0.5 credit]

**Latin American Women from 1825**

An examination of Latin American women and the family in the national period with an emphasis on the growing role of women in politics and the impact of education and feminism in the region. (Field d or e)

Precludes additional credit for HIST 3705 (if taken before 1999-2000).

Prerequisite: a 2000-level history course or third-year standing.

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 3708).

Prerequisite: a 2000-level history course or third-year standing.

Lectures three hours a week.

HIST 3710 [0.5 credit]

**The Caribbean in the Era of Slavery**

This course examines the development of Caribbean slave societies; the impact of slavery on the region. Key themes include slave resistance and revolt, the slave family, African cultural transfer and transformation, gender relations, and the processes of abolition and emancipation. (Field d)

Prerequisite: a 2000-level history course or third-year standing.

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.

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.

Lectures three hours a week.

HIST 3802 [0.5 credit]

**Britain & the Great War**

A lecture course on Britain's experience of the Great War. Topics include the military effort, civil-military relations, wartime government and politics, state expansion, labour and the trade unions, women's experience, religion and pacifism, war and remembrance. (Field b)

Prerequisite: a 2000-level history course or third-year standing.

Lectures three hours a week.

HIST 3803 [0.5 credit]

**The Pursuit of Peace**

A study of the problem of peace in the era of the First World War. Antimilitarism and responses to the threat

of war before 1914; attempts to restore peace after the outbreak of war; postwar peacemaking and peace building aimed at preventing future wars. (Field b or e)

Prerequisite: a 2000-level history course or third-year standing.

Lectures three hours a week.

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.

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.

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.

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, or permission of the Department.

HIST 3808 [1.0 credit]

**Historical Theory and Method**

An examination of questions concerning the nature and value of historical inquiry and the meaning of the course of history.

Prerequisite: third-year standing.

Three hours a week.

HIST 3900 [1.0 credit]

**Études Dirigées**

Un programme de lectures choisies et de travaux écrits dans le domaine de spécialisation d'un membre du département. Consultez le conseiller de *Mention : Français* pour les sujets offerts. For students of *Mention : Français* only.

Permission of the *Mention : Français* adviser required.

Precludes additional credit for HIST 3901.

Tutorials to be announced.

HIST 3901 [0.5 credit]

**Études Dirigées**

Voir HIST 3900 pour description.

Permission of the *Mention : Français* adviser required.

Precludes additional credit for HIST 3900.

Tutorials to be announced.

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.

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.

Lectures three hours a week.

HIST 3904 [0.5 credit]

**Topics in American 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.

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.

Lectures three hours a week.

HIST 3906 [0.5 credit]

**Topics in World History**

A lecture course on a special topic in African, Asian, or Latin American history. Topic varies from year to year. (Field d)

Prerequisite: a 2000-level history course or third-year standing.

Lectures three hours a week.

HIST 4006 [1.0 credit]

**Seminar in Medieval History**

An examination of a selected problem in the history of medieval Europe. (Field a)

Prerequisite: permission of the Department.

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. (Field a)

Prerequisite: permission of the Department.

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. (Field b)

Prerequisite: permission of the Department.

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. (Field a) (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.

Seminar two hours a week.

HIST 4302 [1.0 credit]

**Canada: Ideas & Culture**

A seminar on ideas, culture, and society in Canada. (Field c)

Prerequisite: permission of the Department.

Seminar three hours a week.

HIST 4304 [1.0 credit]

**Canada: Politics & Society**

A seminar on politics and society in Canada. (Field c)

Prerequisite: permission of the Department.

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. (Field c)

Prerequisite: permission of the Department.

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". (Field c or e depending on topic)

Prerequisite: permission of the Department.

Seminar three hours a week.

HIST 4400 [1.0 credit]

**Seminar in American History**

An examination of a selected problem or period in the history of the United States. (Field c)

Prerequisite: permission of the Department.

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. (Field a or b depending on topic)

Prerequisite: permission of the Department.

Seminar three hours a week.

HIST 4505 [1.0 credit]

**Seminar in Women's & Gender History**

The history of women and gender. (Field will depend on topic.)

Prerequisite: permission of the Department.

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. (Field b)

Prerequisite: permission of the Department.

Seminar three hours a week.

HIST 4602 [0.5 credit]

**Canadian-Soviet Relations**

A study of the ideology, economics, culture, and diplomacy of the relationship between the Soviet Union and Canada from the Russian Civil War era to the fall of the USSR. (Field b)

Prerequisite: permission of the Department.

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.) (Field b)

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.

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.) (Field b) 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.

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, or Latin America. Also offered at the graduate level with different requirements, as HIST 5708, for which additional credit is precluded. (Field d)

Prerequisite: permission of the Department.

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. (Field b or d depending on topic)

Prerequisite: permission of the Department.

Seminar three hours a week.

HIST 4908 [1.0 credit]

**Mémoire de recherche**

Un travail écrit dans le domaine de spécialisation d'un membre du département. Consultez le conseiller de *Mention : Français* pour les sujets offerts. For students of *Mention : Français* only. Permission of the *Mention : Français* adviser required.

Precludes additional credit for HIST 4909.

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.

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.

Precludes additional credit for ANTH 1001 and ANTH 1003.

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.

Precludes additional credit for HUMS 4101.

Prerequisite: restricted to students in the Bachelor of Humanities program.

Lecture 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.

Prerequisites: 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 3101 [0.5 credit]

#### Modern European Art 1527-2000

A chronological and thematic survey of the Arts from ca. 1400 to the 21st Century.

Precludes additional credit for HUMS 4101.

Prerequisite: HUMS 2101 and restricted to students in the Bachelor of Humanities program.

Lectures three 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.

Precludes additional credit for HUMS 4102.

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.

Precludes additional credit for HUMS 4102.

Prerequisites: HUMS 3102 and restricted to students in the Bachelor of Humanities program.

Lecture three hours a week.

HUMS 3200 [1.0 credit]

#### Continental 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.

Prerequisites: 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 or permission of the Department.

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.

Prerequisites: 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.

Prerequisites: 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.



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. 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.

Precludes additional credit for HUMS 4100.

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.

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## Human Rights (HUMR)

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### Human Rights Program Committee 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 4905 [0.5 credit]

#### **Placement in Human Rights**

Students spend up to one day a week working and learning at a government, research or advocacy organization in the field of human rights. A written report is required at the end of the placement. Graded as Sat/Uns.

Prerequisites: fourth-year standing in Human Rights and permission from the coordinator of the Combined B.A. (Honours) in Human Rights.

## 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

An introduction to the design process and basic principles of design. Topics include: basic design theory and practice, design methodology, problem solving methods, visual communication skills and basic modeling techniques. The design project(s) will relate to the principles covered in the lectures.

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 [0.5 credit]

### Work Term 1

(This course carries a 0.5 option credit)

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 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 [0.5 credit]

**Work Term 2**

Prerequisite: registration in the Co-op option of the Bachelor of Industrial Design Program.

IDES 3403 [0.5 credit]

**Work Term 3**

Prerequisite: registration in the Co-op option of the Bachelor of Industrial Design Program.

IDES 3404 [0.5 credit]

**Work Term 4**

Prerequisite: registration in the Co-op option of the Bachelor of Industrial Design Program.

IDES 3405 [0.5 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 definite and indefinite integrals, differentiation and integration of the elementary functions, 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

A calculus-based course covering mechanics, including oscillatory motion; electrostatics and DC circuits. The laboratory is an essential and autonomous part of the course.

Precludes additional credit for PHYS 1007.

Prerequisites: Ontario Grade 12 Mathematics: Advanced functions and Introductory Calculus, or an OAC in Calculus or BIT 1100.

Restricted to students in the B.I.T. degree program.

Lectures three hours a week, laboratory/tutorial three hours a week.

BIT 1003 [0.5 credit]

##### Physics for Information Technology II

Review of electrostatics. Study of magnetism, DC and AC Circuits, wave motion and light, optics and thermodynamics.

The laboratory is an essential and autonomous part of the course.

Precludes additional credit for PHYS 1008.

Prerequisite: BIT 1002.

Lectures three hours a week, laboratory/tutorial three hours a week.

BIT 1100 [0.5 credit]

##### Mathematics I for IMD

Tailored for students in the interactive Multi-media Design program, this course covers definite and indefinite integrals, differentiation and integration of

the elementary functions, 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 and 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

Organizational behaviour in businesses and in client services. Topics include job design, motivation, leadership and decision making, teamwork, culture; management of small businesses; issues related to integrating technological solutions to business problems with organizations.

Precludes additional credit for BUSI 2101 and BUSI 3602.

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 [0.5 credit]

**Work Term 1**

Prerequisite: registration in the Co-op option of the Bachelor of Information Technology.

BIT 2201 [0.5 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 [0.5 credit]

**Work Term 3**

Prerequisite: registration in the Co-op option of the Bachelor of Information Technology.

BIT 3301 [0.5 credit]

**Work Term 4**

Prerequisite: registration in the Co-op option of the Bachelor of Information Technology.

BIT 3302 [0.5 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**

An overview of graphic design techniques and terminology, current materials, equipment and

technology. Students learn the history of graphic design, the principles of design, types of layouts and mechanical and printing basics. Covers fundamentals of desktop publishing and relevant software.

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**

Object-oriented programming: syntactic constructs, structured algorithms and pseudo-languages, data abstraction, classification and inheritance, typing and polymorphism, editing, compiling, linking, testing and debugging. Design and implementation of complete applications including the user interface, emphasizing number systems, documentation, methodology, program, data types and control structures.

Prerequisite: restricted to students in the B.I.T. degree program.

Lecture: three hours a week; laboratory: one and a half hour a week.

IMD 1004 [0.5 credit]

**Software Tools**

Introduction to 2D graphics programs. Students explore vector and raster-based image creation and editing programming to understand how images are used in multimedia applications. Software interfaces, tools, the Bezier drawing method, rendering, strokes and fills, creating and manipulating type and layers, images types and formats.

Prerequisite: restricted to students in the B.I.T. degree program

Workshop three hours a week.

IMD 1005 [0.5 credit]

**Web Development**

Students will combine graphics, text, audio, and video for Web sites and presentations; develop different, major working Web sites on an individual basis and in groups, using valid xHTML, Dreamweaver, cascading style sheets (CSS), basic Java Scripts 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**

The unique issues of back-end organization of multimedia, information, and interaction products, with a focus on database design, web-enabled databases, server-side technologies, full-text indexing, and other data management utilities.

Precludes additional credit for COMP 2405 and COMP 2005.

Prerequisite: IMD 1003 and IMD 1005.

Lecture three hours a week, tutorial/ laboratory one hour a week.

IMD 2001 [0.5 credit]

**Design and Authoring I**

Using multimedia authoring programs, students create interactive presentations for publication on CD or the Web. Introduction to Lingo or ActionScripting. Topics include advanced tools within the software programs,

importing and controlling video and audio, importing graphics and animation.

Prerequisite: second-year standing in the IMD program.

Workshop five hours a week.

IMD 2002 [0.5 credit]

### **Design and Authoring II**

Using Macromedia Flash students will create web-enabled interactive animations, scenes, etc. Topics include: drawing tools within Flash, animation techniques, importing sounds, graphics and video, text effects, graphic effects, adding interactivity with buttons and frame commands, variables, Action Script, creating a projector and publishing Flash movies to the Web.

Prerequisite: second-year standing in the IMD program.

Workshop three hours a week.

IMD 2003 [0.5 credit]

### **Audio and Video**

Creating and editing digital audio and video to synchronize with multimedia productions. Topics include: recording capturing and editing both video and audio files, creating titles for video, creating special effects and transitions, and compression formats.

Prerequisite: second-year standing in the IMD program.

Workshop three 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]

### **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.

Prerequisite: third-year standing in the IMD program.

Lectures three hours a week.

IMD 3002 [0.5 credit]

### **3D Computer Graphics**

Principles and techniques of real-time 3D graphics: raster graphics algorithms, transformations (scaling, translation, rotations) and viewing and camera control, modeling techniques, texture mapping, rendering, lighting, and illumination techniques, hidden line and surface elimination.

Prerequisite: IMD 2004.

Lectures three hours a week, tutorial/laboratory one hour 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 four 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**

Virtual worlds. Using 3D modeling programs and technologies that permit 3D on the Web, students apply design methodologies, problem solving, and visual communication skills to design innovative interfaces and multi-dimensional information environments.

Prerequisite: third-year standing in the IMD program.

Studio six hours a week, lecture two 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.

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**

Introduction to advanced topics in computer animation: principles of animation, motion capture, forward/inverse kinematics, key-framing, motion editing/retargeting, collision detection and response, rigid-body systems including articulated and hierarchical systems, and soft-body animation.

Prerequisite: IMD 3002.

Lecture three hours a week, tutorial/laboratory one hour.

IMD 4004 [0.5 credit]

### **Game Design and Development**

How games function to create experiences, including rule design, play mechanics, game balancing, social game interaction and the integration of visual, audio, tactile and textual elements into the total game experience. Students will design and implement a game.

Prerequisite: IMD 3002.

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: fourth-year standing in the IMD program.

Tutorial hours arranged.

IMD 4902 [1.0 credit]

#### **Design Studio 4**

Lectures and projects focused mainly at management skills (e.g. planning, change control, documentation), and also discussing topics such as interactivity and usability in multimedia and information technology projects. Students demonstrate and improve their ability to plan and conduct project tasks.

Precludes additional credit for IMD 4900.

Prerequisite: 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]

#### **Basic Network Routing**

Interconnecting Local Area Networks. Topics include different routed and routing protocols, the study of RIP and IGRP as examples of distance-vector protocols and an introduction to access control lists. Laboratory exercises cover the configuration and interconnection of routers.

Prerequisite: NET 1002.

Lecture two hours a week, tutorial/laboratory three hours a week.

NET 2000 [0.5 credit]

#### **Enterprise Inter-networking**

Study of complex networks. Topics include switching theory, network design considerations, use of LAN switching and VLANs for improving network performance and scalability, advanced topics in routing, traffic filtering using access lists, and issues in a multi-protocol environment.

Prerequisite: NET 1005 Basic Network routing.

Lectures three hours a week, tutorial/laboratory two hours a week.

NET 2001 [0.5 credit]

#### **Wide Area Networking**

WAN theory and design principles. The study of wide area technologies, including PPP, Frame Relay ISDN and ATM. Introduction to network administration and emerging technologies. Laboratory exercises including a case study to integrate and consolidate information from previous networking courses.

Prerequisite: NET 2000 (may be taken concurrently if taken in the same term).

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 system, 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 one hour, 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 3002 [0.5 credit]

**Advanced Wide Area Networks**

This course covers methods and technologies that can be deployed to build a network connecting across geographically-dispersed locations. Network availability and secure connectivity are core themes integrated throughout.

Prerequisite: NET 3008.

Lecture three hours a week, tutorial/laboratory three 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]

**Enterprise Network Management**

The infrastructure for network management. The Internet and ISO models. SNMP, ASN.1. Structure of management information and MIB. Events and managed objects. EMS vs. NMS. NOC, remote and Web-based management tool.

OAM&P Focus: operation, maintenance, performance monitoring. Introduction of traffic engineering and load balancing.

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 configuration and optimization of routing protocols are studied using RIP v2, EIGRP, OSPF and IS-IS as examples. Advance IP address management, BGP and route distribution between protocols.

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 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 3901 [0.5 credit]

**Information Technology Networking Project**

Using case studies in IT networking-related areas, students will apply sound project management and software engineering principles and networking industry best practices in the design and implementation of a networking technology project within a team environment, under faculty supervision. Includes formal documentation and presentation.

Prerequisite: NET 3009 and 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**

Simulation as a problem-solving tool; traffic generation; general discrete simulation procedures: event table and statistical gathering. Analyses of simulation data: point and interval estimation. Confidence intervals. Simulation exercises including traffic monitoring, congestion, load balancing, resource utilization, growth planning using OPNET simulation tool.

Prerequisite: BIT 2000.

Lectures three hours a week, tutorial/laboratory two hours a week.

NET 4002 [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 4003 [0.5 credit]

#### **Computer Systems Architecture**

History of computers; evolution of concepts; influence of technology. Detailed analysis of design of ALUs, control units, memory systems. Microprocessor systems, pipeline and array processors. RISC, CISC, fault tolerant, and digital signal processing architectures. Packet processing-special-purpose devices: Network processors, classifiers, switch fabrics.

Prerequisite: third-year standing in the Networking program, and NET 1004.

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 4002.

Lectures three hours a week, tutorial/laboratory two hours a week.

NET 4006 [0.5 credit]

#### **Scalable Network Architecture**

Architectural frameworks for converged networks. Different IP QoS models including Diffserv and Intserv. Scaling wireless deployment, security and management. VoIP deployment in campus networks.

Prerequisite: NET 4008.

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 4008 [0.5 credit]

#### **Multilayer Switched Networks**

Overview of campus networks. LAN internetworking. Switched vs. routed internetworking. Hubs, LAN switches (bridges), and VLAN. Spanning tree protocol. Switch security. Frame relay, ATM and wireless networks. IP switching & MPLS. Routing between VLANs. Multi-layer switching. Multicasting, rich media, QoS.

