

# 2018-2019 Graduate Calendar

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The information published in this Graduate Calendar outlines the rules, regulations, curricula, programs and fees for the 2018-2019 academic year, including the Summer Semester 2018, Fall Semester 2018 and the Winter Semester 2019.

For your convenience the Graduate Calendar is available in PDF format.

If you wish to link to the Graduate Calendar please refer to the Linking Guidelines.

The University is a full member of:

- Universities of Canada

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## Disclaimer

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The Office of Graduate Studies has attempted to ensure the accuracy of this on-line Graduate Calendar. However, the publication of information in this document does not bind the university to the provision of courses, programs, schedules of studies, fees, or facilities as listed herein.

## Limitations

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The University of Guelph reserves the right to change without notice any information contained in this calendar, including any rule or regulation pertaining to the standards for admission to, the requirements for the continuation of study in, and the requirements for the granting of degrees or diplomas in any or all of its programs.

The university will not be liable for any interruption in, or cancellation of, any academic activities as set forth in this calendar and related information where such interruption is caused by fire, strike, lock-out, inability to procure materials or trades, restrictive laws or governmental regulations, actions taken by the faculty, staff or students of the university or by others, civil unrest or disobedience, Public Health Emergencies, or any other cause of any kind beyond the reasonable control of the university.

The University of Guelph reaffirms section 1 of the Ontario Human Rights Code, 1981, which prohibits discrimination on the grounds of race, ancestry, place of origin, colour, ethnic origin, citizenship, creed, sex, sexual orientation, handicap, age, marital status or family status.

The university encourages applications from women, aboriginal peoples, visible minorities, persons with disabilities, and members of other under-represented groups.

# Introduction

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## Collection, Use and Disclosure of Personal Information

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Personal information is collected under the authority of the University of Guelph Act (1964), and in accordance with Ontario's Freedom of Information and Protection of Privacy Act (FIPPA) [http://www.e-laws.gov.on.ca/DBLaws/Statutes/English/90f31\\_e.htm](http://www.e-laws.gov.on.ca/DBLaws/Statutes/English/90f31_e.htm). This information is used by University officials in order to carry out their authorized academic and administrative responsibilities and also to establish a relationship for alumni and development purposes. Certain personal information is disclosed to external agencies, including the Ontario Universities Application Centre, the Ministry of Advanced Education and Skills Development, and Statistics Canada, for statistical and planning purposes, and is disclosed to other individuals or organizations in accordance with the Office of Registrarial Services Departmental Policy on the Release of Student Information. For details on the use and disclosure of this information call the Office of Registrarial Services at the University at (519) 824-4120 or see <https://www.uoguelph.ca/registrar/>

## Statistics Canada - Notification of Disclosure

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For further information, please see Statistics Canada's web site at <http://www.statcan.gc.ca> and Section XIV Statistics Canada.

## Address for University Communication

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Depending on the nature and timing of the communication, the University may use one of these addresses to communicate with students. Students are, therefore, responsible for checking all of the following on a regular basis:

### Email Address

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The University issued email address is considered an official means of communication with the student and will be used for correspondence from the University. Students are responsible for monitoring their University-issued email account regularly.

### Home Address

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Students are responsible for maintaining a current mailing address with the University. Address changes can be made, in writing, through Registrarial Services.

## Name Changes

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The University of Guelph is committed to the integrity of its student records, therefore, each student is required to provide either on application for admission or on personal data forms required for registration, his/her complete, legal name. Any requests to change a name, by means of alteration, deletion, substitution or addition, must be accompanied by appropriate supporting documentation.

## Student Confidentiality and Release of Student Information Policy Excerpt

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The University undertakes to protect the privacy of each student and the confidentiality of his or her record. To this end the University shall refuse to disclose personal information to any person other than the individual to whom the information relates where disclosure would constitute an unjustified invasion of the personal privacy of that person or of any other individual. All members of the University community must respect the confidential nature of the student information which they acquire in the course of their work.

Complete policy at <https://www.uoguelph.ca/secretariat/office-services/university-secretariat/university-policies>.





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# I. Schedule of Dates

## Summer Semester 2018 (12 Week Format)

### **Monday, April 2**

- Add period for Summer 2018 begins - All graduate students

### **Wednesday, May 9**

- Last day to submit approved thesis for Summer 2018 Convocation
- Last day to submit hard copy application (with late fee) for Summer 2018 Convocation

### **Thursday, May 10**

- Classes commence

### **Friday, May 18**

- Add period ends - All graduate students
- Last day to drop two-semester courses (W18/S18)
- Last day for clearance to graduate at Summer 2018 Convocation

### **Monday, May 21**

- Holiday--NO CLASSES SCHEDULED--classes rescheduled to Thursday, August 2

### **Wednesday, May 30**

- 14th class day; no new student registrations permitted after this date

### **Monday, June 4**

- Course selection period for Fall Semester 2018 begins -- All graduate students

### **Thursday, June 7**

- 20th class day; last day to complete UNIV\*7100 Academic Integrity course

### **Monday, June 11**

- Summer 2018 Convocation ceremonies begin

### **Friday, June 15**

- Summer 2018 Convocation ceremonies end

### **Thursday, June 21**

- Last day to apply to graduate at Fall 2018 Convocation without late application fee

### **Saturday, June 30**

- Government Reporting Date

### **Monday, July 2**

- Holiday--NO CLASSES SCHEDULED--classes rescheduled to Friday, August 3

### **Friday, July 6**

- 40th class day - Last day to drop one semester courses
- Last day to apply to graduate at Fall 2018 Convocation (late application fee still in effect)

### **Wednesday, August 1**

- Last day for regularly scheduled classes

### **Thursday, August 2**

- Classes rescheduled from Monday, May 21, Monday schedule in effect

### **Friday, August 3**

- Classes rescheduled from Monday, July 2, Monday schedule in effect
- Classes conclude

### **Monday, August 6**

- Holiday

### **Thursday, August 9**

- Examinations Commence

### **Saturday, August 11**

- Examinations Scheduled

### **Friday, August 17**

- Examinations Conclude

### **Wednesday, September 5**

- Last day to submit approved thesis for Fall 2018 Convocation
- Last day to submit hard copy application (with late fee) for Fall 2018 Convocation

## Summer Semester 2018 (6 Week Format)

### **Monday, April 2**

- Add period begins - All graduate students

### **Thursday, May 10**

- Classes commence

### **Monday, May 14**

- Last day to add Summer Session courses - All graduate students

### **Monday, May 21**

- Holiday--NO CLASSES SCHEDULED--classes rescheduled to Thursday, June 21

### **Thursday, June 7**

- Last day to drop Summer Session courses

### **Wednesday, June 20**

- Last day for regularly scheduled classes

### **Thursday, June 21**

- Classes rescheduled from Monday, May 21, Monday schedule in effect
- Classes conclude

### **Monday, June 25**

- Summer Session I examinations commence

### **Friday, June 29**

- Summer Session I examinations conclude

### **Wednesday, September 5**

- Last day to submit approved thesis for Fall 2018 Convocation
- Last day to submit hard copy application (with late fee) for Fall 2018 Convocation

## Fall Semester 2018

### **Wednesday, August 1**

- Add period for Fall Semester 2018 begins - All graduate students

### **Monday, September 3**

- Holiday

### **Wednesday, September 5**

- Last day to submit approved thesis for Fall 2018 Convocation
- Last day to submit hard copy application (with late fee) for Fall 2018 Convocation

### **Thursday, September 6**

- Classes commence

### **Friday, September 14**

- Add period ends - All graduate students
- Last day to drop two-semester courses (S18/F18)

### **Friday, September 21**

- Last day for clearance to graduate at Fall 2018 Convocation

### **Tuesday, September 25**

- 14th class day; no new student registrations permitted after this date.

### **Wednesday, October 3**

- 20th class day; last day to complete UNIV\*7100 Academic Integrity course

### **Monday, October 8**

- Holiday--NO CLASSES SCHEDULED -- classes rescheduled to Friday, November 30

### **Tuesday, October 9**

- Fall Study Break Day - NO CLASSES SCHEDULED -- classes rescheduled to Thursday, November 29

### **Monday, October 15**

- Fall 2018 Convocation Ceremonies begin

### **Tuesday, October 16**

- Fall 2018 Convocation Ceremonies end

### **Friday, October 19**

- Last day to apply to graduate at Winter 2019 Convocation without late application fee

### **Monday, October 29**

- Course selection period for Winter Semester 2019 begins—All graduate students

### **Thursday, November 1**

- Government reporting date

### **Friday, November 2**

- 40th class day--Last day to drop one-semester courses
- Last day to apply online to graduate at Winter 2019 Convocation (late application fee still in effect)

### **Wednesday, November 28**

- Last day for regularly scheduled classes

### **Thursday, November 29**

- Classes rescheduled from Tuesday, October 9, Tuesday schedule in effect

### **Friday, November 30**

- Classes rescheduled from Monday, October 8, Monday schedule in effect
- Classes conclude

### **Monday, December 3**

- Examinations commence

### **Saturday, December 8**

- Examinations scheduled

### **Friday, December 14**

- Examinations conclude

#### **Friday, January 4**

- Last day to submit approved thesis for Winter 2019 Convocation
- Last day to submit hard copy application (with late fee) for Winter 2019 Convocation

## **Winter Semester 2019**

#### **Monday, December 3**

- Add period for Winter 2019 begins - All graduate students

#### **Friday, January 4**

- Last day to submit approved thesis for Winter 2019 Convocation
- Last day to submit hard copy application (with late fee) for Winter 2019 Convocation

#### **Monday, January 7**

- Classes commence

#### **Friday, January 11**

- Add period ends - All graduate students
- Last day to drop two-semester courses (F18/W19)

#### **Friday, January 18**

- Last day for clearance to graduate at Winter 2019 Convocation

#### **Thursday, January 24**

- 14th class day; no new student registrations permitted after this date

#### **Friday, February 1**

- Government Reporting Date
- 20th class day; last day to complete UNIV\*7100 Academic Integrity course

#### **Friday, February 15**

- Last day to apply to graduate at Summer 2019 Convocation without late application fee

#### **Monday, February 18**

- Winter Break begins--NO CLASSES SCHEDULED THIS WEEK
- Holiday

#### **Tuesday, February 19**

- Winter 2019 Convocation ceremonies begin

#### **Friday, February 22**

- Winter 2019 Convocation ceremonies end
- Winter Break ends

#### **Monday, February 25**

- Classes resume

#### **Monday, March 4**

- Course selection period for Summer 2019 begins - All graduate students

#### **Friday, March 8**

- 40th class day - Last day to drop one semester courses. **Drop date extended due to weather-related closures. See March 22**
- Last day to apply online to graduate at Summer 2019 Convocation (late application fee still in effect)