Prerequisite: NET 3002.

Lectures three hours a week, tutorial/laboratory two hours 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/laboratory two hours a week.

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## Integrated Science (INSC)

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### Integrated Science Institute Faculty of Science

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 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.

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 1002 [0.5 credit]

#### **The Laws of Nature**

Fundamental ideas and concepts of science; origins and expressions of these in the ecosphere; types of forces; radiation; energy transfers and transitions; properties of atoms and molecules; chemistry in the environment. Not acceptable for credit in a Science program.

Precludes additional credit for ISCI 1000.

Prerequisite: ISCI 1001 or permission of the Institute.

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.

Precludes additional credit for ISCI 2000.

Prerequisite: ISCI 1002 or two experimental science grade 12 U/M courses or one first year university experimental science course.

Lectures/demonstrations three hours a week and project assignments.

## Interdisciplinary Studies (DIST, ISSC)

### Institute of Interdisciplinary Studies Faculty of Arts and Social Sciences

DIST 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.

Prerequisite: second-year standing or permission of the Institute.

Lectures three hours a week.

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 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.

Prerequisite: DIST 2101 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.

ISSC 4100 [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: fourth-year Honours in a social sciences discipline or permission of the program co-ordinator.

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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 Applied Language Studies

#### College of the Humanities

#### Faculty of Arts and Social Sciences

ITAL 1000 [1.0 credit]

##### Introductory Italian

A course designed to introduce the student to the acquisition of Italian. Understanding, speaking, reading and writing. Compulsory attendance.

Precludes additional credit for ITAL 1100 [1.0], ITAL 1700, ITAL 1800 [1.0] and ITAL 1001/1002.

Four hours per week plus out-of-class requirements.

ITAL 1500 [1.0 credit]

##### Italian Literary Tradition

Dante, Boccaccio, Petrarca, Machiavelli, Goldoni, Leopardi, Manzoni, Verga, D'Annunzio, Pirandello, Pasolini, Calvino, Maraini, Fo will be studied. All texts in English translation. English is also the language of instruction. Cannot be counted as credit towards the Minor.

Precludes additional credit for ITAL 3501 and ITAL 3503.

Lectures three hours a week.

ITAL 1700 [1.0 credit]

##### Italian for Italophones

Designed to meet the needs of students of Italian origin and/or speakers of a community language or a dialect, wishing to retrieve standard Italian or to add standard Italian to their linguistic repertoire.

Precludes additional credit for ITAL 1000, ITAL 1001, ITAL 1002, ITAL 1110 [1.0], and ITAL 1800 [1.0].

Prerequisite: Some knowledge of an Italian dialect or of a community language.

Four hours per week plus out-of-class requirements.

ITAL 2000 [1.0 credit]

##### Intermediate Italian

A sequel to Introductory Italian; speaking, reading, writing, understanding, and using the language as a means for self-expression. A course intended to lead to the comprehension and enjoyment of Italian texts.

Precludes additional credit for ITAL 1800 [1.0] and ITAL 2100 [1.0].

Prerequisites: grade of C or higher in ITAL 1000 or equivalent.

Three hours per week plus out-of-class requirements.

ITAL 2602 [1.0 credit]

##### Italian Heritage in N. America

Italian-American and Italian-Canadian literature and cinema as relocated culture. Such authors as Fante, Di Donato, Puzo, Di Michele, Di Cicco, Ricci, Micone and such film-makers as Coppola, Scorsese, Cimino, Ferrara will be studied. All works in English. Language of instruction: English.

Precludes additional credit for ITAL 3602 [1.0].

Lectures three hours a week.

ITAL 3000 [1.0 credit]

##### Advanced Italian

A sequel to Intermediate Italian. Defined points of grammar, style, composition; conversation and translation.

Prerequisite: grade of C or higher in ITAL 2000 or equivalent.

Three hours per week plus out-of-class requirements.

ITAL 3501 [0.5 credit]

##### Italian Literature 1250-1650

Works by major authors of Italian literature and their relation to Italian history and culture. Texts in Italian, which is also the language of instruction. Precludes additional credit for ITAL 3500 [1.0].

Prerequisite: ITAL 2000.

Lectures three hours a week.

ITAL 3503 [0.5 credit]

##### Italian Literature 1650-1990

Works by major authors of Italian literature and their relation to Italian history and culture. Texts in Italian, which is also the language of instruction. Precludes additional credit for Italian 26.350.

Prerequisite: ITAL 2000.

Lectures three hours a week.

ITAL 3600 [0.5 credit]

##### Themes in Italian Culture

Issues concerning the development of Italian culture from the 13th century to the 20th century. Topic may vary from year to year. Texts in Italian. Language of instruction: Italian.

Prerequisite: ITAL 2000.

Lectures three hours a week.

ITAL 3601 [0.5 credit]

##### Themes in Italian Culture

Issues concerning the development of Italian culture from the 13th century to the 20th century. Topic may vary from year to year. Texts in Italian. Language of instruction: Italian.

Prerequisite: ITAL 2000.

Lectures three hours a week.

ITAL 3700 [0.5 credit]

##### Italian Culture 1200-2000

Major issues and major aspects of Italian social and cultural history from Dante to Fellini. Works from different media, and non-literary as well as literary, will be studied. Topics may vary from year to year. All material in English translation. English is also the language of instruction. May not be counted as a credit towards an Italian Minor.

Precludes additional credit for ITAL 1600 [1.0].

Prerequisite: third-year standing or permission of the College of Humanities.

Lectures three hours a week.

ITAL 3701 [0.5 credit]

##### Italian Culture 1200-2000

Major issues and major aspects of Italian social and cultural history from Dante to Fellini. Works from different media, non-literary as well as literary, will be studied. Topics may vary from year to year. All material in English translation. English is also the language of instruction. May not be counted as a credit towards an Italian Minor.

Precludes additional credit for ITAL 1600 [1.0].

Prerequisite: third-year standing or permission of the College of Humanities.

Lectures three hours a week.

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 and enrolment in the Minor in Italian; grade of C+ or higher in ITAL 3000 or equivalent and permission of the School of Linguistics and Applied Language Studies and/or the College of Humanities.

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. Normally available only to third- and fourth-year students pursuing a Minor in Italian.

Prerequisite: grade of C+ or higher in ITAL 3000 or equivalent and permission of the School of Linguistics and Applied Language Studies and/or the College of Humanities.



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## Japanese (JAPA)

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### School of Linguistics and Applied Language Studies Faculty of Arts and Social Sciences

JAPA 1200 [2.0 credits]

#### **Intensive Introductory Japanese**

For students with no knowledge of Japanese. Oral skills; basic reading and writing skills.

Precludes additional credit for JAPA 1201.

Eight hours a week.

JAPA 1201[1.0 credit]

#### **Low Intermediate Japanese**

Continuation of the study of Japanese to reach by the end of the course a level of proficiency comparable to that of students who complete JAPA 1200. All skills; emphasis on the development of reading and writing.

Precludes additional credit for JAPA 1200.

Prerequisites: at least one year of high school Japanese, or equivalent ability.

Eight hours a week (one term).

JAPA 2200 [1.0 credit]

#### **Intermediate Japanese**

Continuation of the study of Japanese to reach a more advanced level of ability in a range of situations. Equal emphasis on oral and written language.

Prerequisite: grade of C in JAPA 1200 or JAPA 1201 or equivalent, or a minimum of two years of Japanese as a second language at secondary school. Students must have an ability to read and write both hiragana and katakana and have some knowledge of kanji characters.

Four hours a week.

JAPA 3200 [1.0 credit]

#### **Advanced Japanese**

Continuation of the study of Japanese to reach a more advanced level, including ability to handle authentic materials and primary texts required for academic studies.

Prerequisite: Grade of C or higher in JAPA 2200 or equivalent.

Three hours a week.

JAPA 4200 [1.0 credit]

#### **Functional Contemporary Japanese**

A continuation of JAPA 3200 aimed at developing speaking and writing abilities more complex than those used in daily communication. Development of language use for specific purposes in specific contexts such as the academic, business and technical domains.

Prerequisite: grade of C+ or higher in JAPA 3200 or equivalent.

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, and a grade of C+ or higher in JAPA 3200 or equivalent and permission of the School of Linguistics and Applied Language Studies.

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, grade of C+ or higher in JAPA 3200 or equivalent and permission of the School of Linguistics and Applied Language Studies.

## 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 3006 [0.5 credit]

#### Comparative Media Studies

The comparative study of one or more of media content, effects, organization, operation, and criticism, and related theoretical perspectives. (Also listed as MCOM 3006.)

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.

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 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 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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## 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)**



## 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 two hours a week and group workshops one hour every second week.

LAWS 2003 [1.0 credit]

#### Private Law Relationships

Origins and scope of modern private law relationships; values espoused by legal personality, property and obligations arising from contracts, torts and the law of restitution will be studied; interaction of private law categories; role of the state in ordering private relations.

Prerequisite: LAWS 1000.

Lectures three hours a week.

LAWS 2004 [1.0 credit]

#### Criminal Law in Context

Canadian criminal process; nature and purpose of criminal law; criminal acts distinguished from civil wrongs; origins and development of principles and procedures; categories of criminal conduct; role of enforcement agencies and courts; criminal correction; relationship between criminal activity and deviant behavior.

Prerequisite: LAWS 1000.

Lectures three hours a week.

LAWS 2005 [1.0 credit]

#### Public Law

Law relating to the state and its relationship to other legal persons; basic principles of constitutional law, administrative law and selected areas; special features and problems of public law; implications of the expanded new role of modern governments; legal and alternative processes.

Prerequisite: Either LAWS 1000 [1.0] or PSCI 1000 [1.0], or the combination of PSCI 1001 and PSCI 1002, or second -year status or higher in the Bachelor of Public Affairs and Policy Management Program.

Lectures 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: second-year standing.

Lectures and discussion three hours a week.

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.

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: LAWS 2003 or LAWS 2005.

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 one of LAWS 2003, LAWS 2004, LAWS 2005 or 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.

Precludes additional credit for LAWS 3105.

Prerequisites: LAWS 1000 and one of LAWS 2003, LAWS 2004, LAWS 2005, LAWS 2105 or PSCI 1000 and PSCI 2300.

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: one of LAWS 2003, LAWS 2004, or LAWS 2005.

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: LAWS 2003.

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: one of LAWS 2003 or LAWS 2005.

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: LAWS 2003.

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, BUSI 2601 or BUSI 2602.

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 or BUSI 2602.

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, BUSI 2601 or BUSI 2602.

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 or LAWS 2005, 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: LAWS 2003.

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: LAWS 2003.

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: LAWS 2004.

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: LAWS 2004.

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.

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: LAWS 2003, or LAWS 2005, or 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.

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: LAWS 2000 or LAWS 2003 or LAWS 2005. Permission may be given to students in Business or Directed Interdisciplinary Studies who have completed LAWS 2301 or 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: LAWS 2003 or LAWS 2005.

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 or a Political Science course in Canadian government.

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: one of LAWS 2003, or LAWS 2004, or LAWS 2005 or permission of the Department.

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: one of LAWS 2003, LAWS 2004 or LAWS 2005; or 1.0 credit at the 2000-level in Journalism or Mass Communication.

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: one of LAWS 2004 [1.0], LAWS 2005 [1.0] or LAWS 2105.

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 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: One of LAWS 2005, LAWS 3005, or LAWS 3502 (JOUR 3502, MCOM 3502), or PSCI 2000.

Lectures three hours a week.

LAWS 3507 [0.5 credit]

**Music, the Law and Morality**

An introduction to the relationships that have developed between music, the law and moral issues. Special attention will be paid to issues of copyright infringement, censorship, obscenity, and to the phenomenon of moral panics. (Also listed as MUSI 3404.)

Prerequisite: second-year standing.

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 and LAWS 4903, Section "B" (if taken in 1994-95 or 1995-96).

Prerequisite: LAWS 2003, LAWS 2004, or LAWS 2005.

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: one of LAWS 2004 [1.0], LAWS 2005 [1.0] or LAWS 2105.

Lectures and seminars three hours a week.

LAWS 3603 [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 [1.0] (no longer offered).

Prerequisite: LAWS 1000 or LAWS 2005, or PAPM 1000 or a Political Science or History course in international relations.

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. Prerequisite: LAWS 3603 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: LAWS 2003, LAWS 2004 or LAWS 2005. Lectures three hours a week.

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: LAWS 2003. Lectures three hours a week.

LAWS 3806 [0.5 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 [0.5 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 [0.5 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 [0.5 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 3907 [0.5 credit]

**Legal Research Methods**

Basic methods in the design and execution of research projects in law in a social sciences context. Research principles; theoretical approaches; law-related materials and research procedures. Computer-assisted legal research; problem solving, bibliographic and citation skills.

Students may take this course in their second year. Prerequisites: LAWS 1000 and Honours standing. Seminars 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: LAWS 3001 or LAWS 3804 and fourth-year Honours standing. 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: Any two of LAWS 2003, LAWS 2004, or LAWS 2005.

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.

Precludes additional credit for LAWS 4904, Section "A" (if taken in 1995-96, 1996-97 or 1997-98). 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: LAWS 2105, PHIL 2103 or PSCI 3307 and fourth-year Honours standing.

Seminars 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: 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.

Precludes additional credit for LAWS 4209 Section "B" if taken in 2000-01 or 2001-02.

Prerequisite: LAWS 2003.

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 or permission of the Department.

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: LAWS 2004 and one of LAWS 3005, LAWS 3201 or 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.

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

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: LAWS 2004 or LAWS 2304 and fourth-year Honours standing.

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.

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: LAWS 2004 and fourth-year Honours standing.

Seminars three hours a week.

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: LAWS 2004 and fourth-year Honours standing. 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.) Precludes additional credit for LAWS 4306 (if taken in 1990-91). Prerequisites: fourth-year Honours standing, LAWS 3305, LAWS 3503 or LAWS 3509. 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 or LAWS 3401 or LAWS 3405, or BUSI 2602 and BUSI 3107. 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. Precludes additional credit for LAWS 4306 (if taken 1992-94). Prerequisites: LAWS 2004 and fourth-year Honours standing. 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 or LAWS 3005 or LAWS 3506 or PADM 5306. Lectures 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 4604 [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. Prerequisite: LAWS 2105, LAWS 3503, LAWS 3503 [1.0] (no longer offered), LAWS 3509, LAWS 3603, or LAWS 3603 [1.0] (no longer offered). Lectures 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: LAWS 3603 or 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: LAWS 3603. 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. 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.

Precludes additional credit for LAWS 4904, Section "C" (if taken in 1995-96, 1996-97 or 1997-98).

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.

Precludes additional credit for LAWS 4903, Section "C" (if taken in 1996-97 or 1997-98).

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 (LALS)

### School of Linguistics and Applied Language Studies Faculty of Arts and Social Sciences

LALS 1000 [1.0 credit]

#### Intensive Introduction to Linguistics and Applied Language Studies

Elementary principles and methods of descriptive analysis of language; phonetics; phonology; morphology; syntax. Survey of other areas of linguistics: historical linguistics, sociolinguistics, psycholinguistics, semantics, applied linguistics.

Precludes additional credit for LALS 1001 and LALS 1002, or FYSM 1206.

Lectures six hours a week, offered intensively in one term.

LALS 1001 [0.5 credit]

#### Introduction to Linguistics and Applied Language Studies I

Nature of language and linguistic knowledge. Formal description and analysis of language: phonetics, phonology, morphology, syntax.

Precludes additional credit for FYSM 1206 and LALS 1000.

Lectures three hours a week.

LALS 1002 [0.5 credit]

#### Introduction to Linguistics and Applied Language Studies II

Survey of topics in linguistics and applied language studies: semantics, historical linguistics, psycholinguistics, first and second language acquisition, sociolinguistics, discourse, written language and literacy, language teaching and learning.

Precludes additional credit for FYSM 1206 and LALS 1000.

Prerequisite: LALS 1001.

Lectures three hours a week.

LALS 1805 [1.0 credit]

#### Academic Discourse and Culture

Language as it is related to disciplinary inquiry. Language and culture of a variety of disciplines. Intended to enhance students' abilities to understand and acquire the culture, discourse, and conventions of their own disciplines.

Precludes additional credit for FYSM 1203.

Lectures three hours a week.

LALS 2001 [0.5 credit]

#### Phonetics

Recognition, description, transcription and production of speech sounds; systems of transcription; the nature of the speech-producing mechanism; the acoustics of speech sounds.

Precludes additional credit for LALS 3001 if taken prior to 2004.

Prerequisite: LALS 1000 (or LALS 1001 and LALS 1002) or FYSM 1206.

Lectures three hours per week.

LALS 2003 [0.5 credit]

#### Language Analysis

Direction and practice in the analysis of grammatical material, including both morphology and syntax. Models for the description of grammatical regularities. Course work consists principally of practical exercises. Precludes additional credit for LALS 3003.

Prerequisite: LALS 1000 (or LALS 1001 and LALS 1002) or FYSM 1206.

Lectures three hours a week.

LALS 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.

Lectures three hours a week.

LALS 2401 [0.5 credit]

#### Language in Education

Insights from linguistics and applied language studies into the development of English as mother tongue during elementary and/or secondary education. Language, learning and cognitive development. Precludes additional credit for LALS 2905 [1.0] and ENGL 2905 [1.0].

Lectures three hours a week.

LALS 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 MCOM 2504.)

Precludes additional credit for LALS 2800 [1.0], MCOM 2800 [1.0], and PHIL 2800 [1.0].

Prerequisite: second-year standing.

Lectures three hours a week.

LALS 2603 [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.

Prerequisite: LALS 1000 (or LALS 1001 and LALS 1002) or FYSM 1206.

Lectures three hours per week.

LALS 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.

Lectures three hours a week.

LALS 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.

Lectures three hours a week.

LALS 2703 [0.5 credit]

#### Gender and Language

The influence of gender on language and the way in which language reflects society's view of gender. Topics covered include: gender differences in language use and in discourse, gender-bias in language, and the role of language in socializing for gender.

Prerequisite: second-year standing.

Lectures three hours a week.

LALS 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.

Prerequisite: second-year standing.

Lectures three hours a week.

LALS 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.

Lectures three hours a week.

LALS 2706 [0.5 credit]

#### **Conversational Analysis**

Methods and theory for analyzing ordinary talk. Differences between language in conversation and formal spoken and written language. The relation of conversational analysis to other approaches to studying language. The connection between conversational analysis and studies of interaction.

Lectures three hours a week.

LALS 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.

Prerequisite: LALS 2003.

Lectures three hours a week.

LALS 3002 [0.5 credit]

#### **Phonology**

The sound-systems of languages; methods for the analysis and description of phonological structure. The course concentrates on generative theory with comparisons to other theories.

Prerequisite: LALS 2001.

Lectures three hours a week.

LALS 3004 [0.5 credit]

#### **Syntactic Theory**

Comparison of major current schools of linguistics. Theories of grammatical structure. The testing of grammatical hypotheses. Grammatical structure and meaning. Course work consists principally of lectures and readings.

Prerequisite: LALS 2003.

Lectures three hours a week.

LALS 3009 [0.5 credit]

#### **Topics in General 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 and LALS 1002) or FYSM 1206 or permission of the School.

Lectures and discussion three hours per week.

LALS 3101 [0.5 credit]

#### **Historical Linguistics**

Principles and methods of the historical analysis of languages; the comparative method; internal reconstruction; sound change; rule change; the philological method; problems in historical analysis.

Precludes additional credit for LALS 2101.

Prerequisite: LALS 1000 (or LALS 1001 and LALS 1002) or FYSM 1206.

Lectures three hours a week.

LALS 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, ENGL 3907.

Prerequisite: third-year standing or permission of the instructor.

Lectures three hours a week.

LALS 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, ENGL 3907.

Prerequisite: third-year standing or permission of the instructor.

Lectures three hours a week.

LALS 3504 [0.5 credit]

#### **Pragmatics**

The theoretical study of language use as pursued by linguists and philosophers. Topics include: conversational implicature; deixis; the semantics-pragmatics boundary; speaker's reference; speech acts. (Also listed as MCOM 3504 and PHIL 3504.)

Precludes additional credit for LALS 2800 [1.0], MCOM 2800 [1.0], and PHIL 2800 [1.0].

Prerequisite: second-year standing or at least 0.5 credit in Philosophy or Linguistics and Applied Language Studies.

Lectures three hours a week.

LALS 3505 [0.5 credit]

#### **Linguistic Semantics**

Linguistic approaches to meaning, likely including semiotics, structuralism and the truth-conditional paradigm. Application of linguistic techniques of analysis to lexical meaning will be emphasized. Topics may include: different interpretations of "meaning"; semantic relations within language (synonymy, dependence, contrastiveness); types of meaning and language functions.

Prerequisite: LALS 2003 or LALS/MCOM/PHIL 2504.

Lectures three hours a week.

LALS 3601 [0.5 credit]

#### **Psycholinguistics**

Language performance and language use; the production and perception of language; psychological processes involved in speech performance; the relevance of these questions to linguistic theory.

Precludes additional credit for LALS 2601.

Prerequisite: LALS 1000 (or LALS 1001 and LALS 1002) or FYSM 1206.

Lectures three hours a week.

LALS 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).

Prerequisite: third-year standing in Linguistics and Applied Language Studies or enrolment in the CTESL program.

Lectures three hours a week.

LALS 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 4203.

Prerequisite: third-year standing in Linguistics and Applied Language Studies or enrolment in the CTESL program.

Lectures three hours a week.

LALS 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 and Applied Language Studies. Prerequisite: permission of the School.

LALS 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 and Applied Language Studies. Prerequisite: permission of the School.

LALS 3903 [0.5 credit]

**Special Topics in Applied Language Studies**

Selected topics in Applied Language Studies not ordinarily treated in the regular course program. Prerequisite: LALS 1000 (or LALS 1001 and LALS 1002) or FYSM 1206, or permission of the School. Lectures and discussion three hours per week.

LALS 3907 [1.0 credit]

**Études dirigées**

Lectures ou recherche et travaux écrits dirigés par un membre de l'école. Les projets de recherche peuvent être organisés soit comme tutorial pour un(e) seul(e) étudiant(e) soit comme séminaire pour un groupe d'étudiants.

For third-year Linguistics and Applied Language Studies students of *Mention : Français* only. Prerequisite: permission of the School.

LALS 4001 [0.5 credit]

**Advanced Phonology**

A continuation of LALS 3002. Topics include: the methodological problems of phonology, the problems of markedness and natural rules, ordering, abstractness, and other current theoretical developments. Prerequisite: LALS 3002 or permission of the School. Lectures three hours a week.

LALS 4002 [0.5 credit]

**Advanced Syntax**

A continuation of LALS 3004. Topics include: global rules, clause movement, constraints, trace theory and other current developments in syntactic analysis. Prerequisite: LALS 3004 or permission of the School. Lectures three hours a week.

LALS 4003 [0.5 credit]

**Philosophy of Language**

Prerequisite: fourth-year Honours standing in Linguistics and Applied Language Studies or Philosophy or permission of either the School or the Department of Philosophy. Lectures three hours a week.

LALS 4009 [0.5 credit]

**Topics in General 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 and Applied Language Studies or permission of the School. Lectures three hours a week.

LALS 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. Prerequisite: third-year standing in Linguistics and Applied Language Studies, or enrolment in the CTESL program. Lectures three hours a week.

LALS 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 LALS 5205, for which additional credit is precluded.

Prerequisite: fourth-year standing in the concurrent CTESL program, or enrolment in the post-graduate CTESL program.

Lectures three hours a week.

LALS 4206 [1.0 credit]

**Practicum in Teaching English as a Second**

**Language: Experience in an ESL Teaching Situation**

Integrates the academic dimension of the program with practical work. Observation in ESL classes and possible assistance with teaching materials or classes. Graded *Sat* or *Uns* and normally taken concurrently with LALS 4205.

Prerequisites: fourth-year standing in the concurrent CTESL program, or enrolment in the post-graduate CTESL program.

LALS 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.

Prerequisite: third-year standing in Linguistics and Applied Language Studies, or enrolment in the CTESL program.

Lectures three hours a week.

LALS 4208 [0.5 credit]

**Languages for Specific Purposes**

An introduction to LSP, a sub-field of applied linguistics tailoring language instruction to specific groups of learners. Developments in strands of LSP (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 LALS 5208, for which additional credit is precluded.

Prerequisite: third-year standing in Linguistics and Applied Language Studies.

Lectures three hours a week.

LALS 4402 [0.5 credit]

**Learning Across the Disciplines: A Research**

**Practicum**

Theory about and research into the role of language in learning and pedagogic situations which optimize that relationship. Students perform teacher-research related to their teaching, within the context of the theory presented.

Also offered at the graduate level, with additional or different requirements, as LALS 5802, for which additional credit is precluded.

Prerequisite: third-year standing.

Lectures three hours a week.

LALS 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.

Also listed as PHIL 4505.

Prerequisite: two of PHIL 2001, LALS/MCOM/PHIL 2504, LALS 2003, LALS 3505.

Lectures three hours a week.

LALS 4601 [0.5 credit]

#### **Advanced Psycholinguistics**

Intensive examination of one or more of first language acquisition, language production, language comprehension, the mental lexicon.

Prerequisite: third- or fourth-year standing and one of LALS 3002, LALS 3004, LALS 3601.

Lectures three hours a week.

LALS 4602 [0.5 credit]

#### **Second-Language Acquisition**

Current models of second-language acquisition and learning with an emphasis on empirical studies. Universals of second-language acquisition.

Prerequisite: third-year standing in Linguistics and Applied Language Studies, third-year standing in the concurrent CTESL program, or enrolment in the post-graduate CTESL program.

Lectures three hours a week.

LALS 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 LALS 5102 for which additional credit is precluded.

Prerequisite: third-year standing in Applied Language Studies, Journalism or Mass Communication.

Lectures three hours a week.

LALS 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 LALS 5103, for which additional credit is precluded.

Prerequisite: third-year standing in Linguistics and Applied Language Studies or third-year standing in the concurrent CTESL program, or enrolment in the post-graduate CTESL program.

Lectures three hours a week.

LALS 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.

Prerequisites: enrolment in the CTESL program or fourth-year standing and LALS 1000 (or LALS 1001 and LALS 1002) or FYSM 1206.

Lectures and discussion three hours a week.

LALS 4900 [1.0 credit]

#### **Tutorial in Linguistics**

Permits fourth-year Honours students to pursue their interests in a selected area of linguistics and applied language studies.

Prerequisite: permission of the School.

LALS 4901 [0.5 credit]

#### **Tutorial in Linguistics**

Permits fourth-year Honours students to pursue their interests in a selected area of linguistics and applied language studies.

Prerequisite: permission of the School.

LALS 4906 [0.5 credit]

#### **Selected Topics 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.

LALS 4907 [1.0 credit]

#### **Études dirigées**

Études spécialisées en linguistique. Préparation d'un travail écrit ou d'un mémoire sur un sujet choisi par l'étudiant(e) en collaboration avec le directeur du tutorial et approuvé par l'école.

For fourth-year Linguistics and Applied Language Studies students of *Mention : Français* only.

Prerequisite: permission of the School.

LALS 4909 [1.0 credit]

#### **Honours Essay**

Subject selected in consultation with the School and carried out under the direction of a faculty supervisor. Scheduled tutorials with supervisor are required.

Prerequisites: fourth-year standing in Linguistics and Applied Language Studies, a CGPA of 9.00 or better, and permission of the School.

Tutorial hours arranged.



## Mass Communication (MCOM)

### School of Journalism and Communication Faculty of Public Affairs

MCOM 1101 [1.0 credit]

#### Introduction to Mass Communication

Examines major reasons for the emergence of communication studies in the 20th century. Emphasis on 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.

MCOM 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: MCOM 1101 or JOUR 1000 and second-year standing in Mass Communication, or PAPM 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.

MCOM 2101 [1.0 credit]

#### Communication and Modern Society

Examination of the historical development and current operations of diverse communication institutions in relation to the larger social structure, with emphasis on Canadian society.

Prerequisites: MCOM 1101 or JOURN 1000 and second-year standing in Mass Communication, or PAPM 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.

MCOM 2300 [0.5 credit]

#### Communication Policy: Theory and Foundations

Introduction to theoretical perspectives on the role of communication and cultural policy in modern society. Examination of the different approaches to the role of the State in the production and legitimation of communication and cultural policy.

Prerequisites: MCOM 1101 or JOUR 1000 and second-year standing in Mass Communication, or PAPM 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.

Lecture three hours a week.

MCOM 2302 [0.5 credit]

#### Communication Policy: Institutions and Practices

Examination of selected policy practices in the domains of communication and culture. Policies developed in these domains are related to the institutions, agencies, actors and social interests that shape their development in Canada and elsewhere.

Prerequisites: MCOM 1101 or JOUR 1000 and second-year standing in Mass Communication, or PAPM 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.

Lecture three hours a week.

MCOM 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 JOUR 2501.)

Precludes additional credit for 27.351\* and 28.351\* (last offered 1996-97).

Prerequisite: MCOM 1101 or JOUR 1000, or PAPM 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.

MCOM 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 LALS 2504 and PHIL 2504.)

Precludes additional credit for LALS 2800, MCOM 2800 and PHIL 2800.

Prerequisite: second-year standing.

Lectures three hours a week.

MCOM 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. (Also listed as PHIL 2900.)

Prerequisite: at least 0.5 credit in Philosophy or second-year standing.

Lectures and discussion three hours a week.

MCOM 3000 [1.0 credit]

#### Survey Research Applications in Public Affairs

A course which involves students in all phases of survey research as it relates to public affairs. Emphasis will be placed on methodological concerns. Students will be involved in the design and implementation of actual public affairs survey research projects or related research.

Prerequisites: MCOM 2001 or PSCI 2700, and either third year Standing in Mass Communication, 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.

Lecture three hours per week including workshops.

MCOM 3005 [0.5 credit]

#### Media in a Global Context

Examination of the flow of global communication and information and its 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 JOUR 3005.)

Prerequisite: MCOM 2101 as well as Honours or B.A. standing in Mass Communication, 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.

MCOM 3006 [0.5 credit]

#### Comparative Media Studies

The comparative study of one or more of media content, effects, organization, operation, and criticism, and related theoretical perspectives. (Also listed as JOUR 3006.)

Prerequisite: MCOM 2101 as well as Honours or B.A. standing in Mass Communication, 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.

MCOM 3101 [1.0 credit]

**Advanced Study of the Mass Media**

An examination of the philosophical and theoretical foundations of mass communication studies. The course is an analysis of the content of selected theories with a view to assessing the contributions they make to the understanding of mass communication.

Prerequisites: MCOM 2101 and Honours or B.A. standing in Mass Communication or permission of the School of Journalism and Communication.

Lecture and discussion groups three hours a week.

MCOM 3200 [0.5 credit]

**Co-operative Work Term**

Prerequisite: registration in the Mass Communication 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.

MCOM 3201 [0.5 credit]

**Co-operative Work Term**

Prerequisite: registration in the Mass Communication Honours Co-operative Option and permission of the School of Journalism and Communication.

MCOM 3202 [0.5 credit]

**Co-operative Work Term**

Prerequisite: registration in the Mass Communication Honours Co-operative Option and permission of the School of Journalism and Communication.

MCOM 3203 [0.5 credit]

**Co-operative Work Term**

Prerequisite: registration in the Mass Communication Honours Co-operative Option and permission of the School of Journalism and Communication.

MCOM 3402 [0.5 credit]

**Television**

This course examines the television medium as it was formed historically, both as a social institution and as a technological form. Various methods by which television texts might be analysed are presented, and different genres are compared and discussed.

Prerequisite: MCOM 2101 and Honours or B.A. standing in Mass Communication or permission of the School of Journalism and Communication.

Lectures and discussion three hours a week.

MCOM 3403 [0.5 credit]

**Communication 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 their cultural implications.

Prerequisite: MCOM 2101 and Honours or B.A. standing in Mass Communication, 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.

Seminar three hours a week.

MCOM 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.

MCOM 3406 [0.5 credit]

**Media Construction and Social Issues**

Industrial-bureaucratic structures of the news media and their relevance to the reporting of social and political issues; an examination of the dominant discourses on these issues and their relevance for the organization of

newswork. The issues vary from year to year.

Prerequisite: MCOM 2101 and Honours or B.A. standing in Mass Communication, 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 and discussion three hours a week.

MCOM 3408 [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.

Prerequisite: MCOM 2101 and Honours or B.A. standing in Mass Communication or permission of the School of Journalism and Communication.

Lecture three hours a week.

MCOM 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 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.

MCOM 3504 [0.5 credit]

**Pragmatics**

The theoretical study of language use as pursued by linguists and philosophers. Topics include: conversational implicature; deixis; the semantics-pragmatics boundary; speaker's reference; speech acts. (Also listed as LALS 3504 and PHIL 3504.)

Precludes additional credit for MCOM 2800, LALS 2800 and PHIL 2800.

Prerequisite: second-year standing or at least 0.5 credit in Philosophy or Linguistics and Applied Language Studies.

Lectures and discussion three hours a week.

MCOM 3505 [0.5 credit]

**Media and Gender**

The role of mass media in shaping our conceptions of gender roles. Evaluation of the social, political and cultural consequences of such conceptions.

Prerequisite: MCOM 2101 and Honours or B.A. standing in Mass Communication or permission of the School of Journalism and Communication.

Lectures and discussion three hours a week.

MCOM 3507 [0.5 credit]

**Special Topic**

An examination of a special topic in mass communication not covered in depth in other courses. The topic varies from year to year. Possible topics include: communications policy analysis; the political economy of the mass media; and the social impact of new communications technology.