#### **Friday, March 22**

- Extended from March 8: Last day to drop one semester courses

#### **Friday, April 5**

- Classes conclude

#### **Monday, April 8**

- Examinations commence

#### **Saturday, April 13**

- Examinations Scheduled

#### **Friday, April 19**

- Holiday - NO EXAMS SCHEDULED

#### **Monday, April 22**

- Examinations Conclude

#### **Wednesday, May 8**

- Last day to submit approved thesis for Summer 2019 Convocation
- Last day to submit hard copy application (with late fee) for Summer 2019 Convocation

## **Summer Semester 2019 (12 Week Format)**

#### **Wednesday, May 8**

- Last day for thesis to be approved in the Atrium by OGPS for Summer 2019 Convocation
- Last day to submit hard copy application (with late fee) for Summer 2019 Convocation

#### **Thursday, May 9**

- Classes commence

#### **Friday, May 17**

- Add period ends - All graduate students
- Last day to drop two-semester courses (W19/S19)
- Last day for clearance to graduate at Summer 2019 Convocation

#### **Monday, May 20**

- Holiday--NO CLASSES SCHEDULED--classes rescheduled to Thursday, August 1

#### **Wednesday, May 29**

- 14th class day; no new student registrations permitted after this date

#### **Thursday, June 6**

- 20th class day; last day to complete UNIV\*7100 Academic Integrity course

#### **Monday, June 10**

- Summer 2019 Convocation ceremonies begin
- Course selection period for Fall Semester 2019 begins—All graduate students

#### **Saturday, June 15**

- Summer 2019 Convocation ceremonies end

#### **Thursday, June 20**

- Last day to apply to graduate at Fall 2019 Convocation without late application fee

#### **Sunday, June 30**

- Government Reporting Date

#### **Monday, July 1**

- Holiday--NO CLASSES SCHEDULED--classes rescheduled to Friday, August 2

#### **Friday, July 5**

- 40th class day - Last day to drop one semester courses
- Last day to apply online to graduate at Fall 2019 Convocation (late application fee still in effect)

#### **Wednesday, July 31**

- Last day for regularly scheduled classes

#### **Thursday, August 1**

- Classes rescheduled from Monday, May 20 Monday schedule in effect

#### **Friday, August 2**

- Classes rescheduled from Monday, July 1, Monday schedule in effect
- Classes conclude

#### **Monday, August 5**

- Holiday

#### **Thursday, August 8**

- Examinations Commence

#### **Saturday, August 10**

- Examinations Scheduled

#### **Friday, August 16**

- Examinations Conclude

#### **Wednesday, September 4**

- Last day for thesis to be approved in the Atrium by OGPS for Fall 2019 Convocation
- Last day to submit hard copy application (with late fee) for Fall 2019 Convocation

## **Summer Semester 2019 (6 Week Format)**

#### **Thursday, May 9**

- Classes commence

#### **Monday, May 13**

- Last day to add Summer Session courses - All graduate students

#### **Monday, May 20**

- Holiday--NO CLASSES SCHEDULED--classes rescheduled to Thursday, June 20

#### **Thursday, June 6**

- Last day to drop Summer Session courses

#### **Wednesday, June 19**

- Last day for regularly scheduled classes

#### **Thursday, June 20**

- Classes rescheduled from Monday, May 20, Monday schedule in effect
- Classes conclude

#### **Monday, June 24**

- Summer Session I examinations commence

#### **Friday, June 28**

- Summer Session I examinations conclude

#### **Wednesday, September 4**

- Last day for thesis to be approved in the Atrium by OGPS for Fall 2019 Convocation
- Last day to submit hard copy application (with late fee) for Fall 2019 Convocation



## II. General Regulations

This section includes university-wide policies on admission, registration, graduation, theses, fees and other subjects of importance to graduate students.

### Admission

#### Admission Requirements

In the Graduate Calendar, the typical Canadian university curriculum and university system are understood to be the academic standard of reference. Herein, grades are as assessed by the Office of Graduate Studies.

Admission to a graduate program, whether in the “Regular”, “Provisional”, or “Special” category (see section Enrolment and Registration, below) is, in all cases, based upon the recommendation of the program and department concerned and is subject to the approval of the Assistant Vice-President (Graduate Studies) on behalf of the Board of Graduate Studies.

Note: Admission to advanced courses of instruction or to the privileges of research does not imply admission to candidacy for a higher degree.

**Master’s:** Normally, the minimum requirement for admission to a master’s program is successful completion of an undergraduate degree/ baccalaureate, in an honours program or the equivalent, from a recognized university.

The applicant must have achieved a grade average of at least 70% (B-) in the last four semesters of study, normally the last two years of undergraduate study (full-time equivalent).

Applicants who have not achieved the minimum grade average may wish to upgrade their academic qualifications prior to applying to a master’s program. For information on upgrading, see “Upgrading Standards” below.

Applicants who hold the DVM degree (or equivalent) and who are applying to the master’s program must have achieved an overall average grade of at least 70% (B-) in their DVM program.

Applicants are advised that for admission to some master’s programs, a higher program grade average than the minimum 70% (B-) average may be required.

For information on alternate admissions criteria for master’s programs, see “*Alternate Admissions Criteria*” below.

**Doctoral:** Normally, the minimum requirement for admission to a doctoral program is the successful completion of an undergraduate/baccalaureate degree, and successful completion of a graduate/master’s degree – both from recognized universities.

The applicant must have achieved a grade average of at least 73% (B) in the master’s degree program. Applicants are advised that for admission to some doctoral programs, a higher program grade average may be required.

Applicants who have not achieved the minimum grade average may wish to upgrade their academic qualifications prior to applying to a doctoral program. For information on upgrading, see “Upgrading Standards” below.

Applicants who hold the DVM degree (or equivalent) and who are applying to the DVSc program must have achieved an overall average grade of at least 73% (B) in their DVM program.

Some programs offer direct admission to a doctoral program from an Honours undergraduate/Baccalaureate degree program. For details, refer to the section entitled “Direct Admission to PhD Programs from an Honours Undergraduate/ Baccalaureate Program”.

**Upgrading/Non-degree:** Students not currently registered in a graduate degree, graduate diploma, or non-degree program at the University of Guelph or elsewhere and who wish to enroll in graduate courses for academic/professional upgrading and/or personal interest should apply on-line through Undergraduate Admission Services, Office of Registrarial Services. At the time of application to Undergraduate Admission Services, the applicant should indicate clearly that they wish to apply as an undergraduate student, and that they are not currently registered for a graduate degree or diploma. A registered undergraduate student may take undergraduate courses or a graduate course with the permission of the chair or director of the academic unit offering the course and the permission of the instructor of the course. In certain limited circumstances, graduate courses taken by undergraduate students may be credited to a graduate program at the University of Guelph. See the Office of Graduate Studies for details.

#### Application for Admission

Potential students may apply through our on-line application process which can be accessed from the Graduate Studies website at <http://www.uoguelph.ca/graduatestudies/apply>.

Please check with the specific program of interest for application date deadlines. The applicant is responsible for assembling all relevant documentation (see below) and any additional program-specific application materials (outlined on the program-specific website). In order to be considered for admission to graduate studies, the applicant must submit all required admission documents to the student information system (WebAdvisor) to complete the applicant process.

**Transcripts:** Applicants are required to submit through WebAdvisor a copy of their transcripts for each previous undergraduate and graduate program from each postsecondary institution attended. Should the applicant be offered conditional acceptance to a program, a certified official transcript from any and all postsecondary institutions attended must be submitted by the end of the first registered semester. Applicants from institutions where only one official transcript/degree certificate is provided should contact the Office of Graduate Studies before submitting the application.

**Referee Assessment Forms:** Assessment forms must be submitted by at least two individuals who are well acquainted with the applicant’s academic record, and academic and research aptitude, capacity and proficiency. Academic references are preferred, but former employers are also acceptable referees. Referees will be contacted via email by the Office of Graduate Studies requesting the reference on the behalf of the applicant after the application is submitted.

**English Proficiency:** Courses at the University of Guelph are completed in approximately 12 weeks. Students therefore must be proficient in the use of English, both written and oral, when they begin their studies at Guelph. The university requires that certification of such proficiency be provided by applicants whose first language is not English.

Examples of acceptable assessment of proficiency include official scores or results from the Test of English as a Foreign Language (TOEFL) of the Educational Testing Service, the International English Language Testing System (IELTS), the Michigan English Language Assessment Battery (MELAB), Pearson Test of English Academic (PTE-A) and the Canadian Academic English Language (CAEL) assessment. The minimum overall scores are 89 with no individual component below 21 for Internet Based TOEFL, 6.5 for IELTS, 85 for MELAB, an overall score of 60 with a minimum score of 60 in each of the 4 categories for PTE-A and 70 for CAEL (these minimum acceptable scores are subject to change). Applicants should make arrangements to take one of these tests at least nine months before the first day of the semester. Other forms of proficiency assessment may apply in individual cases; please contact the admitting department or program for additional information.

Applicants may choose to enrol in the University of Guelph’s English Language Certificate Program (ELCP) which is offered through the University of Guelph’s Open Learning and Educational Support. Applicants who complete the advanced level of this program are considered to have fulfilled the English language requirements and are eligible to apply to a graduate program at the University of Guelph. Information on the “advanced level” of the program is found on-line at <http://www.eslguelph.ca/>

Applicants may also choose to enroll in the University of Guelph’s Graduate Preparation Program (GPP) which is offered through Open Learning and Educational Support. Applicants may be offered admission based on the provision that they complete the GPP, which includes completion of advanced level English (level 9 and 10 of the ELCP) as well as graduate preparatory work. The expected duration of the GPP is two semesters. Upon successful completion applicants may continue on to the graduate program identified in their offer of admission. Details about the GPP may be found at <http://www.eslguelph.ca/>

**Other Documents and/or Examinations:** In some departments, a Statement of Research/Interest that outlines the applicant’s major research interests and objectives in undertaking graduate study, and/ or additional supplementary documents such as a CV/resume, or a writing sample, may be required for admission. Applicants are advised to review the department’s website for specific program admission requirements.

Some departments require applicants to complete and submit the Graduate Record Examination (GRE) or the Graduate Management Admission Test (GMAT) to determine admissibility to some programs. If so, this requirement will be noted with the program-specific admissions application information on the departmental website. The applicant’s official test results must be forwarded directly to the graduate program in the department to which application has been made. It is the responsibility of the applicant to ensure that test results are submitted to the department by the application deadline.

#### Refusal of Admission

Limitations of funding, space, facilities or personnel may make it necessary for the university, at its discretion, and in spite of the admission requirements set out above, to refuse admission to an otherwise qualified applicant. Applicants will be notified via email by the Office of Graduate Studies if their application for admission is refused.

#### Admission of Faculty Members

Members of the faculty of the university who are:

- senior in rank to a lecturer are not eligible for admission to master’s degree studies,
- senior in rank to an assistant professor are not eligible for admission to doctoral studies

Permission to undertake graduate studies must be obtained from the President of the University of Guelph.

## Conditional Admission

Conditional admission may be granted to an applicant whose record to date is acceptable but whose application is incomplete (final official documents have not been received). If the hard copy (paper) final official documents are deemed satisfactory by the Office of Graduate Studies once submitted, the student's admission will be confirmed. If the documents submitted are unsatisfactory, or if the applicant does not meet the conditions listed in their letter of offer, the offer of admission may be rescinded. The assessment of most applications for admission to graduate studies is completed using unofficial electronic documents, and may result in a conditional offer of admission. Such conditional offers of admission require submission of the applicant's hard copy/ paper official documents in order to confirm the offer of admission. As well, applicants must meet any conditions required for admission as stipulated in the offer of admission by the deadline set out in the letter of offer. Note: conditional admission will not be granted on the basis of any English Language Proficiency test results other than the University of Guelph's English Language Certificate Program (ELCP) – see Application for Admission information (above) for more information.

## Letter of Permission

Students who are completing graduate programs at universities outside Ontario and who wish to complete some course work at the University of Guelph may apply for admission to a non-degree program on a Letter of Permission.

Students who wish to be admitted to a non-degree program on Letter of Permission must complete and submit the University of Guelph "Application for Admission to Graduate Studies" form (available from the Office of Graduate Studies) along with a letter from the Dean of Graduate Studies/ Assistant Vice-President (Graduate Studies) or equivalent of the student's home university. This letter must outline precisely what course work the student is expected to complete while at Guelph, and how the work completed at the University of Guelph will be applied and credited to the student's program of study at the home university. No further admission documentation is required.

Students admitted on a Letter of Permission will be registered as "Special" status students in the non-degree program. It is the student's responsibility to request that the University of Guelph transcripts be submitted to the home university. See the Office of Graduate Studies for more information.

## Ontario Visiting Graduate Student Plan

The Ontario Council of Graduate Studies (OCGS), through the Council of Ontario Universities, has established an agreement among the Ontario universities whereby graduate students may take courses at other Ontario universities while remaining registered at their home universities. This plan is known as the Ontario Visiting Graduate Student (OVGS) Plan. For information concerning the regulations and procedures involved, interested students are asked to contact the graduate studies office at their home university.

## Direct Admission to PhD Programs from an Honours Undergraduate/ Baccalaureate Degree

Applicants who have successfully completed an Honours Baccalaureate/ undergraduate degree may apply directly to a doctoral program on their initial application for admission. The applicant must have achieved a superior academic record in the last two years of full time equivalent study. A superior record is normally defined as a cumulative average of 80% (A-) or above, as assessed by the Office of Graduate Studies. The reference on the Referee Assessment Form must rate the student as "outstanding". A statement of the applicant's research interests including evidence of his/ her research aptitude, capability, and proficiency is required.

Following an examination of the application materials submitted, the Graduate Program Committee will submit a written recommendation to the Assistant Vice-President (Graduate Studies) regarding the request for direct admission to the PhD program. Such direct admission students are designated as "Regular". Typically such offers of direct admission include a strong recommendation from the Graduate Program Committee directed to the student's Advisory Committee that at least 0.5 graduate level course credits should be required elements of the student's Program of Study. These credits must be successfully completed by the end of the student's first year of study.

## Admission of Applicants Already Holding a Doctoral or Master's Degree

Applicants who hold a recognized doctoral degree deemed to be equivalent to a Canadian doctoral degree in the same field of study as the program to which they are applying will not be considered for admission. Applicants in this situation are directed to contact the Office of Graduate Studies. In cases where it is not sufficiently evident that the program applied for is different from the completed program and where the department wishes to admit the applicant, the department will be required to clarify in writing the differences between the completed and proposed areas of research. See the Office of Graduate Studies for more information.

An applicant who holds a recognized doctoral degree in one field and who wishes to study at the master's or doctoral level in a different field may be admissible. In cases where it is not sufficiently evident that the program applied for is different from the completed program and where the department wishes to admit the applicant, the department will be required to clarify in writing the differences between the completed and proposed areas of research. See the Office of Graduate Studies for more information.

The same conditions and requirements for applicants to doctoral programs shall apply to those holding a recognized master's degree deemed to be equivalent to a Canadian master's degree and who wish to apply to a master's program

## Transfer of Credits, Post Admission

Students who have left an uncompleted graduate program elsewhere and have gained admission to graduate studies at the University of Guelph may be eligible to transfer some credits by submitting an "Application for Transfer Credit" form. Transfer credit may be assigned if the courses are deemed relevant to the student's program of study.

Graduate courses taken for credit in non-degree programs or through the University of Guelph Open Learning Program (at either the graduate or undergraduate level) may also be considered for transfer credit. Such courses must not have been used for credit towards any degree or honours equivalent qualification, and must not have been a part of the basic minimum admissions requirement for the University of Guelph graduate program.

Students may not complete more than half of their prescribed course requirements outside of the University of Guelph graduate program, whether through Letter of Permission, the Ontario Visiting Graduate Student program, or advanced standing credit or transfer procedures, and must meet the minimum duration of the program into which they have been accepted.

See section Establishment of the Program of Study for more information.

## Advanced Standing Credit

In some specific instances, students in particular graduate programs may seek approval for advanced standing credit, based on graduate courses taken before their admission to the University of Guelph graduate program. A maximum of two courses will be considered for advanced standing credit. The requirements and procedures for seeking such approval are summarized below. Courses submitted for consideration for approval must include the following elements:

- must be credit courses in a graduate degree program offered through an accredited institution;
- must include evaluative components that are graded (i.e. include assignments or exams that are graded);
- must be of comparable credit weight to graduate courses offered at the University of Guelph;
- must not duplicate work already completed by the student in the University of Guelph program.

Requests for advanced standing credit are considered on their individual merits.

To apply for advanced standing credit, students must submit a formal written request to the relevant Graduate Program Coordinator, including a course outline with sufficient detail that the course can be assessed against the above criteria. If a sufficiently detailed course outline is not available, it is the student's responsibility to obtain additional information from the institution at which the course was taken. The application for advanced standing must be submitted at the time of application to graduate studies, and no later than the end of the first week of the semester of the student's first registered semester.

The request shall be submitted by the Graduate Program Coordinator to the Graduate Program Committee, which will review the documentation according to the following criteria.

- The course was not used by the student to obtain a degree.
- The course was not used to obtain admission to the graduate program.
- The course is equivalent in credit weight and level to the course within the University of Guelph program for which it is to substitute.

If approved, the advanced standing credit(s) will be noted on the student's Graduate Degree Program form and transcript.

## Internal Program Transfer

An internal program transfer is a transfer between degrees within the same program (e.g. from the MSc to the PhD in Plant Agriculture; from Graduate Diploma to DVSc; from PhD to MA in History, etc.). Should a student wish to transfer to a different program, the regular "Application for Admission" policies and processes shall apply.

## Internal Program Transfer Application Procedures

Transfer requests, including all required documentation, must be submitted before the end of the fourth semester (unless otherwise specified below). Requests must not be initiated prior to the end of the student's second semester of study.

- Transfer requests must be submitted using the transfer form. Along with the request to transfer, the student must include a written report of progress in research. The report should include a review of research conducted and any papers presented, published or submitted, research seminar title, etc.

- Confirmation of funding is required through the submission of a “Funding Form” (which accompanies the transfer application) from the department into which the student wishes to transfer.
- The student must be recommended highly by the Advisory Committee, supported by a written recommendation from Department Chair and the Graduate Program Committee. All the materials – including the application, the funding form, the research progress report, and the written recommendations, shall be forwarded to the Admissions & Progress Committee for a final decision
- In all cases, a transfer fee is payable to the Office of Registrarial Services when the application is submitted to the Office of Graduate Studies

### **From Master's to Doctoral (i.e. when the student does not hold the equivalent of a master's degree from a Canadian University)**

- The “Application for Transfer to Another Program” form must be initiated by the student during semester 3 or 4. Requests must not be initiated prior to the end of the student's second semester for study.
- The student must have an accredited undergraduate degree with an average of at least 77% (normally B+ to A+).
- The student must have completed at least 1.0 graduate level course credits (two 0.5-credit graduate courses), plus a seminar or equivalent course recognized for credit at the University of Guelph, with grades of at least 80% (A-)
- The student must submit a written report of progress in research. The report should include a review of research conducted for the master's thesis and any papers presented, submitted or published.
- The request to transfer and the research progress report shall be reviewed by the student's Advisory Committee, which shall provide written commentary on the candidate's aptitude for doctoral-level research, and on the suitability of the master's research project for expansion to a doctoral project.
- The request to transfer, the research progress report and the statement from the Advisory Committee shall be reviewed by the Graduate Program Committee and the Department Chair/Director who will provide a statement concerning the candidate's research aptitude, capability, and proficiency.
- A doctoral-level Funding Form and a new Advisory Committee Form (listing the new additional committee member) must be included with the application.

### **From Master's to Doctoral (i.e. when the student holds a recognized master's degree in a related field)**

- The “Application for Transfer to Another Program” form must be initiated by the student during semester 3 or 4.
- The student must have accredited undergraduate and graduate degrees with an average of at least (normally) 77 (B+ to A+)
- The student must have completed at least 0.5 graduate level course credits (one 0.5 credit graduate course), plus a seminar or equivalent course recognized for credit at the University of Guelph, with at least grades of at least 80% (A-).
- Supporting documentation from the Advisory Committee commenting on the candidate's aptitude for doctoral-level research, as well as the suitability of the master's research project for expansion to a doctoral-level project must be included.
- A statement from the Graduate Program Committee and the Department Chair/Director concerning research aptitude, capability, and proficiency must be included.
- A doctoral-level Funding Form and a new Advisory Committee Form (listing the new additional committee member) must be included with the application.

### **From Graduate Diploma to DVSc**

- The “Application for Transfer to Another Program” form must be initiated by the student no later than the end of the student's second semester
- The student must have successfully completed a DVM degree with high academic standing as set out in the admission requirements
- The student must have achieved a “superior record to date” in the Graduate Diploma program and must show a particular aptitude for applied studies (see the degree regulations for the Doctor of Veterinary Science, Admissions section, Chapter IV)
- Supporting documentation is required from the Advisory Committee, the Graduate Program Committee and the Interdepartmental DVSc Committee commenting on the candidate's aptitude for doctoral-level research
- A doctoral-level Funding Form and a new Advisory Committee Form (listing the new additional committee member) must be included with the application

### **From DVSc to PhD**

- The “Application for Transfer to Another Program” form must be initiated by the student.
- In cases where the student was admitted on the basis of a good quality (i.e. high academic standing as set out in the “Admission Requirements”) master's degree but has not yet completed the DVSc Qualifying Examination, transfer requests are normally approved.

- Where the student has successfully completed the DVSc Qualifying Examination, consideration may be given by the Graduate Program Committee to deem it equivalent to the PhD Qualifying Examination. In cases where there is a considerable change in the field of study, the Graduate Program Committee may require that the student complete the PhD Qualifying Examination.
- Supporting documentation is required from the Advisory Committee, the Graduate Program Committee, and the Department Chair/ Director.
- A doctoral-level Funding Form must be included with the application; funding must be guaranteed for a minimum of nine semesters, including funding already provided in the DVSc program.