Prerequisite: MCOM 2101 and Honours or B.A. standing in Mass Communication, or permission of the School of Journalism and Communication.

MCOM 4000 [0.5 credit]

**Advanced Communication Research: Quantitative Methods**

Methodological issues and statistical techniques for investigating theoretical questions concerning mass communication and society. Content varies yearly, but focus

is on advanced statistical methods.

Precludes additional credit for MCOM 4001.

Prerequisites: MCOM 2001 and MCOM 3101 and fourth-year Honours standing in Mass Communication, or MCOM 3000 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.

MCOM 4002 [0.5 credit]

**Advanced Communication Research: Qualitative Methods**

Methodological issues appropriate for investigating theoretical questions of mass communications and society. Seminar content varies yearly as selection of appropriate methodologies and models may depend on questions investigated. Topics may include field research methods, policy/document analysis, historical research.

Precludes additional credit for MCOM 4001.

Prerequisites: MCOM 2001 and MCOM 3101 and fourth-year Honours standing in Mass Communication, or MCOM 3000 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.

MCOM 4100 [0.5 credit]

**Selected Topics in Mass Communication Analysis**

Precludes additional credit for MCOM 4101.

Prerequisite: MCOM 3101 and fourth-year Honours standing in Mass Communication or permission of the School of Journalism and Communication. Seminar three hours a week.

MCOM 4102 [0.5 credit]

**Selected Topics in Mass Communication Analysis**

Precludes additional credit for MCOM 4101.

Prerequisite: MCOM 3101 and fourth-year Honours standing in Mass Communication or permission of the School of Journalism and Communication. Seminar three hours a week.

MCOM 4103 [0.5 credit]

**Selected Topics in Mass Communication Analysis**

Precludes additional credit for MCOM 4101.

Prerequisite: MCOM 3101 and fourth-year Honours standing in Mass Communication or permission of the School of Journalism and Communication.

MCOM 4104 [0.5 credit]

**Selected Topics in Mass Communication Analysis**

Precludes additional credit for MCOM 4101.

Prerequisite: MCOM 3101 and fourth-year Honours standing in Mass Communication or permission of the School of Journalism and Communication.

MCOM 4105 [0.5 credit]

**Selected Topics in Mass Communication Analysis**

Precludes additional credit for MCOM 4101.

Prerequisite: MCOM 3101 and fourth-year Honours standing in Mass Communication or permission of the School of Journalism and Communication.

MCOM 4106 [0.5 credit]

**Selected Topics in Mass Communication Analysis**

Precludes additional credit for MCOM 4101.

Prerequisite: MCOM 3101 and fourth-year Honours standing in Mass Communication or permission of the School of Journalism and Communication.

MCOM 4107 [0.5 credit]

**Selected Topics in Mass Communication Analysis**

Precludes additional credit for MCOM 4101.

Prerequisite: MCOM 3101 and fourth-year Honours standing in Mass Communication or permission of the School of Journalism and Communication.

MCOM 4108 [0.5 credit]

**Selected Topics in Mass Communication Analysis**

Precludes additional credit for MCOM 4101.

Prerequisite: MCOM 3101 and fourth year Honours standing in Mass Communication or permission of the School of Journalism and Communication.

MCOM 4109 [0.5 credit]

**Selected Topics in Mass Communication Analysis**

Precludes additional credit for MCOM 4101.

Prerequisite: MCOM 3101 and fourth year Honours standing in Mass Communication or permission of the School of Journalism and Communication.

MCOM 4200 [0.5 credit]

**Children, Youth and Media**

Children and youth as they relate to mass media and popular culture. Historical and theoretical analysis of the emergence of childhood as a category in the media.

Precludes additional credit for MCOM 4102 (if taken in 95-96, 96-97, 97-98).

Prerequisite: MCOM 3101 and fourth-year Honours standing in Mass Communication or permission of the School of Journalism and Communication. Seminar three hours a week.

MCOM 4305 [0.5 credit]

**New Media, New Policies**

Major policy issues arising from media convergence, increased competition within the communication industries, new technologies, and globalization. The rationale, structure, nature and goals of regulation and communication policy for 'new media' are considered.

Prerequisites: MCOM 3101 and fourth-year Honours standing in Mass Communication, or PAFM 3000 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.

MCOM 4500 [0.5 credit]

**Mass Media and Capitalist Democracy I**

Examination of major interpretive frameworks for understanding the general historical development of mass communication in capitalist democracies such as Canada, Britain, and the United States.

Prerequisites: MCOM 3101 and fourth-year Honours standing in Mass Communication or permission of the School of Journalism and Communication.

MCOM 4501 [0.5 credit]

**Mass Media and Capitalist Democracy II**

Consideration of issues related to the history of mass communication in order to assess current theoretical perspectives on media and culture.

Prerequisite: MCOM 3101 and fourth-year Honours standing in Mass Communication or permission of the School of Journalism and Communication.

MCOM 4907 [1.0 credit]

**Honours Essay**

B+ standing in Mass Communication is expected. The Honours Essay, which is a major research essay, is carried out under the direction of a faculty supervisor. The Honours Essay is evaluated by both the supervisor and an appointed reader.

Prerequisite: fourth-year Honours standing in Mass Communication and permission of the School of Journalism and Communication.

## 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 Calculus Courses

Courses included:  
MATH 1002, MATH 1004, MATH 1007,  
MATH 1009

Pre-university Calculus:  
Ontario Grade 12 Mathematics: Advanced Functions and Introductory Calculus, or an OAC in Calculus, or MATH 0007, or equivalent.

Students must successfully complete one of: Grade 12 Mathematics: Advanced Functions and Introductory Calculus, or an OAC in Calculus, or MATH 0005 and MATH 0007, or equivalent, prior to taking a 1000-level Calculus course.

For students in any program offered by the School of Mathematics and Statistics, the above requirement of MATH 0005 and MATH 0007 is in addition to the minimum 15.0 credits in General programs, or 20.0 credits in Honours programs.

#### Prerequisites for most first-year Algebra Courses

Courses included:  
MATH 1102, MATH 1104, MATH 1107

Pre-university Algebra:  
Ontario Grade 12 Mathematics: Geometry and Discrete Mathematics, or an OAC in Algebra and Geometry, or MATH 0107, or equivalent.

**Note:** an OAC in Finite Mathematics is **not** an equivalent.

Students must successfully complete one of: Grade 12 Geometry and Discrete Mathematics, or an OAC in Algebra and Geometry, or MATH 0107, or equivalent, prior to taking any one of the three 1000-level algebra courses listed above.

For students in any program offered by the School of Mathematics and Statistics, the above requirement of MATH 0107 is in addition to the minimum 15.0 credits in General programs, or 20.0 credits 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 University Preparation Mathematics – Advanced Functions and Introductory Calculus (MCB4U), or an equivalent High School functions course.

Prerequisite: Grade 11 Functions and Relations (University Preparation), or Grade 11 Functions (University/College Preparation), or equivalent.

Lectures three hours a week, tutorial one hour a week.

MATH 0007 [0.5 credit]

#### Introductory Calculus

Limits and continuity. Differentiation. Logarithmic and exponential functions and their derivatives; curve sketching; applied problems in maxima and minima, and related rates. Not available for degree credit for students who have successfully completed Ontario Grade 12 Mathematics (Advanced Functions and Introductory Calculus) or an OAC in Calculus, or an equivalent High School Calculus course.

Precludes additional credit for BUSI 1703 or BUSI 1705.

Prerequisite: MATH 0005; or Grade 12 Mathematics (Advanced/Academic Level), taken before September 2002, 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.

Not available for degree credit for students who have successfully completed Ontario Grade 12 Geometry and Discrete Mathematics, or an OAC in Algebra and Geometry, or an equivalent high school Algebra course.

Prerequisite: Ontario Grade 11 Functions and Relations (University Preparation), or Grade 11 Functions (University/College Preparation); or Ontario Grade 12 Mathematics (Advanced/Academic Level), taken before September 2002; or equivalent.

Lectures three hours a week, tutorial one hour a week.

MATH 1002 [1.0 credit]

#### Calculus

Limits, differentiation, the definite integral, elementary functions, trigonometric functions (identities, limits, derivatives), techniques of integration, parametric equations, polar coordinates. Improper integrals, L'Hôpital's rules, 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, MATH 2007, and for MATH 2001, MATH 2002.

Prerequisites: i) a pre-university calculus course with a grade of 65 percent or better; and ii) Ontario Grade 12 Mathematics: Geometry and Discrete Mathematics, or an OAC in Algebra and Geometry, or MATH 0107, or permission of the School. (See prerequisites for first-year calculus courses and for first-year algebra courses at the beginning of this section.)

Lectures three hours a week and one hour tutorial.

**Note:** Although the main prerequisite for MATH 1002 is a grade of 65 percent or better in a pre-university calculus course, past experience indicates that students with less than 75 percent in their prerequisite calculus have only a small chance of success in MATH 1002.

MATH 1004 [0.5 credit]

#### Calculus for Engineering or Physics

Definite and indefinite integrals; numerical approximation. Transcendental functions (trigonometric and inverse trigonometric, logarithm and exponential), their derivatives and integrals. Applications: area,



volume, average value. Further techniques of integration: integration by parts, partial fractions, and substitutions.

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 and Introductory Calculus; or an OAC in Calculus, or MATH 0007 (or equivalent).

Lectures three hours a week and one hour tutorial.

MATH 1005 [0.5 credit]

#### **Differential Equations and Infinite Series for Engineering or Physics**

First-order differential equations. Linear differential equations with constant coefficients; undetermined coefficients; annihilator operators. Variation of parameters. Euler-Cauchy differential equation. Indeterminate forms. Sequences and series; convergence tests; estimation of sums. Power series, Taylor series, remainders. Use of power series to solve differential equations.

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 2001, MATH 2002, MATH 2007, MATH 2404 and MATH 2600.

Prerequisites: i) MATH 1004, or a grade of C- or better in MATH 1007; and ii) either: successful completion of an OAC in Algebra and Geometry, or MATH 0107 [prior to Fall 2003]; or: concurrent registration in MATH 1104 (or MATH 1107); or permission of the School.

Lectures three hours a week, tutorial one hour a week.

MATH 1007 [0.5 credit]

#### **Elementary Calculus I**

Definite and indefinite integrals, differentiation and integration of the elementary functions and transcendental functions, techniques and applications of integration.

Precludes additional credit for BIT 1000, BIT 1100, MATH 1002, MATH 1004, MATH 1009.

Prerequisite: Ontario Grade 12 Mathematics: Advanced Functions and Introductory Calculus; or an OAC in Calculus, or MATH 0007; or equivalent.

Lectures three hours a week and one hour tutorial.

MATH 1009 [0.5 credit]

#### **Calculus: with Applications to Business and Economics**

Definite and indefinite integrals; integration of the elementary functions; some techniques of integration. Functions of several variables; partial differentiation; constrained optimization. Selected applications in business and economics.

Precludes additional credit for MATH 1002, MATH 1004, and MATH 1007.

Prerequisite: Ontario Grade 12 Mathematics: Advanced Functions and Introductory Calculus; or an OAC in Calculus; or MATH 0007; or equivalent.

Lectures three hours a week and one hour tutorial.

MATH 1102 [1.0 credit]

#### **Algebra**

Fields, complex numbers, vector algebra and geometry in 2 and 3 dimensions, matrix algebra, linear dependence, bases, linear transformations, bilinear and quadratic forms, inner products, eigenvalues, principal axis theorem. Strongly recommended for students intending to specialize in mathematics, statistics, physics, or related areas.

Precludes additional credit for MATH 1104, MATH 1107, MATH 1109, MATH 1119, MATH 2107. Note: MATH 1119 is **not** an acceptable substitute for half of MATH 1102.

Prerequisites: i) a pre-university algebra course with a grade of 65 percent or better, and ii) Grade 12 Mathematics: Advanced Functions and Introductory

Calculus; or an OAC in Calculus; or MATH 0007; or equivalent; or permission of the School of Mathematics and Statistics. (See Prerequisites for first-year Calculus and Algebra Courses at the beginning of this section.) Lectures three hours a week and one hour tutorial.

**Note:** Although the main prerequisite for MATH 1102 is a grade of 65 percent or better in a pre-university algebra course, past experience indicates that students with less than 75 percent in their prerequisite algebra have only a small chance of success in MATH 1102.

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 1109, MATH 1119.

Note: MATH 1119 is not an acceptable substitute for MATH 1104.

Prerequisite: Ontario Grade 12 Mathematics: Geometry and Discrete Mathematics; or an OAC in Algebra and Geometry; or MATH 0107; or equivalent. Restricted to students in the Faculty of Engineering, in B.Sc. programs of the Department of Physics (except Double Honours Mathematics and physics), or in the School of Computer Science.

Lectures three hours a week and one hour tutorial.

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, MATH 1109 and MATH 1119.

Note: MATH 1119 is not an acceptable substitute for MATH 1107.

Prerequisite: Ontario Grade 12 Mathematics: Geometry and Discrete Mathematics; or an OAC in Algebra and Geometry; or MATH 0107 (or equivalent).

Lectures three hours a week and one hour tutorial.

MATH 1119 [0.5 credit]

#### **Linear Algebra: with Applications to Business and Economics**

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 and economics.

Precludes additional credit for, but is **not** an acceptable substitute for: MATH 1102, MATH 1104, MATH 1107.

Precludes additional credit for MATH 1109.

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 (MDM4U); or one of: Grade 12 Mathematics: Geometry and Discrete Mathematics (MBA4U), or an OAC in Algebra and Geometry, or an OAC in Finite Mathematics, or MATH 0107, or equivalent, or permission of the School of Mathematics and Statistics.

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 (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, MATH 3009, and for MATH 2001, MATH 2002.

Prerequisites: i) MATH 1002 or MATH 2007 with a grade of C+ or better; and ii) MATH 1102 or MATH 1107 with a grade of C+ or better; 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 2001, MATH 2002, 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

Further techniques of integration, improper integrals, polar coordinates, parametric equations, indeterminate forms, sequences and series, Taylor's formula and series, first order and linear differential equations.

Precludes additional credit for MATH 1002, MATH 1005, and for MATH 2001, MATH 2002.

Prerequisites: i) MATH 1004, or a grade of C- or better in MATH 1007 or MATH 1009; and ii) an OAC in Algebra and Geometry, or MATH 0107, or permission of the School.

Lectures three hours a week and one hour tutorial.

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, MATH 2000, and for MATH 2001, MATH 2002.

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 2001, MATH 2002, 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 (Honours)

Set theory, algebraic systems, vector spaces, inner product spaces, linear transformations, determinants, quadratic forms, selected applications.

Precludes additional credit for MATH 2108 or MATH 3101.

Prerequisite: MATH 1102 or MATH 2107 with a grade of C+ or better.

Lectures three hours a week and one hour tutorial.

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 better in MATH 1107 or MATH 1109; and ii) a grade of C- or better 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 [0.5 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.

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, MATH 2001, MATH 2002, MATH 2454 and MATH 2600.

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 2001, MATH 2002, MATH 2404, MATH 2600.

Prerequisites: MATH 1002 (or MATH 2007) with a grade

of C+ or better and MATH 1102 (or MATH 2107) with a grade of C+ or better.

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 3706, MATH 3057, PHYS 3807 and PHYS 3806.

Prerequisite: one of MATH 2001, MATH 2002, 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, PHYS 3808, and PHYS 3806.

Prerequisites: MATH 2000; and MATH 2454 or MATH 2600.

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 2001, MATH 2002, 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, MATH 3706, PHYS 3807, and PHYS 3806.

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 3100 and 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 better 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, MATH 3158, and MATH 3100.

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 3100 and MATH 3108.

Prerequisite: MATH 2100, or permission of the School.

Lectures three hours a week, tutorial one hour a week.

MATH 3200 [0.5 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 [0.5 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: Poincare 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 3406 [0.5 credit]

**Autonomous Dynamical Systems (Honours)**

Basic concepts of dynamical systems. Stability; limit cycles; Lyapunov's direct method. Theory of autonomous dynamical systems. Volterra systems; principle of competitive exclusion in population biology. The threshold theorem of epidemiology. Basic concepts of nonequilibrium statistical mechanics.

Prerequisites: MATH 2000; and MATH 2454 or MATH 2600.

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 MATH 3004, PHYS 3808, and PHYS 3806.

Prerequisite: MATH 2001 or MATH 2002; or i) MATH 2404 or MATH 1005, 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.)

Only one of MATH 3806/COMP 3806 or MATH 3800/CMPS 3800 may count for credit in a B.Math. program. Prerequisites: MATH 1107; MATH 2007 or MATH 2009; and COMP 1006.

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**

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.)

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.