### **From PhD to DVSc**

- The “Application for Transfer to Another Program” must be initiated by the student. The student must hold a DVM degree with high academic standing, as set out in the “Admission Requirements”.
- In instances where the student has not yet completed the PhD Qualifying Examination, transfer requests are normally approved.
- Where the student has successfully completed the PhD Qualifying Examination, consideration may be given by the Interdepartmental DVSc Graduate Program Committee to deem it equivalent to the DVSc Qualifying Examination. In cases where there is a considerable change in the field of study, the Interdepartmental DVSc Graduate Program Committee may require that the student complete the DVSc Qualifying Examination.
- Supporting documentation is required from the Advisory Committee, and the Interdepartmental DVSc Graduate Program Committee.
- A completed doctoral-level Funding Form must be included with the application; funding must be guaranteed for a minimum of nine semesters, including funding already provided in the PhD program.

### **From Doctoral to Master's (prior to completion of the Qualifying Examination)**

- The “Application for Transfer to Another Program” must be initiated by the student.
- Requests are normally approved on the basis of the student changing goals/career paths.
- In some instances, the Advisory Committee may recommend a transfer to a master's program after having determined that the student's aptitude and/or background preparation for research are not adequate for PhD/ DVSc studies. In cases where the student has failed the first attempt at the Qualifying Examination and has decided, in consultation with the Advisory Committee, that a transfer to the master's program would be appropriate, such a transfer may be approved.
- Where the student had been admitted to the program with a master's degree previously completed, the Advisory Committee's recommendation must demonstrate that the recommended master's degree is different in focus and content from the original master's degree.
- Supporting documentation from the Advisory Committee, the Graduate Program Committee, and the Department Chair/ Director is required.
- A completed master's-level Funding Form must be included with the application.

### **From Doctoral to Master's (after successful completion of the Qualifying Examination)**

- The “Application for Transfer to Another Program” must be initiated by the student.
- Requests are normally approved as a result of the student changing goals/career paths, or for medical/compassionate reasons.
- Where the student had been admitted to the program with a master's degree previously completed, the Advisory Committee's recommendation must demonstrate that the recommended master's degree is different in focus and content from the original master's degree.
- Supporting documentation from the student's Advisory Committee, the Graduate Program Committee, and the Department Chair/ Director is required.
- A master's-level Funding Form must be included with the application.

### **From Doctoral to Master's (after 2nd failed attempt to successfully complete the Qualifying Examination or the Final Oral Examination)**

- No transfer will be permitted.
- A “Required to Withdraw” notation (RTW) will be entered on the transcript of the student's last PhD/ DVSc registration.
- In the event that the student wishes to enter the master's program, the student must apply for admission to that program.
- Should the student be admitted to the master's program, he/ she shall be placed in semester 1 of the master's program.
- Where the student had been admitted to the program with a prior master's degree, the Advisory Committee's recommendation must demonstrate that the recommended master's degree is different in focus and content from the original master's degree.

- The master's degree, if undertaken, must be completely self-contained; the student must complete all the required elements of the program, including required courses, thesis, thesis defence, etc. The Advisory Committee will make a recommendation regarding any credits to be transferred from the incomplete PhD/DVSc.
- A master's-level "Funding Form" must be included with the application.

### From Master's to Graduate Diploma (Type 1)

- An opportunity to transfer from a master's program to a Graduate Diploma (Type 1) is available only where there is an approved Graduate Diploma (Type 1) program in place for the particular program.
- In some instances, the Advisory Committee may recommend a transfer to a Graduate Diploma (Type 1) after having determined that the student's aptitude and/or background preparation for research are not adequate for master's studies.
- The "Application for Transfer to Another Program" must be initiated by the student.
- Students should consult with the Office of Graduate Studies for more information.

### Upgrading Standards

#### a. Applicants to a Master's program who do not hold an honours equivalent degree as assessed by the Office of Graduate Studies

Applicants who have not completed undergraduate courses above the 30 required for a three-year general degree will be required to complete one full year (ten semester courses) of senior level (3000 or 4000) undergraduate courses (5.0 course credits) and maintain a minimum average of 70% (B-). These courses will be evaluated independently of the applicant's previously completed coursework. If the student does not achieve the required minimum average of 70% on these courses, s/he should then complete an additional 2 senior level (3000 or 4000) undergraduate courses (1.0 course credits) and the evaluation will be repeated on the full 6.0 course credits.

In cases where the student has completed more than the 30 required undergraduate courses, these will be deducted from the number of courses required. For example, if the applicant has completed 32 semester courses, s/he will only be required to complete an additional eight semester courses or 4.0 course credits. Upgrading does not guarantee admission.

#### b. Applicants to a Master's program who hold an honours equivalent degree at a level of performance marginally below the minimum university requirement

Applicants will normally be required to complete three senior level (3000 or 4000) undergraduate courses (1.5 course credits) in a single semester and maintain a minimum grade average of 70% (B-). These courses will be evaluated independently of the student's previously completed coursework. If the student does not achieve the required minimum average of 70% (B-) in these courses, s/he should then complete an additional two senior level (3000 or 4000) undergraduate courses (1.0 course credits) and the evaluation will be repeated on the full 2.5 credits. Upgrading does not guarantee admission.

In both a) and b) above, courses taken as upgrading will NOT subsequently be considered for advanced credit or transfer credit toward a Master's degree at this university.

#### c. Applicants to a Doctoral program who hold a Master's degree at a level of performance marginally below the minimum university requirement

Applicants will be required to complete a minimum of three semester courses (1.5 course credits) at the graduate level. They must maintain a minimum grade average of 73% (B) with no individual grade below 70%. Upgrading does not guarantee admission.

In all cases (a, b, and c above), the applicant will be directed to the department of interest for assistance with the selection of courses and for information about departmental admission requirements. The department requirements may be higher than those listed here, but must be consistent across all applicants. For example, if a department has established an admission requirement of 75% instead of the University's 70% minimum, they must apply that standard to all entering and upgrading students.

### Alternate Admissions Criteria

Applicants who believe that their experiential learning may compensate for academic standing that does not meet the university minimum requirements are directed to contact the program(s) of interest regarding availability of alternative admissions criteria.

Applicants to some graduate programs (with the exception of doctoral-level programs) who are able provide evidence of a significant, sustained record of relevant experience and relevant task performance (normally a minimum of 5 years) to compensate for the shortcomings or deficiencies in the type or quality of their previously completed undergraduate degree may contact the program of interest regarding the availability of alternate criteria. Similarly, if an applicant has not completed an honours degree or its equivalent, but can demonstrate relevant skill development over a sustained period of time, admission on the basis of alternate admissions criteria may be considered.

Admissions on the basis of alternate criteria shall be considered on an exceptional basis only. Normally, the regular admissions criteria shall apply. No more than 15% of the graduate students in a program may be admitted under alternate admissions criteria. In programs of fewer than 7 students, no more than one student may be admitted under alternate admissions criteria.

See details and exceptions in the program-specific information below.

Should a Graduate Program Committee recommend admission of an applicant based on alternate criteria (normally on the basis of sufficient evidence of sustained experience - normally a minimum of 5 years - relevant to the field of study, and as well as the Graduate Program Committee's assessment and support of the applicant's ability, aptitude and capacity to pursue graduate studies as included in the student's application materials), the student's file is submitted to the Office of Graduate Studies by the Graduate Program Committee for a final determination on whether the alternate admission criteria are satisfied. The Office of Graduate Studies may consult with and defer to the Admission and Progress Committee when making decisions on such applications.

Students admitted on the basis of alternate criteria shall be classified as Provisional (see section Registration Status and Student Classification, below).

### University-wide Alternate Admissions Criteria (excepting the graduate programs listed below):

An applicant who does not meet the university's minimum academic requirements for admission may be considered for admission to a master's or diploma program if the following criteria are met:

- The student must present a significant record of relevant experience in the field of study, normally of at least five years. The nature of the relevant experience for admission shall be determined by the specific Graduate Program Committee for the field of study.
- The application must include a) a positive recommendation from the Graduate Program Committee based on a personal interview with the candidate (verbal) and b) a written statement from the candidate outlining the purpose and goal of pursuing graduate studies.
- The application must include identification of a proposed advisor (the candidate must seek support from the proposed advisor in advance) and a proposed Program of Study, including the anticipated time to completion according to the Maximum Registration policy.
- The application for admission must include references from the potential advisor (a faculty member) and the graduate program coordinator in which the applicant's aptitude for graduate studies is addressed explicitly.
- When required by the department, school, or program, the applicant must submit the results of any specified standardized examinations (e.g. GMAT, general GRE, disciplinary GRE, etc.) with whatever specified levels of performance are required. The decision to require submission of such standardized test scores is at the discretion of the department or school.

### Master of Fine Arts

No more than 50% of the graduate students in this program in any given year shall be admitted under alternate admissions criteria. An applicant to this program who does not meet the university minimum academic requirements for admission may be considered for admission if the following criteria are met:

- The student must present a significant and sustained record of relevant experience through on-going educational or professional development in the field of study (normally at least five years). The nature and quality of the relevant experience for admission shall be determined by the Graduate Program Committee.
- The application for admission must include references from a potential advisor (the applicant must seek support from a proposed faculty advisor in advance) and the graduate program coordinator in which the applicant's aptitude for graduate studies is addressed explicitly.
- The application must include: a) a positive recommendation from the Graduate Program Committee based on a personal interview with the candidate (verbal); and: b) a written statement from the candidate outlining the purpose and goal of pursuing graduate studies.
- The application must include a proposed Program of Study, including the anticipated time to completion according to the Maximum Registration policy.

### Master of Arts (Leadership), Master of Business Administration (Distance Education format) and Master of Business Administration (Residential format)

There is no limit to the number of applicants who may be admitted through alternate admissions criteria to these particular programs.

An applicant to any of these programs who does not meet the university minimum academic requirements for admission may be considered for admission if the following criteria are met:

- A significant and sustained record of relevant experience, normally at least five years. The nature of the relevant experience for admission shall be determined by the specific Graduate Program Committee for the field of study.

- Submission of positive references from people who can judge such matters (usually an advisor or Graduate Program Coordinator) in which the applicant's aptitude for graduate education, and, in the case of admission to the executive programs, ability to cope with the distance education format, are specifically addressed.
- A recommendation from the Graduate Program Committee based on the results of the applicant's interview (verbal) and/or statement of purpose (written).
- For some programs, the application must include identification of a proposed advisor (the candidate must seek support from the proposed advisor in advance) and a proposed Program of Study, including the anticipated time to completion according to the Maximum Registration policy. See program specific information.
- Demonstration of continuous successes in continuing education or professional development.
- When required by the department, school, or program, the applicant may be required to submit the results of any standardized examinations specified (e.g. GMAT, general GRE, disciplinary GRE, etc.) with whatever specified levels of performance are required. The decision to require submission of such standardized test scores is at the discretion of the department or school.

## Description of Graduate Students

Once admitted, graduate students are assigned a category and a classification. The applicant's written offer of admission will specify the proposed student category and classification.

### Category

**Regular Student:** Applicants who have fulfilled all university or program admission requirements and are offered admission to a University of Guelph graduate program are assigned to the Regular student category.

**Provisional Student:** An applicant whose qualifications for meeting the minimum university or program requirements cannot be clearly appraised may be considered for admission as a Provisional student. (This category is unavailable for applicants who clearly do not meet the minimum university admission requirements as assessed by the Office of Graduate Studies).

While on Provisional student status, the student's program must include at least one graduate course in each semester and may include active involvement in supervised thesis research.

Students in a Master's program must attain a 73% (B) average with no individual grade below 70% (B-). Students in a doctoral program must attain a 77% (B+) average with no individual grade below 73%.

It is the responsibility of the department/ school to provide written notification to each of its admitted Provisional category students of the number of courses to be completed in the program of study, the code and title of each required course, and the final grade level that must be attained in all such courses. If at the end of the student's first semester the department/ school is satisfied with the student's progress according to the provisions specified, it will recommend to the Assistant Vice-President (Graduate Studies) that the student be transferred to the Regular category. Upon transfer to the Regular category, the student shall receive credit for courses completed while in the Provisional category.

If transfer to the Regular student category is not achieved at the end of the student's first semester, the student may be permitted to continue for a second semester in the Provisional student category. At the end of the second semester, the student's academic record will be reviewed again. If transfer to the Regular student category is not recommended at this time, the student may be Required to Withdraw or may submit a request to the Admissions & Progress Committee to be allowed to continue in the Provisional student category for one additional semester (i.e. a third semester). Decisions of the Admissions & Progress Committee may be appealed to the Senate Committee on Student Petitions (see section on Appeals).

**Special Student:** Students who are admitted and registered in a non-degree program shall be assigned to the Special student category. Normally Special category students are those attending the University on a Letter of Permission, or as an Ontario Visiting Graduate Student, or are on exchange.

### Classification

Students are classified as full-time or part-time on the basis of the program in which they are enrolled. All students have access to university activities and facilities and are expected to take part in the academic life of their program and the university.

### Full-time Student

Full-time students apply themselves to their graduate study as a primary responsibility. Normally graduate students will be registered as full-time students because they are registered in full-time programs. According to the Ontario Ministry of Advanced Education and Skills Development, a graduate student must meet the following criteria in order to be registered full-time:

1. be pursuing graduate studies as a full-time occupation;
2. identify himself or herself as a full-time graduate student;
3. be designated by the university as a full-time graduate student;

4. be geographically available and visit the campus regularly. Without forfeiting full-time status, a graduate student, while still under supervision, may be absent from the university (e.g., visiting libraries, doing field work, attending a graduate course at another institution, etc.) provided that, if any such period of absence exceeds four weeks in any one term, written evidence shall be available in the Office of Graduate Studies to the effect that the absence has the approval of the Department Chair and the Assistant Vice-President (Graduate Studies);

5. be considered a full-time graduate student by the graduate program

### Full-time Distant Student

Full-time students may be located away from the university. If a student lives 200 km or more from the University of Guelph, he/she may apply to be classified as a Full-time Distant student, which exempts him/her from payment of some non-tuition student fees. Contact the Office of Graduate Studies for more information.

### Part-time Student

Part-time students are enrolled in part-time graduate programs. Students who wish to study part-time must declare their intention to be classified as "part-time" at the time of their application for admission. If a program description does not indicate "full-time only", applicants may assume that a part-time option is available. Students should consult with the department or school offering their intended program of study to confirm the availability of this option.

Part-time students may register for no more than 1.0 course credits in a semester. Three part-time semesters are regarded as the equivalent of one full-time semester for calculation of Class Level.

Under certain conditions, full-time students may be allowed to transfer to a part-time classification if demanding circumstances relating to personal health matters, family responsibilities, or employment exist. Documentation of these circumstances and a Full-time and Part-time Transfer Application must be submitted to the Office of Graduate Studies.

Part-time students may apply to transfer to full-time classification at any time during their studies through the submission of the Full-time and Part-time Transfer Application. As well, pending final approval from both their program and the Office of Graduate Studies, students originally admitted to the part time classification and who subsequently apply and are accepted to full time classification are permitted to request a transfer back to part-time classification.

## Registration

### Enrolment and Registration

#### Regular and Provisional Students

Each Regular or Provisional student will enroll in a program of study in the jurisdiction of one of the following academic units: (a) a single department or school, (b) an interdepartmental committee, or (c) a centre/ institute offering graduate programming; i.e. either the Guelph-Waterloo Centre for Graduate Work in Chemistry and Biochemistry (GWC2) or, the Guelph Waterloo Physics Institute (GWPI).

For all programs, the student shall be registered with a single department/ school, normally the department/ school of which the advisor is a member. Students enrolled in programs under (b) or (c) above will meet the degree requirements as arranged with the department/ school in which they are registered.

### Special Students

Each Special student will be registered in a single department, as per the information above regarding Regular and Provisional students. The chair of that department, or the chair's designated faculty member, shall oversee the student's progress in the course(s) or program.

### Registration Procedure

A student is considered as registered for a particular semester only when courses to be attempted for that semester have been reported to the Registrar no later than the end of the Add period (see Chapter 1 - Schedule of Dates) and financial arrangements, satisfactory to Student Financial Services, have been made for the associated tuition and other fees.

Students are reminded that registration must be completed by the indicated deadlines. Check the Schedule of Dates (Chapter I) for the registration (also known as course selection) deadlines. Normally, six to eight weeks prior to the beginning of each semester, students continuing from semester to semester may select courses through WebAdvisor for the upcoming semester.

Provisional or Special students in a non-degree program are not permitted to use WebAdvisor for course selection; in these cases, students continuing in a non-degree program shall submit a *Graduate Student Add/Drop & Change* form to Enrollment Services in the Office of the Registrar in order to activate registration for the upcoming semester. The form must be approved in the academic unit concerned before it is submitted to Enrollment Services. New students may register through WebAdvisor by mail or in person up until the last date for Add/Drop as set out in the Schedule of Dates (Chapter I).

Upon a student's initial registration, University ID cards, which are used for student identification and for library and bus pass purposes, are produced and validated at the ID Card Centre in Enrolment Services, Office of Registrarial Services, University Centre level 3. Validation stickers will be provided each semester to registered students continuing from semester to semester. Loss or theft of a University ID card should be reported at the ID Card Centre.

Normally, the registration procedure must be completed within the dates set out in the Schedule of Dates (Chapter I). In special circumstances a student may be permitted to register up to 14 class days after the opening date with assessment of a late fee.

Financial statements are available on WebAdvisor following the course selection period for all preregistered students approximately four to six weeks prior to the beginning of each semester. Payment of account by the published deadline will complete the registration process. Late payment will result in the assessment of late fees. Failure to make appropriate payment arrangements by the end of the add period for the semester will result in the cancellation of enrolment (de-registration) for that semester. Reactivation of the term may only be approved with full payment or upon approval of Student Financial Services.

Students wishing to register in any undergraduate course or course for audit must obtain the instructor's signature on the *Graduate Student Add/Drop & Change* form.

Students registered in multi-semester courses must register in *each* semester in which they are actively engaged in course requirements, unless otherwise stated in the course description.

## Registration Changes

Changes to registration (i.e. the deletion or addition of courses) are made only on the recommendation of the student's advisory committee and with the approval of the Assistant Vice-President (Graduate Studies). Only those courses authorized through an official change of registration (i.e. listed on the Graduate Student Add/Drop & Change), will be included for academic credit. When dropping two-semester courses, both semesters of the course must be dropped. Students who wish to re-take a two semester course must re-take both parts of the course. The deadline to drop a two-semester course is the add deadline date specified for the second semester of the course (See the Schedule of Dates in Chapter I).

## Continuity of Registration

Students are required to register each consecutive semester of study until graduation. Students must be registered in each semester in which they are actively engaged in course work or research (including any semester in which they are in contact with university faculty/staff, or are using any university facility, in relation to their academic program), even if not on campus.

Students may not register at the University of Guelph while they are registered as a student at another university unless they have received prior written permission from the Assistant Vice-President (Graduate Studies).

Once enrolled, students must complete their degree according to the schedule and time limitations as stipulated in the Maximum Registration policy. [See Maximum Registration section below.]

A student who has not completed all the requirements for the degree by the due date for thesis submission in a particular semester must register for the subsequent semester. Students must be registered in the semester in which they qualify for the degree.

## Leave of Absence

### Leave of Absence for Registration at Another University

University of Guelph graduate students, with prior permission from the Assistant Vice-President (Graduate Studies), may arrange a Leave of Absence (LOA) to register at another university. Students should consult the Office of Graduate Studies about the options available when planning such activities.

### Leave of Absence (LOA) from Graduate Studies

A "Regular" student (see Description of Graduate Students/ Category) may make arrangements in advance, subject to recommendation by the Graduate Program Committee and approval by the Admissions & Progress Committee (A&P), for an LOA from graduate studies for no more than three consecutive semesters. Requests for parental leave will be accommodated under the LOA regulations. The written approval of an LOA by A&P will include a specified adjustment to the program duration stated in the Maximum Registration policy (Registration/ Maximum Registration section).

The Assistant Vice-President (Graduate Studies) may routinely approve a recommendation from the Graduate Program Committee for a student request for a one semester LOA in which there is no adjustment to the program duration contemplated.

Requests to continue an LOA beyond three consecutive semesters must be submitted to the Graduate Program Committee who shall forward their recommendation of approval to A&P.

Additional requests for a further LOA must be submitted for approval to A&P and are unlikely to be considered except in exceptional circumstances. As well, repeated requests for multiple semester leaves will not be considered except under highly exceptional circumstances.

During an approved LOA, graduate students shall not engage in activities related to their academic program; i.e. the student shall not engage in academic courses or activities including completion of incomplete courses from previous semesters, or research/ writing activities related to his/her academic program; the student shall not engage in communications or request feedback from his/her advisor or advisory committee related to his/her academic program; the student shall not use university research facilities related to his/ her academic program.

Failure to obtain prior approval for LOA will be considered as a voluntary withdrawal from graduate studies at the University of Guelph. A formal application for readmission to the program will be required in order to resume studies, conditional on acceptance. Students who are readmitted are subject to the policies and regulations of the calendar under which they were readmitted.

## Program Duration

### Continuation Beyond the Program Completion Period

Graduate students who do not complete their graduate program within the prescribed Program Completion Period will be notified early in the next semester that subsequent registration will require submission of a Plan of Study. The student, in consultation with the advisory committee, will be asked to submit the Plan of Study to the Admissions & Progress Committee (A&P) via the Office of Graduate & Postdoctoral Studies (OGPS) before the end of the semester of notification. On approval of the Plan of Study by A&P, master's students may continue up to Maximum Program Duration. Doctoral students may continue for up to three semesters, after which a second Plan of Study and progress report must be submitted to A&P to continue up to Maximum Program Duration.