MATH 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 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 better 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 3001 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 MATH 3002 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 better 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 MATH 3100 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 MATH 3100 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 MATH 3100 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 MATH 3100 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 [0.5 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 [0.5 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 (or MATH 3100) 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 MATH 3100, 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 MATH 3100, 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 linear, quasi-linear, and non-linear equations; second order equations in two and more variables; systems of equations; the wave equation; Laplace and Poisson equations, Dirichlet and Neumann problems; Green's functions. Also offered at the graduate level, with additional or different requirements, as MATH 5406, 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 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]

**Qualitative Theory of Ordinary Differential Equations (Honours)**

Ordinary differential equations: existence-uniqueness theorems, vector formulation for systems; stability theory, Lyapunov theorems, perturbation theorems and structural stability; Poincaré-Bendixon theory. Prerequisites: MATH 3001, MATH 3008, MATH 3406. 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 MATH 3100) or permission of the School. Lectures three hours a week.

MATH 4806 [0.5 credit]

**Numerical Linear Algebra (Honours)**

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 COMP 4806.) Prerequisites: MATH 1102 or MATH 2107; and MATH 2000 or MATH 3009, 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. Prerequisites: MATH 3805 or MATH 3106 or MATH 3158 (or MATH 3100) 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 3809, 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 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 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 and tutorials three hours a week; problem analysis and laboratories one hour a 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 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 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. Also offered at the graduate level, with additional or different requirements, as MECH 5401, for which additional credit is precluded.

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.

Prerequisite: MAAE 2400, MAAE 3300, 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 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 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.



## Mechanical and Aerospace Engineering (MAAE)

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.

Precludes additional credit for ECOR 2401.

Prerequisites: CHEM 1101 or CHEM 1000, 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 MECH 2701 or CIVE 2700.

Prerequisites: CHEM 1101 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: psychrometry 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 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.

Precludes additional credit for MUSI 1000.

Lectures three hours a week.

MUSI 1002 [0.5 credit]

#### **Issues in Popular Music**

History of world popular music from the nineteenth 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.

Precludes additional credit for MUSI 1000.

Lectures two hours a week, discussion one hour 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 1702 [0.5 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 1902 [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 1903 [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 1904 [0.0 credit]

#### **Instrumental Ensemble II**

A continuation of MUSI 1902. 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 1905 [0.0 credit]

#### **Choral Ensemble II**

A continuation of MUSI 1903. 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 2005 [0.5 credit]

#### **Ragtime and Jazz**

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 and film 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**

An examination of selected aspects of the development of Anglo-American and world popular musics from the advent of rock 'n' roll and soul to the present. Genres to be examined include 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**

The basic techniques in ethnomusicology are introduced and illustrated through case studies of the folk and tribal musics of Europe, Asia, Africa, Australia and Oceania, North and South America.

Precludes additional credit for MUSI 2300.

Prerequisite: second-year standing.

Lectures three hours a week.

MUSI 2009 [0.5 credit]

**Music of the Asian High Cultures**

A comparative and analytical study of music in Asian high cultures, 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 examination of 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 will also be explored.

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. Genres considered will be instrumental music, oratorio, motet, cantata, sonata, concerto, and opera. Some of the composers studied will be 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 eighteenth 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.) as well as individual and national styles are examined 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 Stravinskyan 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**

A study of selected aspects of the musical avant-garde in the Western classical tradition in the socio-political climate of the post-War period. Aspects to be examined include 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. Discussion of 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 1702, and MUSI 2700 (may be taken concurrently), or permission of the instructor.

MUSI 2602 [0.5 credit]

**Introduction to Composition**

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 1702, and MUSI 2700 (may be taken concurrently), or permission of the instructor. MUSI 2601 is recommended.

Lectures and workshops three hours a week.

MUSI 2605 [0.5 credit]

**Choral Conducting**

A course designed to introduce students 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.).

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 1702, 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 1702, or permission of the Discipline.

Lectures three hours a week.

MUSI 2702 [0.5 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 1702, 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 1702, 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 2902 [0.0 credit]

**Instrumental Ensemble III**

A continuation of MUSI 1904. 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 2903 [0.0 credit]

**Choral Ensemble III**

A continuation of MUSI 1905. 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 2904 [0.0 credit]

**Instrumental Ensemble IV**

A continuation of MUSI 2902. 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 2905 [0.0 credit]

**Choral Ensemble IV**

A continuation of MUSI 2903. 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 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]

**Aspects of Canadian Musical Heritage**

Canadian music introduced through its roots in First Peoples, Anglo- and Franco-folk and notated musics that provided the foundation for Canada's concert music traditions of the twentieth century.

Precludes additional credit for MUSI 3100.

Prerequisite: second-year standing.

Lectures three hours a week.

MUSI 3104 [0.5 credit]

**Popular Musics of Canada**

Popular musics by Canadians including sheet music examples from 1840s on, Canada's successes in Tin Pan Alley, in Afro-Canadian styles, and various popular expressions of the twentieth century (country, rock, rap, bhangra, First Nations contemporary, etc.).

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. Attention is directed to women's participation in music to make good their absence from traditional accounts in music's history, significance and development.

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 course deals with 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 3404 [0.5 credit]

**Music, the Law and Morality**

An introduction to the relationships that have developed between music, the law and moral issues. Special attention will be paid to issues of copyright information, censorship, obscenity, and to the phenomenon of moral panics. (Also listed as LAWS 3507.)

Prerequisite: second-year standing.  
Lectures three hours a week.

MUSI 3600 [1.0 credit]

**Composition I**

An introductory course in composition designed to enable students to develop abilities in the writing of original music. The study and application 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. This course includes the basics of machine operations, software and computer applications to composition and synthesis. Enrolment in this course 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 in this course 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.

Precludes 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.

Precludes 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 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 3902 [0.0 credit]

**Instrumental Ensemble V**

A continuation of MUSI 2904. 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 3903 [0.0 credit]

**Choral Ensemble V**

A continuation of MUSI 2905. 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 3904 [0.0 credit]

**Instrumental Ensemble VI**

A continuation of MUSI 3902. 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 3905 [0.0 credit]

**Choral Ensemble VI**

A continuation of MUSI 3903. 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 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 and MUSI 1002.

Seminars three hours a week.

MUSI 4103 [0.5 credit]

**Ethnomusicology of Canadian Traditions**

Issues of anthropological, sociological, and analytical approaches are examined in the context of selected developments in folklore and ethnomusicological research on English- and French-language Canadian traditions. Also offered at the graduate level, with additional requirements, as MUSI 5103, for which additional credit is precluded.

Prerequisite: fourth-year standing.

Seminars two hours a week.

MUSI 4104 [0.5 credit]

**Musics of Canada's First Peoples**

The context and significance of musical expressions for representative Nations in each of the Canadian geographical regions, Maritime, Eastern Nomadic, Eastern Sedentary, Plains, Western Subarctic, Plateau, Northwest Coast, and Arctic, are examined from the pre-Contact period to the present. Also offered at the graduate level, with additional requirements, as MUSI 5102, for which additional credit is precluded.

Prerequisite: fourth-year standing.

Seminars two 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. A principal focus of the course is to understand the role of music in the social construction of gender as well as 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 4600 [1.0 credit]

**Composition II**

A continuation of MUSI 3600 for students who possess a displayed aptitude for composition. The course centres on the writing of original works of substantial proportions and for a variety of media. Students are encouraged to prepare some of their music for public performance.

Precludes additional credit for MUSI 4906.

Prerequisite: MUSI 3600 or permission of the instructor.

Seminars two 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: Jazz Styles and Structures**

This course is similar to MUSI 3701 and may be taken in lieu of MUSI 3701. Students taking both courses, in any order, will be expected to demonstrate a development of their own techniques throughout their individual course of study.

Prerequisite: MUSI 2701 or permission of the instructor.

Workshops three hours a week.

MUSI 4703 [0.5 credit]

**Performance Practice**

A seminar to examine 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 and MUSI 3901, or permission of the Discipline.

Individual tuition twenty hours a year.

MUSI 4902 [0.0 credit]

**Instrumental Ensemble VII**

A continuation of MUSI 3904. 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 4903 [0.0 credit]

**Choral Ensemble VII**

A continuation of MUSI 3905. 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 4904 [0.0 credit]

**Instrumental Ensemble VIII**

A continuation of MUSI 4902. 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.

MUSI 4905 [0.0 credit]

**Choral Ensemble VIII**

A continuation of MUSI 4903. 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 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 one week before the last day for course changes.

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.



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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.

## Philosophy (PHIL)

### 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 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.

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 PHIL 1500.

Lectures three hours a week.

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.

Precludes additional credit for PHIL 1200.

Lectures three hours a week.

PHIL 2005 [1.0 credit]

#### Western Philosophy Before 1600

A study of some principal philosophers and philosophical texts in the Western tradition, from the Pre-Socratics to 1600.

Precludes further credit for PHIL 2006/CLCV 2006, PHIL 2007/CLCV 2007, and PHIL 2008.

Prerequisite: 0.5 credit in Philosophy, 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: registration 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: registration 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 18th- and 19th- 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 two and one half 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 MCOM 2504 and LALS 2504.)

Precludes additional credit for MCOM 2800, 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 2601.)

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. (Also listed as MCOM 2900.)

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 seventeenth century. Representative works of writers such as Francis Bacon, Descartes, Spinoza, Leibniz, and Locke.

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 3003 [0.5 credit]

**18th Century Philosophy**

European philosophy of the eighteenth century. Representative works of writers such as Berkeley, Hume, and Kant.

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 3005 [0.5 credit]

**19th Century Philosophy**

European philosophy in the 19th century. May include Hegel, Marx, Schopenhauer, Kierkegaard, Nietzsche, Mill.

Precludes additional credit for PHIL 3006 and 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: 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 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: PHIL 3101 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: 2.0 credits in the history of philosophy at the 2000-level or above 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: a course in philosophy or second year standing.

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: a course in philosophy or second year standing.

Lectures three hours a week.



PHIL 3301 [0.5 credit]

### Issues in the Philosophy of Science

Main currents in the philosophy of natural and/or social science. Topics may include: comparative scientific methods in the natural and social sciences, realism, instrumentalism, anti-realism, constructivism, scientific reductions, theories of explanation, naturalism, and the social, political and ethical dimensions of science and scientific institutions.

Prerequisite: 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 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: 0.5 credit in Philosophy 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 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 theoretical study of language use, as pursued by linguists and philosophers. Conversational implicature, deixis; the semantics-pragmatics boundary; speaker's reference; speech acts. (Also listed as MCOM 3504 and LALS 3504.)

Precludes additional credit for MCOM 2800, LALS 2800 and PHIL 2800.

Prerequisite: 0.5 credit in Philosophy or Linguistics and Applied Language Studies or second-year standing.

Lectures three hours a week.

PHIL 3506 [0.5 credit]

### Semantics

The study of meaning as a part of the study of communication. Organization of the semantic structure of language, and the relation of this structure to the lexicon.

Prerequisite: 0.5 credit in Philosophy or Linguistics; or permission of the department.

Lecture 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.

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 a 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 a 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 a 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 a Philosophy Honours program or permission of the Department.

Seminar two hours a week.

PHIL 4505 [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. (Also listed as LALS 4507.)

Prerequisite: two of PHIL 2001, LALS/MCOM/PHIL 2504, LALS 2003, LALS 3505.

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/MCOM/PHIL 2504, LALS 2003, LALS 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.

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.

Prerequisite: Grade 12 Physics, or an OAC in Physics, or equivalent and Grade 12 Mathematics (Advanced Functions and Introductory Calculus), or an OAC in Calculus, or equivalent. MATH 1004 or MATH 1007 or MATH 1002 (the MATH courses may be taken concurrently) Although not a requirement, Grade 12 Geometry and Discrete Mathematics, or an OAC in Algebra and Geometry, 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 1007 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

This calculus-based course covers mechanics, gravitation, oscillations, and thermodynamics. 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 an OAC in Physics, or equivalent and Grade 12 Mathematics (Advanced Functions and Introductory Calculus), or an OAC in Calculus, or equivalent. MATH 1004 or MATH 1007 or MATH 1002 (the MATH courses may be taken concurrently). Although not a requirement, Grade 12 Geometry and Discrete Mathematics, or an OAC in Algebra and Geometry, or equivalent is 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 or MATH 1007, 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 do not intend to take additional courses in Physics or who lack the prerequisites for PHYS 1001.

Precludes additional credit for PHYS 1001 and PHYS 1003.

Prerequisite: (i) Grade 12 Geometry and Discrete Mathematics, or an OAC in Algebra and Geometry, or equivalent, or MATH 0107 (may be taken concurrently); or (ii) Grade 12 Advanced Functions and Introductory Calculus, or an OAC in Calculus, or equivalent, or MATH 0007 (may be taken concurrently); or (iii) permission of the Physics Department.

Lectures three hours a week, laboratory three hours a 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.

Prerequisite: PHYS 1001 or PHYS 1003 or PHYS 1007.

Lectures three hours a week, laboratory three hours a 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 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 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 1007 and MATH 1107, 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 1007 and MATH 1107, 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.

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 1007 and MATH 1107, 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. To receive course credit, 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: BIOL 1003 and BIOL 1004, either PHYS 1001 and PHYS 1002 or PHYS 1003 and PHYS 1004 or PHYS 1007 and PHYS 1008, plus one of BIOL 2200, CHEM 2101, or 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 and 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 3705, and PHYS 3806.

Prerequisites: PHYS 3807 or MATH 3007 or permission of the Department.

Lectures three hours a week.

PHYS 3904 [0.5 credit]

#### Co-operative Work Term Report 2

Provides practical experience for students enrolled in the Co-operative option. To receive course credit, 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 [0.5 credit]

#### Co-operative Work Term Report 3

Provides practical experience for students enrolled in the Co-operative option. To receive course credit, 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 3906 [0.5 credit]

#### Co-operative Work Term Report 4

Provides practical experience for students enrolled in the Co-operative option. To receive course credit, 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**

Laplace transform and its application to electrical circuits. 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. Integral transforms and their 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 forces, nuclear levels. Qualitative treatment of Fermi gas model, liquid drop model, shell model and collective model. Alpha, beta and gamma radioactivities. Fission. Passage of particles through matter. Particle detectors. Elements of neutron physics and nuclear reactors.

Prerequisites: PHYS 3606 or PHYS 3608 and PHYS 3701 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 [0.5 credit]

**Cooperative Work Term Report 5**

Provides practical experience for students enrolled in the Co-operative option. To receive course credit 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 [0.5 credit]

**Cooperative Work Term Report 6**

Provides practical experience for students enrolled in the Co-operative option. To receive course credit 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 Industrialized States

An introduction to domestic politics in the industrialized world. States are compared on the basis of regime type (such as liberal democracy, fascism, and communism), processes (such as modernization and revolution), and institutions (such as executives, legislatures, and political parties).

Prerequisite: second-year standing.

Lectures two hours a week, tutorials one hour a week.

PSCI 2102 [0.5 credit]

#### Comparative Politics of Development and Underdevelopment

An introduction to domestic politics in post-colonial and developing states. 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 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 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 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 and PSCI 2601 or PSCI 2602.

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 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 PSCI 2102 or PSCI 2200.

Lectures three hours a week.

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 and PSCI 2102.

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 and one of PSCI 2102 or PSCI 2602.

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 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 and PSCI 2101.

Lectures three hours a week.

PSCI 3207 [0.5 credit]

**The Government and Politics of European Integration**

The processes of integration and disintegration in Western Europe; the European Union as an emerging political body that is shaping European politics. The evolution of European integration, and examination of the forces driving the move to an ever closer union.

Prerequisite: third-year standing and one of PSCI 2101, PSCI 2601, or PSCI 2602.

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]

**Politics, Sovereignty and Identity in Russia and the Soviet Successor States**

Comparative statebuilding and social change in the successor states of former Soviet Union. The contentious processes of political institution-building, the emergence of new social identities, and the importance of ethnicity in the current politics of the region.

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**

First, second and third wave feminism, as movements and bodies of theory. Includes schools and concerns shaping feminist political thought and challenges posed by social identities such as race and class to its inclusivity and adequacy.

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 and one of PSCI 2101, PSCI 2102 or PSCI 2300.

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, or PSCI 2401.

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, or PSCI 2401.

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 PSCI 2101, PSCI 2400, or PSCI 2401.

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: Liberal Democracies**

The dimensions of political theory, culture, mass and elite participation and public policy in selected liberal democracies, including Canada.

Prerequisite: third-year standing and one of PSCI 2101, PSCI 2500, or PSCI 3307.

Lectures three hours a week.

PSCI 3502 [0.5 credit]

#### **Gender and Politics: Developing Countries**

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 PSCI 2102 or PSCI 2500.

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 PSCI 2601 or PSCI 2602.

Lectures three hours a week.

PSCI 3601 [0.5 credit]

#### **Theories of International Politics**

Theoretical approaches to the study of international politics including an examination of the major concepts used for analysis and explanation in the field.

Prerequisite: third-year standing and 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 and PSCI 2601.

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 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 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 and one of PSCI 2001, PSCI 2002, PSCI 2003, PSCI 2601 or PSCI 2602.

Lectures three hours a week.

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 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 PSCI 2102.

Lectures three hours a week.