If the student and the advisory committee do not submit the Plan of Study as required, the student will be withdrawn from their graduate program, and must apply to A&P for readmission. A Plan of Study will be required as part of the application for readmission.

### Appeal for Extension Beyond Maximum Program Duration

Students who do not complete their graduate program by the end of Maximum Program Duration will be withdrawn from the program. Students who are withdrawn must apply for readmission.

Students who wish to appeal the requirement to withdraw and request an extension beyond Maximum Program Duration must submit an "Appeal for Extension of Maximum Program Duration" to A&P. The appeal form must be submitted before the end of the semester of Maximum Program Duration, and must include the following documentation:

- An approved Plan of Study for timely program completion, signed by the student, the faculty advisor, the Graduate Program Coordinator, and the other members of the student's advisory committee
- An indication of the progress made since submission of the previous Plan of Study
- A recommendation from the Graduate Program Committee or Department Chair/ School Director
- A recommendation from the Associate Dean, Research & Graduate Studies of the college

Note: If the student, faculty advisor, and members of the student's advisory committee are unable to agree on a Plan of Study for program completion, the Graduate Program Coordinator shall provide a letter commenting on the feasibility of the Plan of Study provided by the student.

In considering a request for an extension, A&P shall review all departmental Student Progress Reports submitted to date. (As per existing policy, such reports shall have been provided to the student each semester via his/her advisor.) For students in course-based programs that do not provide Progress Reports, a supporting letter from the Graduate Program Coordinator will be required and provided to the student with an opportunity for comment.

A&P will grant or deny the request for the extension based on all the documentation provided. Where A&P supports the request, it may also provide advice and recommendations on the proposed Plan of Study.

Should the student fail to complete the graduate program within the approved extension period, the student shall be withdrawn for failure to complete.

Decisions of A&P may be appealed to the Senate Committee on Student Petitions. Such appeals will include an examination of all relevant documents and evidence used by A&P in making its decision. Information on the procedures for submitting appeals to the Senate Committee on Student Petitions are set out in the regulations included in the bylaws for the Senate Committee on Student Petitions, available on-line at <http://www.uoguelph.ca/secretariat/senate/> or through Student Judicial Services at <http://www.uoguelph.ca/judicial/> (See "Appeals of Decisions" for more information.)

## Program DurationSchedule

Program Completion Periods for graduate students at the University of Guelph as defined by Class Level<sup>1</sup>

Program Duration schedule for Master's, DVSc and PhD students with FT (Full-time), PT (Part-time), and DE & T (Direct entry and transfer from a master's program) status.

Program	Completion Period 2	Plan of Study & Progress Report to A&P by end of the semester	Continue with approved Plan of Study	Second Plan of Study & Progress Report to A&P by end of semester	Continue with second approved Plan of Study to Maximum Program Duration	Maximum Program Duration. To apply for an extension submit: <i>Appeal for Extension of MPD to A&amp;P by end of the semester</i>
Master's-FT	6 (6 FT semesters)	7	8, 9	n/a	n/a	9
Master's-PT	3.6 (11 PT semesters)	4 (12 PT semesters)	4.3, 4.6 (13, 14 PT semesters)	n/a	n/a	4.6 (14 PT semesters)
DVSc-FT	9 (9 FT semesters)	10	11, 12	n/a	n/a	12
DVSc-PT	5 (15 PT semesters)	5.3 (16 PT semesters)	5.6, 6 (17, 18 PT semesters)	n/a	n/a	6.0 (18 PT semesters)
PhD-FT	12 (12 FT semesters)	13	14, 15, 16	16	17, 18	18
PhD-PT	6.6 (20 PT semesters)	7 (21 PT semesters)	7.3, 7.6, 8 (22, 23, 24 PT semesters)	8 (24 PT semesters)	8.3, 8.6 (25, 26 PT semesters)	8.6 (26 PT semesters)
DE&T-FT	16 (16 FT semesters)	17	18, 19, 20	20	21, 22	22
DE&T-PT	7.6 (23 PT semesters)	8 (24 PT semesters)	8.3, 8.6, 9 (25, 26, 27 PT semesters)	9 (27 PT semesters)	9.3, 9.6 (28, 29 PT semesters)	9.6 (29 PT semesters)

1. Class Level is the cumulative total of full-time and part-time (if any) semesters valued at 1 and 0.3 for each, respectively.
2. These Program Completion Periods apply to all programs, unless a specific program has received approval from the Board of Graduate Studies for a different period. Students will be advised about their Program Completion Period in their offer of admission letter.

### Note

If a student transfers from full-time to part-time within the Program Completion Period, the number of part-time semesters remaining in the Completion Period will be weighted by the ratio of total semesters allocated for a program that is fully part-time and fully full-time (e.g 11:6 for Masters, 20:12 for Doctoral). The same principle will apply to students who transfer from part-time to full-time during their Completion Period. The number of semesters between the revised Completion Period and Maximum Program Duration is the same for both full-time and part-time students.

Doctoral Clinical Psychology: Applied Developmental Emphasis completion will be granted an exception recognizing the additional year of internship. Expected Completion Period will be 15 semesters with a Maximum Program Duration of 21 semesters.

## Cancellation of Registration / Voluntary Withdrawal / Required to Withdraw

A student who wishes to withdraw from the university should consult with the departmental Graduate Program Coordinator prior to submitting the withdrawal notice to the Office of Graduate Studies.

Within the time limits stipulated in the Schedule of Dates (Chapter I), approval of a voluntary request to withdraw may entitle the student to a refund on a prorated basis. No such refund shall be approved without the authorization of the Assistant Vice-President (Graduate Studies).

In the event that a student fails to achieve satisfactory standing, or fails to achieve satisfactory progress either in course work or in research, the student may be "Required to Withdraw" (see sections on "Academic Standing/ Departmental Review", "Grade Interpretation", and "Unsatisfactory Progress"). The student's registration will be cancelled as of a date specified by the Board of Graduate Studies. A refund of fees may be authorized depending on the date that the "Required to Withdraw" status is effective.

A student who withdraws voluntarily or is "Required to Withdraw" from the university must return all outstanding loans from the library immediately upon withdrawal, regardless of the original due date. Any items not returned will be declared lost and their cost will be charged to the student's account.

## Student Programs

### Note

In addition to the information below, students should also consult Chapter IV Degree Regulations for more information on specific regulations defining the Student Program

## Establishment of the Advisory Committee

In all cases, the student's Program of Study is established and supervised by the Advisory Committee. The Advisory Committee must be established by the department/ school, and the "Advisory Committee Appointment" form submitted by the department/ school to the Office of Graduate Studies no later than the 20th class day of the student's second registered semester.

Once the Advisory Committee has been approved by the Assistant Vice-President (Graduate Studies), no changes may be made to its membership without the written approval of the department's Graduate Program Committee and the Assistant Vice-President (Graduate Studies).

See Chapter IV Degree Regulations for additional information on the composition of Advisory Committees.

## Establishment of Program of Study

After examining the student's academic record, the Advisory Committee shall arrange a Program of Study appropriate for the fulfilment of the degree requirements. This program of study will be detailed on the "Graduate Degree Program Form". The Advisory Committee will give due consideration to any relevant courses previously completed successfully by the student at a recognized accredited university or college, as well as consideration for any placement examinations successfully completed. The Program of Study will include "*Prescribed Studies*" - which may include any required courses - on the basis of which the candidate's final academic standing will be determined. The program may also include "*Additional Courses*", chosen either by the student or recommended for completion by the student's Advisory Committee. See section Academic Standing/Prescribed Courses/Additional Courses.

The Program of Study established by the Advisory Committee must be approved by the Graduate Program Coordinator and submitted to the Office of Graduate Studies before the 20<sup>th</sup> class day of the student's second registered semester.

Note: for course-based Master's degrees a maximum of 1/3 of the total degree credits may be fulfilled through the successful completion of senior undergraduate courses. Individual Advisory Committees, however may require that a higher proportion of graduate courses be completed to fulfil the degree requirements. For thesis-based Master's degrees, a minimum of 1.5 credits included in the degree program must be graduate-level classes.

See Chapter IV Degree Regulations for more information on the requirements for Program of Study.

## Changes to the Established Program of Study

Once the Program of Study is established, changes may be made, subject to the approval of the Advisory Committee, with report to the Assistant Vice-President (Graduate Studies).

## Transfer of Academic Credit to a Program of Study

On the recommendation of the student's advisor and with the approval of the department chair and the Assistant Vice-President (Graduate Studies), a graduate student may take, and receive credit for, graduate courses completed at another university. See section Letter of Permission, Ontario Visiting Graduate Student Plan, Transfer Credit, Leave of Absence.

## Seminar Courses, Practica and Internships

Either a numeric grade or a designation of satisfactory (SAT) or unsatisfactory (UNS) may be used in evaluating the student's performance in seminar or practicum courses or internships. See section on Academic Standing/ Grade Interpretation.

## Major Paper or Major Project for Course-based Master's Programs

In some non-thesis course-based programs, a major paper or major project may be required as part of the degree requirements. The major paper or major project is assigned a course number and appropriate number of credits by the Office of Graduate Studies. The major paper or major project course may extend over two semesters. The student's performance will be indicated through assignment of a numeric grade or a designation of satisfactory (SAT) or unsatisfactory (UNS). A copy of the major paper or project must be deposited in the department or school in which the student is registered.

## Auditing Courses

With the consent of the student's Advisory Committee, the course instructor, and the chair of the department concerned, a student may register for and audit all or part of a course. It is understood that the student will attend the scheduled lectures but will not participate in any evaluative activities, write any examination, or receive any grades. Courses audited by the student shall be noted in the student's program as "additional courses", and identified on the transcript as AUD. See section on Academic Standing/ Grade Interpretation.

## Language of Instruction in Graduate Programs, and Exceptions

The English language is used for instruction, in the writing of examinations, and in text books used at this university. The thesis and other reports must be written and submitted in English. Exceptions to this policy are those programs where language requirements are stated as specific academic program requirements that have been approved by Senate.

## Required Completion of an Academic Integrity Course

All graduate students registering for the first time at University of Guelph are required to successfully complete the on-line course UNIV\*7100, *Academic Integrity for Graduate Students*. This course will provide graduate students with a good understanding of academic integrity issues and policies, definitions of academic misconduct, and the expectations of the University of Guelph on these points.

Upon enrollment in graduate studies, all students are registered automatically in the course, which must be completed within the first 20 class days of the semester. A designation of satisfactory (SAT) for successful completion, or unsatisfactory (UNS) for failure or failure to complete the course will be noted on the student's transcript. See section Academic Standing/ Grade Interpretation.

## Short Courses for Graduate Teaching Assistants and Others

Graduate Teaching Assistants and other graduate students may avail themselves of short courses on specific educational topics offered through Open Learning and Educational Support (OpenEd). See <http://opened.uoguelph.ca/default.aspx>

## Research Activities at the University of Guelph

Graduate student advisors assume the responsibility of ensuring that research activities related to the student's academic program comply with University regulations, policies and procedures. The graduate student advisor and student should ensure that if the project involves human participants, or the use of live animals, the project has appropriate approval from the Research Ethics Board <http://www.uoguelph.ca/research/humanParticipants/>, or the Animal Care Committee <http://www.uoguelph.ca/research/acs/>, as appropriate. The preparation of the documentation required for approval by the Research Ethics Board or the Animal Care Committee takes several weeks. In accordance with the Canadian Council on Animal Care, anyone who is handling animals for purposes of teaching or research must have appropriate training which is provided by the University of Guelph. See section Animal Care Short Course Requirement.

When a project involves risk—including handling dangerous materials—the advisor (and student, as appropriate) should consult with Occupational Health and Safety to ensure compliance with standards of health and safety.

A student whose research involves international travel must consult with the staff in the Centre for International Programs (<http://www.uoguelph.ca/CIP>) to ensure that they have completed the University's mandatory pre-departure orientation in order to be prepared appropriately to travel outside Canada.

## Animal Care Short Course Requirement

All graduate students who will utilize vertebrate animals in their research and/or who will be Graduate Teaching Assistants in a course involving vertebrate animals must complete the Animal Care Short Course or equivalent. See Chapter V Other Study Options – UNIV 6600 – Animal Care Short Course.

## Academic Standings

A department may require examinations (oral and/or written), from time to time, to evaluate the student's progress. Numeric grades must be assigned to indicate the student's standing in courses except where otherwise specified.

## Grades Schedule

Fall 2012 and onward

In courses which comprise a part of the student's program, standings will be reported according to the following schedule of grades:

- A+ 90-100%
- A 85-89

- A- 80-84
- B+ 77-79
- B 73-76
- B- 70-72
- C+ 67-69
- C 65-66
- F 0-64

The grade schedule for courses taken prior to Fall 2012 may be referenced in prior graduate calendars or at: <http://www.uoguelph.ca/registrar/calendars/graduate/2011-2012/genreg/genreg-as-gradesch.shtml>

## Grade Interpretation

Course grades help to determine who may or may not continue in a program to completion, to recommend advancement to a subsequent degree, and to determine eligibility for in-program scholarships and possible consideration for awards upon graduation. However, graduate coursework represents a smaller fraction of the student's overall evaluation than do undergraduate course grades. Performance in research is a key component of evaluation at the graduate level.

Fall 2012 onward

Percentage Grade	Letter Grade	Description
90-100	A+	<b>Outstanding.</b> The student demonstrated a mastery of the course material at a level of performance exceeding that of most scholarship students and warranting consideration for a graduation award.
80-89	A- to A	<b>Very Good to Excellent.</b> The student demonstrated a very good understanding of the material at a level of performance warranting scholarship consideration.
70-79	B	<b>Acceptable to Good.</b> The student demonstrated an adequate to good understanding of the course material at a level of performance sufficient to complete the program of study.
65-69	C	<b>Minimally Acceptable.</b> The student demonstrated an understanding of the material sufficient to pass the course but at a level of performance lower than expected from continuing graduate students.
0-64	F	An inadequate performance.

A graduate student who receives a grade of less than 65 per cent in any course (graduate or undergraduate, prescribed or additional) is deemed to have failed the course. The advisory committee must then take action. A student may not register for any course they have previously passed unless the course is a varying content course (such as a Special Topics course) or unless so directed by the Admissions & Progress Committee of the Board of Graduate Studies.

Unannounced evaluations or surprise assessments may not be used for course assessment purposes or to determine course grades.

Grade Interpretation prior to Fall 2012 may be referenced in prior graduate calendars or at: <http://www.uoguelph.ca/registrar/calendars/graduate/2011-2012/genreg/genreg-as-gradeint.shtml>

Other Grade Notations

Grade	Description
AUD	An "audited" course (additional courses only).
INC	Incomplete or course not completed. It is required that the INC be replaced by a grade or an INF (incomplete failure) within the next registered semester.*



Grade	Description
INF	Incomplete: failure. Students not completing the course requirements within the prescribed time limit (see INC above) of receiving an INC will receive an INF grade for that course.* A grade value of 0 (zero) is attached to an INF grade.
INP	In progress. Multi-semester courses that are in progress will receive the INP interim grade designation in each semester prior to the semester of completion. Students registered in multi-semester courses must register in each semester in which they are actively engaged in course requirements. A grade is recorded in the final semester of offering.
MNR	Mark not reported. Grade has not been reported to the Office of Registrarial Services by department or school by the last day for grade reports for the semester. It is required that the MNR be replaced by a grade or an INF (incomplete failure) within the next semester.*
SAT	Satisfactory. Used for evaluation of certain seminar and practicum courses
UNS	Unsatisfactory, considered a failure. Used for evaluation of certain seminar and practicum courses. A grade value of 0 (zero) is attached to an UNS grade.
WDF	Withdrawn: failure. Identifies a course from which the student withdrew after the announced last date for dropping courses. A course dropped prior to this last date is not recorded. A grade value of 0 (zero) is attached to a WDF grade.

\* Any student who receives an INC or MNR grade and for whom the final grade is not received in the Office of Registrarial Services prior to the first day of the next semester, must complete the course in the next registered semester, at the end of which it is required that the INC be replaced by a grade or an INF (incomplete: failure). If the student is not registered in the semester in which the course is completed, any submitted grade will not be accepted and the student will receive INF as a final grade. Note that the student does not register for the incomplete course again; when a grade is received, the grade will replace the INC or MNR grade originally recorded. Students who are registered may have, at the department/school graduate committee's discretion, up to the end of that subsequent semester to finish the course requirements before the grade of INF is automatically recorded. Exceptions to the above, for compassionate reasons, may be considered on appeal to the Admissions & Progress Committee of the Board of Graduate Studies.

### Thesis Assessment

In the thesis, numeric grades are not required; instead the work is reported as either satisfactory or unsatisfactory.

### Prescribed Studies

A graduate student must obtain an overall weighted average of 'B-' or better (at least 70%) in the prescribed studies, as set out in the approved program, in order to qualify for the degree or graduate diploma.

### Additional Courses

In the courses which are identified as additional courses, standings will be reported according to the schedule of grades set out above, and will be included in the calculation of the overall average described in Prescribed Studies. It is understood, that such additional courses are an integral part of the student's approved program.

### Student Progress Report

The academic record and progress of each student who plans and conducts research toward a thesis or major research paper over two or more semesters will be reviewed by their Advisory Committee at the end of each semester, and no later than the 20th class day of the following semester. A Student Progress Report shall be provided to the student for comment and submitted to the Graduate Program Committee for the program in which the student is enrolled.

This report shall be reviewed by the Graduate Program Committee and forwarded to the Office of Graduate Studies. When the progress of a student is evaluated as "Some Concerns" or "Unsatisfactory", a plan of study, prepared by the Advisory Committee in consultation with the student and with the signed agreement of the student, shall be appended and submitted with the progress report.

### Failed Courses

A graduate student who receives a grade of less than 65% in any course (graduate or undergraduate, prescribed, or additional) is deemed to have failed the course.

The student's Advisory Committee shall as a minimum, note "Some Concerns" on the Student Progress Report for the semester during which the course was taken (see Section II General Regulations, Student Progress Reports). For students in course-based programs not requiring a semesterly report, the Graduate Program Coordinator will prepare a Progress Report.

Following a review of the Student Progress Report, the Graduate Program Committee will make one of the following recommendations to the Admissions & Progress Committee (A&P):

1. the student shall be required to replace the failed course as soon as possible with another course of equal relevance, rigour and credit value, preferably in the following semester\*;
2. the student shall be required to complete remedial studies by registering in a "directed study" course, created by the department, of equal credit value, and which has been tailored to meet the student's deficiencies from the failed course, preferably in the following semester\*;
3. repeat the failed course when it is next offered;
4. fulfil a Supplemental Condition

Regarding 1) and 2) above, students may not register for courses they have previously passed unless the course has different content (e.g. "Special Topics" courses), or unless expressly directed to do so in writing by A&P.

Regarding 4) above, recommendations for a Supplemental Condition are discouraged, but may be approved by A&P under exceptional circumstances. The following information must be supplied with the recommendation from the Graduate Program Committee:

- a breakdown of the evaluation and grading scheme for the failed course
- an indication of the student's performance in each component of the course, related to a) above
- an indication of the percentage of the course that the supplemental condition will include
- a signed statement from the instructor of the course indicating a willingness to provide such a supplemental condition
- a brief explanation of the reasons the supplemental condition option has been chosen.

The student's Advisory Committee is responsible for informing the student once the decision on a course of action has been approved by either the Graduate Program Committee or A&P.

### Feedback to Students

Normally, feedback to students on work completed or in progress is an integral part of teaching and learning in that it allows students to measure their understanding of material and their progress on learning objectives. Feedback often goes beyond grading - an indication of the standard achieved - to include comments on the particular strengths and weaknesses of a student's performance. While the nature and frequency of such feedback will vary with the course, the University of Guelph is committed to providing students with appropriate and timely feedback on their work. Instructors must provide meaningful and constructive feedback prior to the 40th class day. This may include but is not restricted to returning papers, assignments, in-class or laboratory quizzes, laboratory reports, or mid-term examinations prior to the 40th class day. In research and independent study courses, instructors must provide students with a realistic idea of their performance by discussing progress directly with the student and, if necessary, identify specific areas for improvement. This may include the assessment of a research plan, literature review, annotated bibliography, oral presentation or other assessment tools.

### Departmental Review

At the end of each semester the academic record and progress of each student will be reviewed by the graduate faculty of the academic unit in which the student is enrolled. In addition, for students requiring a Progress Report, this will be submitted by the advisor to the department graduate program coordinator, to the student and to the Office of Graduate Studies. If the student fails a course or a required examination, the advisory committee, through the academic unit, will recommend appropriate action to the Board of Graduate Studies. Only by authority of the Board may a further privilege of any kind be extended.

### Grounds for Academic Consideration

Academic consideration may be granted on the following grounds:

- medical
- psychological
- compassionate
- misapplication of regulations or procedures
- other special circumstances

Generally, work commitments will not constitute grounds for academic consideration. The necessity for documentation will depend on the situation. Students should contact their Advisor or Graduate Program Coordinator regarding documentation requirements.

If, due to medical, psychological or compassionate circumstances a student is unable to complete any portion of the work in a course, the student should:

1. Inform the instructor-in-charge of the course in writing.
2. Supply documentation if the instructor requests it. If documentation is unavailable, the student should consult their Advisor.
3. Complete and submit missed work by the new deadline established by the instructor.
4. Consult with the Advisor or Graduate Program Coordinator if the student feels that appropriate consideration has not been granted by the instructor.