PSCI 3702 [0.5 credit]

**Peace and Conflict in the Middle East**

The origins and evolution of select conflicts and peace processes in the Middle East, with special attention paid to the Arab-Israeli and Israeli-Palestinian domains.

Prerequisite: third-year standing and 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 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 and PSCI 2101.

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 and one of PSCI 2101, PSCI 2101, PSCI 2601 or PSCI 2602.

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: 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 specialisation 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 [0.5 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 [0.5 credit]

**Cooperative Work Term 2**

Prerequisite: registration in the B.A. Honours Co-operative Program and permission of the Department.

PSCI 3903 [0.5 credit]

**Cooperative Work Term 3**

Prerequisite: registration in the B.A. Honours Co-operative Program and permission of the Department.

PSCI 3904 [0.5 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 3201 and permission of the department.

Internship four days a week.

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 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 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 PSCI 2102.

Seminar three hours a week.

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 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 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 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**

This course will explore the nature of global pressures in Africa, as states go through a 'second wind' of political and economic change.  
Precludes additional credit for PSCI 5107.  
Prerequisite: fourth-year Honours standing or permission of the Department, and one of 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.  
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]

**Governance, Power, Politics**

A survey of critical theories and concepts of governance, and recent developments in political sociology. Topics may include forms of capitalism, governmentality, sovereign power, biopolitics, and citizenship. Also offered at the graduate level, with different requirements, as PSCI 5303, 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: PSCI 2300 or permission of the Department.  
Seminar three hours a week.

PSCI 4306 [0.5 credit]

**Concepts of Political Community I**

Concepts of political community, including the common good, justice, citizenship, statesmanship, democracy and legitimacy from ancient, modern and contemporary political theory.  
Precludes additional credit for PSCI 5308.  
Prerequisite: PSCI 2300 or permission of the Department.  
Seminar three hours a week.

PSCI 4307 [0.5 credit]

**Concepts of Political Community II**

A continued critical survey of concepts of political community, including the common good, justice, citizenship, statesmanship, democracy and legitimacy from ancient, modern and contemporary political theory.  
Precludes additional credit for PSCI 5309.  
Prerequisite: PSCI 4306 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 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 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 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 PSCI 2401, PSCI 3402, PSCI 3405, or PSCI 3409.

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 2401, PSCI 3401, or PSCI 3404.

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 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 and Politics in Post Communist Societies**

The roles of democratization, market reform and nationalism in gender politics, considering the legacy of state socialism. (Also listed as EURR 4205.)

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.

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 PSCI 3209, PSCI 3704, PSCI 3705, or HIST 3600.

Seminar three hours a week.

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.

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 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 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.

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.

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 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 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 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 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 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 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 Polimetrics for Macro Data**

Research designs and statistical techniques primarily used in analyzing macro or aggregate data. Selected topics may vary from year to year. Students doing Honours papers based on macro data are advised to take this course. 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**

An exploration of contemporary theories of international relations. Topics may include realism, liberalism, constructivism, postmodernism, feminism, psychological approaches, alliance theory, international political economy and game theory.

Prerequisite: fourth-year standing or permission of the Department, and PSCI 2601 or PSCI 2602.

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 standing or permission of the Department, and one of 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 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 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. Also offered at the graduate level, with additional or different requirements, as PSCI 5804, for which additional credit is precluded.

Prerequisite: fourth-year Honours standing or permission of the Department, and one of 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 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, and one of PSCI 2601, PSCI 3603, PSCI 3607.

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.

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 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 3201.

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 3201.

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 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.



## 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, or permission of the Department.

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, or permission of the Department.

Precludes additional credit for ANTH 2003, ECON 2201, GEOG 2006, PSCI 2700 or PSCI 2702, SOCI 2003, STAT 2507, STAT 2559, STAT 2607.

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 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 and adolescence.

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 and PSYC 2002 and permission of the Department.

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: PSYC 2001 and PSYC 2002 and PSYC 2100.

A CGPA of 9.00 or better in all graded Carleton Psychology



courses is normally required. Permission of the Department required; limited enrolment.  
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: PSYC 2001, PSYC 2002 and PSYC 2200. A CGPA of 9.00 or better in all graded Carleton Psychology courses is normally required. Permission of the Department required; limited enrolment.

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. Intended for Honours thesis students.

Prerequisites: PSYC 2001, PSYC 2002, one of PSYC 2200 or PSYC 2301, one of PSYC 2100, PSYC 2500, or PSYC 2600, and permission of the Department. A CGPA of 9.00 or better in all graded Carleton PSYC courses is normally required. Lectures, seminars, and laboratory tutorials six 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. Intended for Honours students.

Prerequisites: PSYC 2001 and PSYC 2002 (or PSYC 2000) and PSYC 2400 and permission of the department. A CGPA of 9.00 or better in all graded Carleton psychology courses is normally required. Limited enrolment.

PSYC 3402 [0.5 credit]

#### **Criminal Behaviour**

Behavioural approaches to the classification and treatment of offenders. Theories and research relevant to selected patterns of law breaking and selected offender types are reviewed. The value of behaviour modification and counseling programs within prisons is examined.

Prerequisite: one of PSYC 2100, PSYC 2400, or PSYC 2600.

Lectures and seminars three hours a week.

PSYC 3403 [0.5 credit]

#### **Addiction**

A critical review of theories and research on the acquisition and maintenance of addictive behaviour. The rationale and outcome of treatment programs for the abuse of alcohol, tobacco, the opiates and the amphetamines.

Prerequisites: 2.0 credits in PSYC including PSYC 1001 and PSYC 1002.

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: PSYC 2001, PSYC 2002, PSYC 2500, and permission of the Department. A CGPA of 9.00 or better in all graded Carleton Psychology courses is normally required. Limited enrolment

Lectures, seminars and laboratory tutorials six hours a week.

PSYC 3505 [0.5 credit]

**Exceptional Children**

Selected topics concerning exceptional children such as mentally retarded, brain damaged, physically handicapped, disturbed and gifted children.

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 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. Intended for Honours students.

Prerequisites: PSYC 2001, PSYC 2002, PSYC 2600, and permission of the Department. A CGPA of 9.00 or better in all graded Carleton Psychology courses is normally required. Limited enrolment.

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, or both PSYC 1001 and PSYC 1002, and third-year standing.

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. The major theoretical issues and the empirical studies of human. Intended for Honours students.

Prerequisites: PSYC 2001, PSYC 2002, PSYC 2700, and permission of the Department. A CGPA of 9.00 or better in all graded Carleton psychology courses is normally required.

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, PSYC 1002, and one of (PSYC 2001 and PSYC 2002) or (MATH 1007 and MATH 1107) (or equivalent).

Lectures three hours a week.

PSYC 3800 [1.0 credit]

**Introduction to Human-Oriented Technology (Honours Seminar)**

The theoretical and practical basis of Human-Oriented Technology (HOT) will be covered from a psychological perspective. Topics may include input/output devices, user modeling, the software development life cycle, dialog design, help and documentation, social issues, and usability evaluation. Limited enrolment, intended for Honours students.

Prerequisite: PSYC 2800 (PSYC 2700 recommended) and permission of the Department. A CGPA of 9.0 or better in all graded Carleton psychology courses is normally required.

Lecture, seminars and laboratory work, six 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 3903 [0.5 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 Human-Oriented Technology program of the Psychology department and permission of the Department.

PSYC 4001 [0.5 credit]

#### **Special Topics in Psychology**

Each section of PSYC 4001 deals with a different topic. A list of this year's topics can be obtained from the Psychology Undergraduate office after March 1. 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 prerequisites and permission of the Department is required.

Lectures three hours a week.

PSYC 4008 [0.5 credit]

#### **Human Assessment**

A critical appraisal of assessment techniques used for research, classification, and clinical/counseling purposes. Topics may include reliability, validity, and utility of tests, individual difference measurement in general psychology, ethical issues in testing, and alternatives to orthodox assessment.

Precludes additional credit for PSYC 3800.

Prerequisites: PSYC 2001 and PSYC 2002 and at least one of PSYC 2100, PSYC 2500, PSYC 2600.

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 2300, 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 or permission of the instructor.

Lecture and seminar three hours per 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]

#### **Psychological 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.

Prerequisites: third-year standing and permission of the Department.

Lectures three hours a week.

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 and PSYC 3800 or permission of instructor. (PSYC 2100 recommended.)

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 4903 [0.5 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 Human-Oriented Technology program of the Psychology department, successful completion of PSYC 3903, and permission of the Department.

PSYC 4904 [0.5 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 Human-Oriented Technology program of the Psychology department, successful completion of PSYC 4903, and 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, PSYC 4908 and PSYC 4909.

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 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.

Prerequisites: fourth-year Honours standing in Psychology; PSYC 3000 or STAT 2507 and STAT 2509 or MATH 2107 and STAT 2507\*; one of PSYC 3200, PSYC 3500, PSYC 3700 or PSYC 3800; 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, PSYC 4907 and PSYC 4909.

Prerequisites: fourth-year Honours standing in Psychology, PSYC 3000 or STAT 2507 and STAT 2509 or Mathematics MATH 2107 and STAT 2507, one of PSYC 3100, PSYC 3200, PSYC 3400, PSYC 3500, PSYC 3600, PSYC 3700 or PSYC 3800; and permission of the Department.

Lectures as scheduled by the instructor; other hours as arranged with the Faculty Adviser.



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## Public Affairs and Policy Management (PAPM)

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### 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

Examination of 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 additional or 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. Enrolment is limited.

PADM 4221 [0.5 credit]

#### Health Policy

Examination of Canadian health policies and programs set in a comparative political-economic and institutional context. Also offered at the graduate level, with additional or 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. Enrolment is limited.

PADM 4224 [0.5 credit]

#### Aboriginal Policy

Examination of 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 additional or 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. Enrolment is limited.

PADM 4225 [0.5 credit]

#### Trade Policy

An examination of Canadian multilateral and regional trade policies and programs set in a comparative political-economic and institutional context. Also offered at the graduate level, with additional or different requirements, as PADM 5225, for which additional credit is precluded.

Precludes additional credit for PADM 4807, PADM 5708.

Prerequisite: fourth-year standing in the Public Policy and Administration Specialization of the B.P.A.P.M. program. Enrolment is limited.

PADM 4226 [0.5 credit]

#### Tax Policy

An examination of Canadian tax policies set in a comparative political-economic and institutional context. Also offered at the graduate level, with additional or different requirements, as PADM 5226, for which additional credit is precluded.

Precludes additional credit for PADM 4509, PADM 5059.

Prerequisite: fourth-year standing in the Public Policy and Administration Specialization of the B.P.A.P.M. program. Enrolment is limited.

PADM 4227 [0.5 credit]

#### Education Policy

An examination of Canadian policies and programs in education set in a comparative political-economic and institutional context. Also offered at the graduate level, with additional or 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. Enrolment is limited.

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 additional or 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. Enrolment is limited.

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 additional or 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. Enrolment is limited.

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 additional or 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. Enrolment is limited.

PADM 4703 [0.5 credit]

**Ethics in Public Service**

Introduction to the ethical assumptions and ambiguities of organizational relationships and situational loyalties of the public service. The role of the state and parastatal organizations in Canadian society will be reviewed, providing an opportunity to consider whether institutions themselves can advance.

Prerequisite: fourth-year standing in the B.P.A.P.M. program.

Seminar three hours a week.

## Religion (RELI)

### College of the Humanities Faculty of Arts and Social Sciences

RELI 1000 [0.5 credit]

#### Judaism, Christianity, Islam

A survey of the basic beliefs and practices of these major religious traditions from their beginnings to the present.

Lecture three hours a week.

RELI 1001 [0.5 credit]

#### Asian Religions

A survey of the basic beliefs and practices of the religions of South Asia (particularly Hinduism and Buddhism) and the East Asian religions of China and Japan.

Lecture three hours a week.

RELI 1205 [0.5 credit]

#### Interpretations of Religion

Modern inquiry into the nature of religion from various perspectives such as anthropology, history, psychology, sociology and theology. Myths, symbols, scriptures, doctrines, codes and rituals of religious traditions.

Precludes additional credit for RELI 2002.

Lecture three hours a week.

RELI 1402 [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. Restricted to students registered in the Bachelor of Humanities program.

Precludes additional credit for RELI 1205 and RELI 1206.

Lectures three hours a week.

RELI 2003 [0.5 credit]

#### Women in Christian Tradition

An examination of 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.

Lecture three hours a week.

RELI 2005 [0.5 credit]

#### Introduction to Hinduism

An introduction to the development of 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.

Lecture three hours a week.

RELI 2008 [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.

Lectures three hours a week.

RELI 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 CLCV 2102.)

Lecture three hours a week.

RELI 2106 [0.5 credit]

#### Introduction to Buddhism

An introduction to the 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.

Lecture three hours a week.

RELI 2206 [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. Special emphasis is placed 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.

Lecture three hours a week.

RELI 2207 [0.5 credit]

#### Early Christianity

The rise of the Christian movement as revealed in the New Testament and other early evidence. Topics include the Hellenistic and Jewish context, Jesus, Paul, Jewish Christianity, the Johannine writings, feminist and sociological approaches to the early church.

Precludes additional credit for RELI 1003 and RELI 1200.

Lecture three hours a week.

RELI 2208 [1.0 credit]

#### Judaism, Christianity and Islam

The early history, literature and ideas of Judaism, Christianity and Islam from 200 BCE to 750 CE.

Restricted to students in the Bachelor of Humanities program.

Lectures three hours per week.

RELI 2300 [0.5 credit]

#### Mysticism

A 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 2301 [0.5 credit]

#### Topics in Mysticism

Contents of this course may vary from year to year.

Lecture three hours a week.

RELI 2305 [1.0 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.

Prerequisite: other religion course or permission of the Department.

Lecture three hours a week.

RELI 2307 [0.5 credit]

#### Selected Topics in Religion

Content of this course may vary from year to year.

Lecture three hours a week.

RELI 2308 [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.

Lecture three hours a week.



RELI 2507 [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.

Lecture three hours a week.

RELI 2508 [0.5 credit]

**Introduction to 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.

Lecture three hours a week.

RELI 2509 [0.5 credit]

**Introduction to Islam**

An introduction to the Muslim religious tradition and investigation of its organization, basic beliefs, social and ethical principles and practices.

Precludes additional credit for RELI 1009.

Lecture three hours a week.

RELI 2550 [0.5 credit]

**Religion and Society**

Cross-cultural survey of religious institutions, with attention to theories and methodologies in the study of religion. Topics include myth, totemism, cults, ritual, altered states of consciousness, and the relationship of religion to other social institutions and processes. (Also listed as ANTH 2550.)

Precludes additional credit for RELI 2403 and SOAN 2403.

Prerequisites: SOCI 1001 and SOCI 1002, or ANTH 1001 and ANTH 1002, and second-year standing, or permission of the Discipline.

Lectures and workshop three hours a week.

RELI 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 PHIL 2601.)

Prerequisite: a course in philosophy or second-year standing.

Lecture three hours a week.

RELI 2701 [0.5 credit]

**Judaism: The Early Period**

The history of Judaism and the Jewish people from the Maccabees to the Rabbinic Age. The rise of sectarian movements (Pharisees, Saducees and Qumran Covenanters), the rise of Christianity, revolutionaries such as the Zealots and Bar Kochba, the Jewish responses to Hellenism, the reshaping of Judaism after the destruction of the Second Temple, and Rabbinic Judaism in Palestine and the Diaspora.

Prerequisite: second-year standing.

Lecture three hours a week.

RELI 2702 [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.

Prerequisite: second-year standing.

Precludes additional credit for RELI 2704.

Lecture three hours a week.

RELI 2708 [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.)

Lecture two hours a week.

RELI 3007 [0.5 credit]

**Modern Hinduism**

Major developments in Hinduism since the period of colonial British rule focusing on three main developments: "reform" Hinduism in the eighteenth and nineteenth centuries; the emergence of Hindu nationalist political parties in the twentieth century; influence of the growing transnational Indian middle-class in shaping contemporary Hinduism.

Prerequisite: RELI 2005 or permission of the discipline.

Lecture three hours a week.

RELI 3100 [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).

Prerequisite: third-year standing and RELI 1000 or RELI 1001; or permission of the Discipline.

Lectures three hours a week.

RELI 3105 [0.5 credit]

**The Life and Teaching of Jesus**

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.

Prerequisite: third-year standing.

Lectures three hours a week.

RELI 3106 [0.5 credit]

**The Life and Thought of Paul**

A study of the career and social context of St. Paul, with focus on his undisputed letters and the communities he founded.

Precludes additional credit for RELI 3300.

Prerequisite: third-year standing.

Lecture three hours a week.

RELI 3200 [0.5 credit]

**Topics in Indian Thought**

Contents of this course vary from year to year.

Prerequisite: RELI 1001 or RELI 2005 or RELI 2106.

Lecture three hours a week.

RELI 3205 [0.5 credit]

**Topics in Women in Religion**

Descriptive and critical analysis of perspectives on women, sex, and gender in selected religious traditions. Contents of this course may vary from year to year.

Prerequisite: third-year standing.

Lecture three hours a week.

RELI 3302 [0.5 credit]

**Studies on Christianity**

Selected problems in the study of the Christian religion.

Prerequisite: third-year standing or permission of the Discipline.

Lecture three hours a week.

RELI 3306 [0.5 credit]

**Selected Topics in Religion**

Contents of this course vary from year to year.

Prerequisite: third-year standing or permission of the Discipline.

Lecture three hours a week.

RELI 3308 [0.5 credit]

**Topics in Early Christianity**

Contents of this course vary from year to year.

Prerequisite: third-year standing.

Lecture three hours a week.

RELI 3402 [0.5 credit]

**Selected Topics in Islam**

Contents of this course vary from year to year.

Prerequisite: third-year standing.

Lecture three hours a week.

RELI 3505 [0.5 credit]

**Topics in Judaism**

Content of this course may vary from year to year.

Prerequisite: third-year standing.

Seminar three hours a week.

RELI 3605 [0.5 credit]

**Psychological Theories of Religion**

Discussion of religiously significant texts from the works of James, Freud, Jung, and contemporary theorists.

Precludes additional credit for RELI 2605.

Prerequisite: third-year standing or permission of the Discipline.

Lecture three hours a week.

RELI 3700 [1.0 credit]

**Evolution of Christian Thought**

Historical and cultural development of selected aspects of Christian thought from its origins to the modern period. Cultural shifts, doctrines of God and Christ, the church as an institution; conciliarism and reform; the Protestant Reformation and its aftermath.

Precludes additional credit for RELI 2700.

Prerequisite: third-year standing.

Lecture three hours a week.

RELI 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. (Also listed as HIST 3708.)

Prerequisite: a 2000-level history course.

Lecture three hours a week.

RELI 3800 [1.0 credit]

**Modern Religious Thought**

Major currents and developments of religious thought since the nineteenth century. This may include the challenges of modernism, postmodernism, secularism, pluralism, inter-religious encounter and dialogue.

Precludes additional credit for RELI 2800.

Prerequisite: third-year standing and one course in Religion or Philosophy.

Lecture three hours a week.

RELI 3900 [1.0 credit]

**Problems in Interpretation**

A course conducted on a tutorial or seminar basis designed to enable advanced students to pursue interests in selected areas of religion.

Prerequisite: permission of the Discipline.

Tutorial/seminar three hours a week.

RELI 3901 [0.5 credit]

**Problems in Interpretation**

A course conducted on a tutorial or seminar basis designed to enable advanced students to pursue interests in selected areas of religion.

Prerequisite: third-year standing and permission of the Discipline.

Tutorial/seminar three hours a week.

RELI 4301 [0.5 credit]

**Theory and Method**

Examination of selected theoretical and methodological models used in the interpretation of religious data.

Prerequisite: fourth-year standing in the Honours B.A. Religion program, or permission of the Discipline.

Precludes additional credit for RELI 3301.

Lecture three hours a week.

RELI 4801 [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 Discipline.

RELI 4810 [0.5 credit]

**Seminar in the Study of Religion**

Prerequisite: fourth-year standing in the Honours B.A. Religion program, or permission of the Discipline.

Seminar three hours a week.

RELI 4820 [0.5 credit]

**Seminar in Western Religions**

Prerequisite: fourth-year standing in the Honours B.A. Religion program, or permission of the Discipline.

Seminar three hours a week.

RELI 4830 [0.5 credit]

**Seminar in Asian Religions**

Prerequisite: fourth-year standing in the Honours B.A. Religion program, or permission of the Discipline.

Seminar three hours a week.

RELI 4909 [1.0 credit]

**Honours Essay**

A written proposal in consultation with a Program Director, consisting of title, outline and bibliography must be submitted to and approved by the Honours Essay Proposal Board. The essay of approximately 10,000 words is jointly evaluated on its completion by the Departmental Director and one other member of the department. (Consult Departmental Document for further details.)

Precludes additional credit for RELI 4908.

Prerequisite: fourth-year standing in the Honours B.A. Religion program, or permission of the Discipline.

• **Language Courses**

Language courses RELI 1902, RELI 2902 and RELI 3902 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 1902 [1.0 credit]

**Elementary Language Tutorial**

Elementary study of the language required for studying a religious tradition. Restricted to students registered in a Religion program.

Tutorial two hours a week.

RELI 2902 [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.

Prerequisite: RELI 1902 or permission of the Discipline.

Tutorial two hours a week.

RELI 3902 [1.0 credit]

**Advanced Language Tutorial**

Advanced study of the language required for studying a religious tradition. Restricted to students registered in a Religion program.

Prerequisite: RELI 2902 or permission of the Discipline.

Tutorial two hours a week.

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## Russian (RUSS)

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### School of Linguistics and Applied Language Studies Faculty of Arts and Social Sciences

RUSS 1000 [1.0 credit]

#### **Introductory Russian**

Basic skills in oral comprehension and an adequate grasp of the mechanics of the language. Compulsory attendance.

Precludes additional credit for RUSS 1200.

Offered either intensively in one term (eight hours per week plus out-of-class requirements) or over two terms (four hours per week plus out-of-class requirements).

RUSS 2100 [1.0 credit]

#### **Intermediate Russian**

For students with limited prior knowledge of Russian. Continuation of the study of Russian to reach by the end of the course a level of proficiency comparable to that of students who complete RUSS 1200. Compulsory attendance.

Precludes additional credit for RUSS 1200, RUSS 1201.

Prerequisite: grade of C or higher in RUSS 1000 or equivalent and permission of the School of Linguistics and Applied Language Studies.

Offered either intensively in one term (eight hours per week plus out-of-class requirements) or over two terms (four hours per week plus out-of-class requirements).

RUSS 2200 [1.0 credit]

#### **Advanced Intermediate Russian**

Continuation of the study of Russian 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 RUSS 2000, RUSS 2001, RUSS 2002, RUSS 2005.

Prerequisite: grade of C or higher in RUSS 1200 or RUSS 2100 (or RUSS 1201, if taken prior to 2004-05).

Four hours per week plus out-of-class requirements.

RUSS 3010 [0.5 credit]

#### **Advanced Russian I**

Continuation of the study of Russian at an advanced level, including an introduction to authentic materials and primary texts. Further development of speaking, listening and reading comprehension skills as well as writing. Compulsory attendance.

Precludes additional credit for RUSS 3000 (no longer offered).

Prerequisite: grade of C or higher in RUSS 2200, or equivalent.

Four hours per week plus out-of-class requirements.

RUSS 3011 [0.5 credit]

#### **Advanced Russian II**

Continuation of RUSS 3010, with more focused work towards reaching an advanced level, including the ability to handle authentic materials and primary texts. Compulsory attendance.

Precludes additional credit for RUSS 3000 (no longer offered).

Prerequisite: grade of C or higher in RUSS 3010, or equivalent.

Four hours per week plus out-of-class requirements.

RUSS 4200 [0.5 credit]

#### **Russian Syntax and Translation**

Fundamental concepts of Russian syntax as applied to the practice of translation from Russian to English. Seminars three hours a week.

Precludes additional credit for RUSS 3007.

Prerequisite: grade of C+ or higher in RUSS 3000 or RUSS 3011, or equivalent.

RUSS 4201 [0.5 credit]

#### **Russian for the Social Sciences**

Reading, translation and discussion in Russian of documents, reports and articles.

Seminars three hours a week.

Precludes additional credit for RUSS 3008.

Prerequisite: grade of C+ or higher in RUSS 3000, or RUSS 3011, or equivalent.

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 3000, or RUSS 3011, or equivalent, and permission of the School of Linguistics and Applied Language Studies.

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 status and enrolment in the Minor in Russian, grade of C+ or higher in RUSS 3011, or RUSS 3000, or equivalent, and permission of the School of Linguistics and Applied Language Studies.

## 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 2101 [0.5 credit]

#### Poverty and Social Policy

Studies of poverty and the distribution of income and wealth in Canada; origins and persistence of inequality of income and wealth; social policies and poverty.

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 2102 [0.5 credit]

#### Housing Policy

Introduction to modes of analysis of housing and policy; current Canadian housing programs and policies;

contemporary issues in policy analysis.

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 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 2500 [1.0 credit]

#### Research Methods in Social Work

A range of research methods designs, including quantitative and qualitative. Alternative paradigms include: participatory, feminist, community based.

Prerequisite: SOWK 1000; or SOWK 3000 (which may be taken concurrently); or permission of the School of Social Work.

Lectures three hours a week.

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 3101 [0.5 credit]

#### Race and Social Policy

Theories of racism; race analysis of social welfare issues and social policy; and racism in Canadian society and specifically in the welfare state; racism in the history of Canadian welfare state.

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 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 3204 [0.5 credit]

**Models of Practice with Individuals and Families**

Contemporary models of social work practice. The strengths and limitations of each model, as well as issues, questions and problems relating to 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 3205 [0.5 credit]

**Strategies of Community Change**

Models and methods of grass-roots organizing for social change. Studying and working with community groups, students learn strategic planning, organizing,

and evaluation skills.

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: PAMP 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: PAMP 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 3501 [0.5 credit]

**Statistics for Social Workers**

Concepts and applications of descriptive and inferential statistics relevant to the problems encountered by social workers and other human service practitioners. Selection and utilization of statistical methods in policy making and program development.

Prerequisites: SOWK 1000; or SOWK 3000; and SOWK 2500; 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]

**Field Practice 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. and concurrent enrolment in SOWK 3200 or SOWK 3201 in the fall term and SOWK 3200 in the winter term, and permission of the School of Social Work.

364 hours of field work over two terms.

SOWK 3601 [2.0 credits]

**Field Practice I (Winter Term)**

Focus on integrating theory and practice in a community setting supervised by a field supervisor, regular seminars included. Graded as Sat/Unsat.

Prerequisites: this course is for 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 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 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 4104 [0.5 credit]

**International Themes in Social Work and Social Welfare**

Social welfare policy development with a focus on the Third World. Social policies and practices are examined in relation to the needs of the people and the problems inherent in North American models.

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: PAPM 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 4202 [0.5 credit]

**AIDS: Policy, Programs and Practice**

Personal, social and political aspects of Acquired Immune Deficiency Syndrome. Knowledge, skills and

values important for social workers in co-ordinating health and social services, program development and political analysis and working in partnership with people living with AIDS.

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 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]

**Field Practice 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.  
364 hours of fieldwork and bi-weekly seminars.

SOWK 4601 [1.0 credit]

**Field Practice II A**

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.

SOWK 4602 [1.0 credit]

**Field Practice II B**

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.

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 (SOCI)

### 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.**

SOCI 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 SOCI 1000 and SOCI 1003 [1.0].

Lectures three hours a week.

SOCI 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 SOCI 1000 and SOCI 1003 [1.0].

Prerequisite: SOCI 1001.

Lectures three hours a week.

SOCI 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 SOCI 1000, SOCI 1001 and SOCI 1002.

Lectures three hours a week

SOCI 2003 [1.0 credit]

#### Sociological Methods

Introduction to general issues in sociological research. Topics include the logic of research, problems of research design, fundamental techniques of data collection in sociology and problems in the ethics of research. Students are introduced to both qualitative and quantitative research methods.

Precludes additional credit for ANTH 2003.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], and second-year standing.

Lectures and workshop three hours a week.

SOCI 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: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], and second-year standing.

Lectures and workshop three hours a week.

SOCI 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 SOCI 3405 and SOCI 3407.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], and second-year standing.

Lectures three hours a week.

SOCI 2020 [0.5 credit]

#### Race and Ethnicity

This course introduces students 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 will be explored.

Also listed as ANTH 2020.

Precludes additional credit for SOAN 2304.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], and second-year standing.

Lectures and workshop three hours a week.

SOCI 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.

Precludes additional credit for SOCI 2507.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], and second-year standing.

Lectures and workshop three hours a week.

SOCI 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.

Precludes credit for SOCI 2400.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], and second-year standing.

Lectures and workshop three hours a week.

SOCI 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: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], and second-year standing.

Lectures and workshop three hours a week.

SOCI 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 SOCI 2407.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], and second-year standing.

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 SOCI 2100 and PSYC 2100.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], and second-year standing. 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.

Precludes additional credit for SOAN 2200.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], and second-year standing. 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], and second-year standing. 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], and second-year standing. Lectures and workshop three hours a week.

SOCI 2455 [0.5 credit]

#### **Police in Society**

Empirical examination of the organization and conduct of police in Canada and the United States. Topics might include recruitment, training, work, misconduct, and public accountability.

Precludes additional credit for SOCI 2506.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], and second-year standing. Lectures and workshop three hours a week.

SOCI 2700 [1.0 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.

Precludes additional credit for SOAN 2002 and ANTH 2700.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], and second-year standing. 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] and second-year standing.

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], and second-year standing.

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]

#### **Studies in Research Design and Data Analysis**

Integrated approach to problems in the analysis of quantitative data. Research design, descriptive and inferential statistics, with an emphasis upon analysis of sociological data using SPSS.

Precludes additional credit for SOCI 3700.

Prerequisites: SOCI 2003 and third-year standing. Lectures and lab four hours a week.

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: SOCI 2030 and 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.

Precludes additional credit for SOAN 3003.

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.

Precludes additional credit for SOAN 3106.

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 3100 [0.5 credit]

**Situation, Sense and Socation**

Analysis of the influence of one of the senses (space, movement, touch, scent, taste, vision, hearing) on socation. 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.

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.

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.

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.

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 2100 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.

Prerequisites: SOCI 2455 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.

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.

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.

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 demographic techniques. Problems in the collection and analysis of population data, such as population censuses and vital registration. Emphasis on the application of "demographic" methods (e.g. cohort analysis) to other areas of sociological investigation.

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 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.

Prerequisite: fourth-year standing in the Concentration in Power and Everyday Life

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.

Prerequisite: fourth-year standing in the Concentration in Power and Everyday Life. 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.

Prerequisite: fourth-year standing in the Concentration in Power and Everyday Life.

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.

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## Spanish (SPAN)

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### School of Linguistics and Applied Language Studies Faculty of Arts and Social Sciences

SPAN 1105 [1.0 credit]

#### **Introductory Spanish**

For students with no knowledge of Spanish. Oral skills, reading and writing. Compulsory attendance. Offered either intensively in one term (8 hours per week plus out-of-class requirements) or over two terms (four hours per week plus out-of-class requirements).

SPAN 2105 [1.0 credit]

#### **Intermediate Spanish**

Further study of Spanish 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 SPAN 2003, SPAN 2004, SPAN 2005, SPAN 2006, SPAN 2200. Prerequisite: grade of C or higher in SPAN 1105 or equivalent.

Offered either intensively in one term (eight hours per week plus out of class requirements) or over two terms (four hours per week plus out-of-class requirements).

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 3105 [1.0 credit]

#### **Advanced 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 3001, SPAN 3002, SPAN 3003, SPAN 3005.

Prerequisite: grade of C or higher in SPAN 2105 or equivalent.

Offered either intensively in one term (six hours per week plus out-of-class requirements) or over two terms (three hours per week plus out-of-class requirements).

SPAN 3605 [1.0 credit]

#### **Functional Contemporary 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.

Precludes additional credit for SPAN 3001, SPAN 3002, SPAN 3003, SPAN 3005.

Prerequisite: grade of C+ or higher in SPAN 3105 or equivalent.

Offered either intensively in one term (six hours per week plus out-of-class requirements) or over two terms (three hours per week plus out-of-class requirements).

SPAN 4105 [1.0 credit]

#### **Advanced Spanish for Specific Purposes**

Focus on 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.

Prerequisite: grade of C+ or higher in SPAN 3605 or equivalent.

Seminars 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.

Prerequisite: third- or fourth-year status and enrolment in the Minor in Spanish, grade of C+ or higher in SPAN 3605 or equivalent and permission of the School of Linguistics and Applied Language Studies.

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.

Prerequisite: third- or fourth-year status and enrolment in the Minor in Spanish, grade of C+ or higher in SPAN 3605 or equivalent and permission of the School of Linguistics and Applied Language Studies.

## 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.

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 2559, STAT 2607, ECON 2200, 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.

Precludes additional credit for STAT 2509, STAT 2607, ECON 2200, ECON 2202.

Prerequisite: STAT 2655 (or a grade of B- or better in STAT 2507); or permission of the School.

Lectures three hours a week, tutorial/laboratory one hour a week.

STAT 2605 [0.5 credit]

#### Probability Models

Introductory probability theory. Introduction to stochastic modeling, Markov chains and queueing theory. Random number generation and Monte Carlo simulation. Statistical methods for fitting and evaluating models; estimation and testing. Applications to computer system performance evaluation, analysis of algorithms, reliability, search and decision problems.

Restricted to students in the Bachelor of Computer Science, Computer Mathematics and Computer Statistics programs.

Precludes additional credit for STAT 3502, MATH 2600 and STAT 2655.

Prerequisites: MATH 2007 (or MATH 1002) and MATH 1104 (or MATH 1107).

Lectures three hours a week and one hour tutorial.

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, STAT 2559, ECON 2200, 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 and MATH 2600.

Prerequisites: MATH 1002 (or MATH 2007) with a grade of C+ or better, and MATH 1102 (or MATH 2107) 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, or MATH 2001 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, and for STAT 3505, STAT 3501; 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, and for STAT 3505, STAT 3501; 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 3500, STAT 3550, and STAT 3558, STAT 3608.

Prerequisites: i) MATH 2008 [or one of MATH 2001, MATH 2002, 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 3500, STAT 3550, and 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, STAT 3501, and STAT 3505. 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, STAT 3500, STAT 3550, STAT 3608.

Prerequisites: i) STAT 2655 (or STAT 2605 or MATH 2600); 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 3500, STAT 3509, STAT 3550.

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 3550 or 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 3505); 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, ECON 4706, and for STAT 3501, STAT 3505. 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 5506, 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 2600; 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 STAT 3505) 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)**

Multiple regression and forecasting. Exponential smoothing. ARIMA (Box-Jenkins) models. Smoothing of seasonal data. A statistical software package will be used.

Prerequisite: STAT 3553 or STAT 3503, or STAT 3505, 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 STAT 3505, 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.

## 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 1100 [0.5 credit] Introduction to OO Computing

A first course in problem solving in the context of object-oriented programming. Programming with Java: control structures, data abstraction, classes, class relationships, inheritance, polymorphism. Tracing and visualizing program execution. Testing and debugging. Program style, documentation, reliability.  
Precludes additional credit for ECOR 1606.  
Lectures three hours a week, laboratory two hours a week.

### SYSC 1101 [0.5 credit] OO Software Development

Principles and practice of three paradigms for developing object-oriented software: developing classes from scratch, reuse of existing classes, and incremental extension of frameworks. Design: identifying classes, responsibilities and collaborations. Introduction to UML for describing program designs.  
Precludes additional credit for SYSC 2004.  
Prerequisite: SYSC 1100.  
Lectures three hours a week, laboratory two hours a week.

### SYSC 1102 [0.5 credit] C++ Programming

Problem solving and program design, emphasizing the computing abstractions underlying real-time system and operating system development. Procedural and data abstraction in C++. Recursion, pointers, linked lists.  
Precludes additional credit for ECOR 1606.  
Prerequisite: SYSC 1100.  
Lectures three hours a week, laboratory two 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  
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.  
Lectures three hours a week, laboratory two hours a week.

### SYSC 2004 [0.5 credit] OO Software Development

Principles and practice of three software development paradigms with an object-oriented programming language: developing classes from scratch, reuse of existing classes, incremental extension of frameworks. Development of expertise in designing, implementing, and testing industrial-quality, reusable code.  
Precludes additional credit for SYSC 1101.  
Prerequisite: SYSC 2002.  
Lectures three hours a week, laboratory two hours a week.

### SYSC 2100 [0.5 credit] Algorithms and Data Structures

Specification and design of abstract data types and their implementation as Java classes: stacks, queues, trees, tables, graphs. ADTs as elements of program designs. Common and useful examples: simulation, parsing, and state machines. Introduction to the analysis of algorithms.  
Precludes additional credit for SYSC 2002.  
Prerequisites: SYSC 1101 and SYSC 1102.  
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, instruction encoding and execution. Representation of data, assembly language programming. Devices: display, parallel and serial interfaces, programmable timer. Input/output methods: polling and interrupts.  
Precludes additional credit for SYSC 2001, SYSC 2003, and SYSC 3003. May not be taken for credit by students in Computer Systems Engineering, Communications Engineering, or Software Engineering.  
Prerequisites: SYSC 2002 and ELEC 2607.  
Lectures three hours a week, laboratory two hours a week.



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. 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 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 three 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.

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. Structure of an operating system; management of CPU, processes, and memory; dead-lock problems, file systems. Concurrent programming.

Precludes additional credit for SYSC 3001.

Prerequisites: (SYSC 2002 or SYSC 2100) and (SYSC 2003 or SYSC 3003 or SYSC 3006).

Lectures three hours a week.

SYSC 4005 [0.5 credit]

**Discrete Simulation/Modeling**

Simulation as a problem solving tool. Random variate 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.

Prerequisite: (STAT 2605 or STAT 3502) and fourth-year status in Engineering, or third-year status in Software 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.

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.

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 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.

Lectures three hours a week, problem analysis three hours alternate weeks.

SYSC 4202 [0.5 credit]

**Health Care Engineering**

The Canadian health care system and its main participants. Biophysical measurements for diagnosis and monitoring; biomedical sensors and technology; telemedicine and its applications; management of medical technologies; development and funding models

for clinical engineering departments; considerations for developing countries; reliability and safety of medical devices.

Prerequisite: fourth-year status in Biomedical and Electrical Engineering.

Lectures three hours a week, problem analysis three hours alternate weeks.

SYSC 4203 [0.5 credit]

**Biomedical Instrumentation**

Principles of physiological measurements and related instrumentation with particular applications to cardiology, lung function, cerebral and muscle signals, surgery and anaesthesiology, ultrasound measurements, and critical care for infants.

Prerequisite: fourth-year status in Engineering.

Lectures three hours a week, laboratory/problem analysis three hours alternate weeks.

SYSC 4204 [0.5 credit]

**Biological Signal Acquisition and Modeling**

Modeling of neuromuscular biological signals, including transmembrane cell potential, single fibre action potentials, motor unit action potentials, and myoelectric signals. Measurement of biological signals, effects of electrode size and configuration. Time domain, frequency domain, and adaptive filtering techniques for noise reduction.

Prerequisite: SYSC 3600 and ELEC 3509.

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, or Software 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 4602 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 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 3303 and SYSC 4800 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, 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 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.



## 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; 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.

## Women's Studies (WOMN)

Pauline Jewett Institute  
of Women's Studies  
Faculty of Arts and Social Sciences

WOMN 1808 [1.0 credit]

### Introduction to Women's Studies

This survey course provides an overview of the major issues in Women's 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.

Precludes additional credit for WOMN 2808.  
Lectures and discussion three hours a week.

WOMN 2800 [0.5 credit]

### Gender and Diversity

This course examines the ways gender interacts with race, class, ethnicity, sexual orientation, ability and other axes of difference to affect women's experiences. The course incorporates the voices of many women and analyses the challenges these voices raise for key institutions in Canadian society.

Prerequisite: WOMN 1808 or FYSM 1402 or FYSM 1403 or ANTH 1010 or ISSC 1001 or SOCI 1010 or permission of the Institute of Women's Studies.

Lectures and discussion three hours a week.

WOMN 2801 [0.5 credit]

### Interdisciplinary Perspectives on Women's Activism

A comparative, interdisciplinary examination of women's attempts to effect social and political change in the modern era. A range of perspectives and materials are used to examine the objectives, scope and impact of women's activism in different historical, cultural and national settings.

Prerequisite: second-year standing.  
Lectures and discussion three hours a week.

WOMN 2802 [0.5 credit]

### Topics in Women's Studies

An interdisciplinary analysis of one or more topics in Women's Studies.

Prerequisite: WOMN 1808 or FYSM 1402 or FYSM 1403.

Lectures and discussion three hours a week.

WOMN 3002 [1.0 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. Also listed as CLST 3002.

Prerequisite: second-year standing or permission of the Institute of Women's Studies.  
Seminar three hours a week.

WOMN 3003 [0.5 credit]

### Selected Topics in Gender and Women's Studies

An interdisciplinary analysis of one or more topics in Gender and Women's Studies.

Prerequisite: third-year standing and 1.0 credit in courses with substantial gender or women's studies material.

Seminar three hours a week.

WOMN 3808 [1.0 credit]

### Theory and Methods from a Feminist Perspective

Exploration of emerging feminist literatures in the humanities and in the social, natural and applied

sciences. Feminist critiques of prevailing approaches to knowledge and feminist contributions to the development of theory and method are considered.

Prerequisites: third-year standing, and WOMN 1808 or FYSM 1402 or FYSM 1403.

Lectures and discussion three hours a week.

WOMN 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: third-year standing or above and permission of the Institute of Women's Studies.

WOMN 4901[0.5 credit]

### Selected Topics in Women's Studies I

Prerequisite: permission of the Institute of Women's Studies.

Seminar three hours a week.

WOMN 4902 [0.5 credit]

### Selected Topics in Women's Studies II

Prerequisite: permission of the Institute of Women's Studies.

Seminar three hours a week.

WOMN 4903 [0.5 credit]

### Women's 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.

Precludes additional credit for WOMN 4904.  
Prerequisite: fourth-year standing in Women's Studies and permission of the Institute.

WOMN 4904 [1.0 credit]

### Women's 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 WOMN 4903.  
Prerequisite: fourth-year standing in Women's Studies and permission of the Institute.

WOMN 4905 [0.5 credit]

### Advanced Research Project in Women's Studies

Students will undertake a major research project on some aspect of Women's Studies under the supervision of a faculty member.

Prerequisite: WOMN 3808 and fourth-year standing and permission of the Institute of Women's Studies.





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# Glossary

# Glossary

## Academic Session

The fall/winter period from September through April or the spring/summer session from May to August. Both sessions are composed of two terms. Full-credit courses generally run for a complete session while most half-credit courses are for a single term only.

## Academic Performance Evaluation

The decision regarding a student's eligibility to continue in the current program of study. This evaluation takes place in June of each year provided the student has attempted 4.0 or more credits since admission or since the last academic standing decision.

## Academic Warning

One of the possible outcomes of the Academic Performance Evaluation process.

## Advanced Standing

Courses taken at another accredited institution and counted towards a Carleton University degree upon admission.

## Adviser

A staff or faculty member resident in the Student Academic Success Centre or a Departmental Office who assists students in planning their academic program and resolving any academic difficulties.

## Attempt

A course in which a student remains registered past the last date for withdrawal, whether successfully or unsuccessfully completed. Students in any program are allowed 5.0 credits of additional attempts to complete the program requirements.

## Audit

In certain cases and with the permission of the instructor a student may be permitted to audit a course. This means that the student attends the lectures but is not evaluated in the course.

## Bachelor's Degree (Baccalaureate)

A university degree for which a student follows an undergraduate program.

## Bursary

A monetary award to a student based on good academic performance and financial need.

## Calendar

The university publication listing courses, degree requirements, faculty, and University regulations. The Calendar is the ultimate written authority for University policy and regulations.

## Concentration

A Concentration or Specialization is a set of courses within a program that provides a student with specific expertise, knowledge and/or practice and so further distinguishes their program in a recognizable way.

## Concurrent

Courses that may be taken in the same term.

## Course Load

The maximum number of courses in which a student may register, usually five per term in a fall/winter session or two in spring/summer (see also "Overload").

## Course Number

The four-digit code that specifies a particular course within a subject area. Each course is specified by a subject code and a course number.

## Course Reference Number (CRN)

The unique identifier of a course section as offered in a particular term.

## Cross-listed Courses

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

## Credit

Each course has an assigned credit weight that is used in calculations related to progress and graduation. Most courses have credit weight 0.5 or 1.0, but credit values range from 0.0 to 2.0 and higher.

## Cumulative Grade Point Average (CGPA)

One of the key assessment tools for Academic Performance Evaluation. Students may be assessed using the Overall CGPA, the Major CGPA, and sometimes the Core CGPA.

## Dean

The chief academic and administrative officer of a faculty.

## Debarment

One of the possible outcomes of the Academic Performance Evaluation process.

## Deferral

A final examination or final assignment that has been postponed by the Registrar's Office upon successful petition by a student, usually for reasons of illness.

## Degree Audit Report

A record, issued by the Registrar's Office, of a student's progress in a specific program.

## Degree Student

A student registered in a program leading to an undergraduate degree.

## Department

A branch of study and its administrative unit at the University, e.g. Economics, History.

## Discipline

The university equivalent of a "subject" in high school.

## Equivalent Courses

Courses are equivalent if the appropriate academic units consider the content of the courses to be sufficiently similar that either course may be used to fulfil a program requirement.

## Examinations

Midterm: Tests administered by the instructor during term. Final: Examinations at the end of a term or session. Deferred: Final examinations or final assignments postponed to the next special examination period by petitioning the Undergraduate Student Service Centre (usually for reasons of illness).

## Faculty

- A major teaching division of the University, divided into departments, schools or other units and headed by a dean. (e.g. Faculty of Arts and Social Sciences).
- The academic teaching staff of the University.

## Good Standing

One of the possible outcomes of the Academic Performance Evaluation process.

## Honours Research Essay

## Honours Research Project

## Honours Research Thesis

A major research essay or project required in the fourth year of some Honours degree programs.

**Ineligible to Return**

One of the possible outcomes of the Academic Performance Evaluation process.

**Instructional Television (itv)**

The provision of courses to both on- and off-campus students through cablevision and videocassette distribution services.

**Interdisciplinary Program**

A course of study that crosses departmental lines to follow a theme (e.g. labour studies). Some "thematic majors" of this type are administered by the Institute for Interdisciplinary Studies; others have their own administrative office (e.g. Canadian Studies) or committee (e.g. Criminology).

**Language Placement**

A self-assessment questionnaire or short test to establish a student's language proficiency. Usually followed by confirmation of placement in class.

**Letter of Permission (LOP)**

Prior written permission required from the Registrar's Office before a degree student may obtain credit at Carleton for study at another university.

**Limited Enrolment**

The practice of establishing a limit to the number of students who may enrol in a course or program.

**Major**

A discipline or area of specialty studied in some depth as part of a degree program.

**Mature Applicant**

Individuals who lack normal entrance requirements as published in the Calendar, but who will be 21 years of age or over by December 31 of the year in which they wish to enrol, may receive consideration for admission as a Mature Applicant to a degree program either on a full-time or part-time basis.

**Minor**

A Minor is a defined set of courses in a discipline or field that introduce the student to or extend their knowledge of that discipline or field.

**Ombuds Service**

An independent service on campus that investigates individual's grievances or complaints, reports findings and helps achieve equitable settlements.

**Option**

An addition to a program that is separate from the degree requirements. For example, the Co-operative Education Option.

**Overload**

Registration in more than the normal full course load for the students program.

**Petition and Appeal**

The process by which a student seeks an accommodation from a rule, regulation or policy.

**Preclusion**

A course that, when attempted, prevents a student from receiving credit for another course.

**Prerequisite**

A course, courses or other requirement that must be successfully completed before a student may register in the course described.

**Program**

A combination of courses over a specific area or discipline that fulfills requirements for a degree.

**Registration**

The process of selecting, enrolling in, and paying for courses for the academic session.

**Scholarship**

A monetary award based on academic achievement

**Specialization**

A Concentration or Specialization is a set of courses within a program that provides a student with specific expertise, knowledge and/or practice and so further distinguishes their program in a recognizable way.

**Special Student**

A student with permission to register in courses without being admitted to a degree.

**Stream**

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.

**Subject Code**

The four-letter code that specifies discipline area of the course. Each course is specified by a subject code and a course number.

**Suspension**

One of the possible outcomes of the Academic Performance Evaluation process.

**Transcript**

The official record of the students academic history at the institution.

**Tuition Fees**

Fees paid by students for instruction.

**Withdrawal**

The formal procedure, according to regulations laid down by the University, of withdrawing from a course or courses, or from the University.

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## Notes



## Notes

## Notes

## Notes

## Notes



## Notes

## Notes

## Academic Units and Programs

Department/School/Institute Telephone _____ 613-520-	Department/School/Institute Telephone _____ 613-520-
Architectural Studies _____ 2855	History _____ 2834
Art History _____ 2342	Human Rights _____ 2359
Biochemistry _____ 3515	Humanities _____ 2809
Biology _____ 3515	Industrial Design _____ 5672
Business _____ 2388	Information Technology _____ 5644
Canadian Studies _____ 2366	Journalism _____ 7404
Chemistry _____ 3534	Law _____ 3690
Child Studies _____ 2368	Linguistics and Applied Language Studies _____ 2802
Cognitive Science _____ 2368	Mass Communication _____ 7408
Computer Science _____ 4333	Mathematics and Statistics _____ 2150
Criminology and Criminal Justice _____ 2588	Music _____ 5770
Directed Interdisciplinary Studies _____ 2368	Philosophy _____ 2110
Earth Sciences _____ 5633	Physics _____ 4320
Economics _____ 3744	Political Science _____ 2777
Engineering _____ 5659	Psychology _____ 2644
English _____ 2310	Public Affairs, Kroeger College _____ 7560
Environmental Science _____ 3515	Religion _____ 2100
Environmental Studies _____ 2561	Social Work _____ 5601
European and Russian Studies _____ 2888	Sociology and Anthropology _____ 2582
Film Studies _____ 2342	Technology, Society, Environment Studies _____ 3515
French _____ 2168	Women's Studies _____ 6645
Geography _____ 2561	
Geomatics _____ 2561	
Greek and Roman Studies _____ 2100	

# 2007/2008 Undergraduate Calendar



**Carleton**  
UNIVERSITY

**Canada's Capital University**

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