If the circumstances for academic consideration are such that they could affect a number of courses or completion of other work in the student's graduate program; or if the request for academic consideration involves a misapplication of regulations or procedures, or other special circumstances, the Advisor or Graduate Program Coordinator should be consulted regarding an appropriate course of action.

If the student cannot reach a mutually agreeable course of action with the Advisor or Graduate Program Coordinator, as appropriate, the student may discuss the issue with the Department Chair or the Assistant Vice-President (Graduate Studies). See the Dispute Resolution Mechanisms section of the calendar at Dispute Resolution Mechanisms (with flowchart)

## Academic Accommodation of Religious Obligations

The University acknowledges the pluralistic nature of the graduate and undergraduate communities. Accommodation will be made to students who experience a conflict between a religious obligation and scheduled tests, mid-term examinations, final examinations, or requirements to attend classes and participate in laboratories. The type of accommodation granted will vary depending on the nature, weight and timing of the work for which accommodation is sought. Accordingly, the request for alternative arrangements normally must be submitted to the instructor in charge of the course within two weeks of the distribution of the course outline. A student requiring accommodation may submit the request to the instructor directly or through his/her program counsellor. The instructor has a responsibility to provide reasonable alternative arrangements that do not put the student at an academic disadvantage. In the case of a conflict with a final examination, the instructor should reschedule the examination to another time during the examination period taking care that the new date and time does not put the student at an academic disadvantage. In the event that a student is not satisfied with the accommodation offered by the instructor, he/she may appeal to the Department Chair, or Director of the School, who may grant alternative accommodation. A student who remains dissatisfied with the outcome of his/her request may seek the assistance of the Human Rights and Equity Office to facilitate a resolution. For a current list of major holy days, please check the following website <http://www.uoguelph.ca/hre/hr/holydays.shtml> or contact the Human Rights and Equity Office.

## Graduation Procedures

Every student/ candidate for a graduate degree is responsible for submitting an application for graduation whether they intend to attend the convocation ceremony or not.

There are three convocation periods throughout the year -- October, February, and June. An application for graduation must be submitted by the student no later than the deadline for the specific convocation period as specified in the Graduate Calendar, Chapter I Schedule of Dates. It is the student's responsibility to apply for graduation via WebAdvisor (My Application for Graduation) by the deadline specified in the Schedule of Dates (Chapter I in the Graduate Calendar).

The last day WebAdvisor is open for applications to graduate in the next semester's convocation period is the 40th class day of the semester prior to the convocation period (e.g Fall for Winter convocation; Winter for Summer Convocation; Summer for Fall Convocation). See the Schedule of Dates for the specific day.

After the deadline for the WebAdvisor application to graduate has passed, students may apply for late acceptance to graduate by completing a paper application available at <http://www.uoguelph.ca/graduatestudies/forms> along with a late graduation fee. The paper application is submitted first to Enrolment Services, Office of Registrarial Services, UC level 3, for processing of the late fee, and then must be submitted by the student to the Office of Graduate Studies, UC level 3, for review. The last day for submission of a paper application and late graduation fee is listed in the Schedule of Dates

## Transcripts of Record

Certified official transcripts of the student's academic record are available at the Office of Registrarial Services, University Centre Level 3. Only individually sealed copies are valid. Transcripts will be sent to other universities, to prospective employers, or to others outside the university only upon formal request by the student. Application for a transcript should be made at least five working days before it is required.

## Thesis

Each candidate for a graduate degree, with some exceptions, is required to submit a thesis based upon the research conducted under the supervision of a member of the graduate faculty. Details as to numbers of copies and arrangements for submission are given under the appropriate degree regulations. General specifications on electronic submission, format, order and binding are available on the Graduate Studies website in the [University of Guelph Electronic Theses and Dissertations \(ETD\) Guide](#)

### Thesis Format

The Faculty of Graduate Studies accepts theses either in monograph or manuscript format. A thesis written in monograph format organizes chapters around a central problem, for instance, with an Introduction, a Literature Review, and chapters on Methodology, Results, and Conclusions. In the manuscript format, the chapters treat separate elements of the research program, typically incorporating several discrete articles suitable for journal publication. Theses written in manuscript format may include the following:

- Published articles
- Submitted articles
- Unpublished work in publication format

*Publication or acceptance for publication of research results before presentation of the thesis in no way supersedes the University's evaluation and judgement of the work during the thesis examination process.*

Theses written in manuscript format must satisfy the following:

- Inclusion of connecting materials that integrate across the different chapters/articles, including at minimum an overarching introduction and a concluding discussion chapter.
- A statement certifying that the student is the principal or sole author of any included manuscripts and had a major or sole role in the design of the research, and the preparation and writing of the manuscripts.

### Submission of Thesis

When the thesis, in its final form, has been prepared after the final oral examination, the candidate will review the thesis submission instructions and submit the electronic (.pdf format only) copy and any supplementary files via the Atrium. Care must be taken to submit the thesis with pages numbered, arranged in the appropriate order and free from typographical and other errors. Upon submission, the thesis will be reviewed for adherence to the formatting guidelines by staff in the Office of Graduate Studies within a reasonable time frame (approximately one to three working days). If confirmation of departmental/program approval has not been received by the Office of Graduate Studies via

- a. Certificate of Approval
- b. Report of Examination Committee,

the thesis will not be reviewed and final acceptance will not be issued.

As all approved submissions to the Atrium Electronic Theses and Dissertations will be harvested by the National Library and Archives Canada and published through Theses Canada portal, a signed copy of the Theses Non-Exclusive License must also be submitted to the Office of Graduate Studies.

Binding of any paper copies of the thesis is the responsibility of the student. Information on binding options and locations may be found on theses submission checklist section of the University of Guelph Electronic Theses and Dissertations (ETD) Guide. As departmental requirements for bound copies of theses vary, the student is responsible for ensuring their specific requirements.

### Circulation and Copying of Thesis

In normal circumstances, as a condition of engaging in graduate study in the university, the author of a thesis grants certain licences and waivers with respect to the circulation and copying of the thesis:

1. to the chief librarian a waiver permitting the circulation of the thesis as part of the library collection;
2. to the university a licence to make single copies of the thesis under carefully specified conditions;
3. to the National Library of Canada a licence to upload/microfilm the thesis under carefully specified conditions.

Provision is made for the circulation and the copying of a thesis to be delayed for a period of up to twelve months from the date of successful final examination, good cause being given.

### Copyright Provision

Copies of the thesis shall have on the title page the words "In partial fulfilment of requirements for the degree of Master of Arts" (or Master of Science, etc.). The International Copyright notice (©), which consists of three elements on the same line (a) the letter c enclosed in a circle, (b) the name of the copyright owner (the student) and (c) the month and year, should all appear as the bottom line on the title page of the thesis.

## Intellectual Property

Intellectual property rights for students and staff are outlined in the Board of Governor's approved "Policy on Intellectual Property" (June 5, 2014), available on-line at <http://www.uoguelph.ca/policies/>

The fundamental principle of the policy is that, subject to the specific exceptions set out in the policy, Intellectual Property is owned by those who create it.

The Policy replaces the Inventions Policy (1991), the Copyright Policy (1989) and the Software Creation Policy (1989). It does not replace or supersede any other policy or collective agreement.

## Copyright Policy

Consistent with the foregoing, the Board of Governors has established an administrative policy on intellectual property including copyright. The policy statement may be consulted on the University of Guelph Policies webpage under the Intellectual Property heading at [http://www.uoguelph.ca/research/assets/policies/intellectual\\_property\\_policy.pdf](http://www.uoguelph.ca/research/assets/policies/intellectual_property_policy.pdf)

## Unacceptable Thesis

In the event that a candidate is unable to prepare a suitable thesis, the advisory committee will so report to the graduate faculty of the department (the candidate will receive a copy of the report). The department chair is responsible for ensuring that the Assistant Vice-President (Graduate Studies) is promptly and fully informed of the circumstances.

## Publications Arising from Research

Graduate students share with other researchers the responsibility of disseminating information obtained in the course of their research. Accordingly, the university encourages graduate students to publish the results of their research projects without undue delay. In several departments, publication of journal articles is critical for their research programs. Such departments may establish procedures whereby the graduate student's advisor may arrange for submission of journal articles based on the graduate student's research, should the graduate student fail to make such submissions. The procedures should be in writing and should be made known to graduate students on entry into the program.

## Academic Accommodation for Students with Disabilities: Procedures

The policy for academic accommodation may be found at [Accessibility Services, Student Wellness](#)

### 1. Purpose, Scope

The policy, Academic Accommodation of Students with Disabilities ("Policy") is composed of two documents: the Policy Document and this Procedures Document. This Procedures Document is intended to support the Policy Document and provides specific information on the decision making process and appeals process related to Academic Accommodations. Definitions for capitalized terms are found in the Policy Document. In the event of a discrepancy between the Policy Document and the Procedures Document, the Policy Document will apply.

### 2. Essential Requirements and Academic Accommodation

Decisions concerning specific forms of Academic Accommodation are made with consideration to the Essential Requirements of a specific course or program in order to ensure its integrity. Registration in a course or program does not guarantee the granting of any specific form of Academic Accommodation. Students are expected to contact SAS as early as possible to discuss their accommodation needs if their choices concerning a course or program may be affected by the specific forms of Academic Accommodation granted by the University.

### 3. Student Accessibility Services (SAS)

#### Role of SAS

**3.1** SAS facilitates a variety of programs and services to assist students with participating fully in University life and maximizing campus accessibility. These may include:

- confirming whether a student has met the criteria for establishing that a Disability exists and helping to identify appropriate options for Academic Accommodations,
- providing to a Course Instructor, Notifications as to the appropriate types of Academic Accommodation,
- granting common forms of In-Course Academic Accommodations as described in section 5.1 below,
- supporting and facilitating the provision of Academic Accommodations by academic departments,
- acting as a resource for members of the University community about disability related matters that have an impact on equitable participation in academic life, and
- assisting the student in developing strategies for managing daily activities relating to academic life in the context of their disability.

## Registration

**3.2** All students who require Academic Accommodation must register with SAS in accordance with this Policy including applicants who submitted information regarding a Disability as part of the Admission process. Submission of information as part of the Admission process does not satisfy registration requirements for SAS.

**3.3** In order to provide Academic Accommodations in a timely fashion, students are expected to observe the following dates:

- First year students must submit a New Student Intake Form (NSIF) by June 15 prior to commencing their program. It is also recommended that first year students participate in SAS orientation programs offered at the start of each academic year.
- Transfer students who are admitted after June 15 or who are starting their program in either the winter or summer semester, must submit the NSIF as soon as possible after accepting an offer of admission.
- Students who are already attending the University and are registering with SAS for the first time must submit the NSIF as soon as they are aware that a need for accommodation exists.
- All new students and any returning students who need to meet with an advisor must normally contact SAS by the end of the first week of classes to book an appointment. If there is an immediate need for an accommodation, students are expected to make this known when booking the appointment.
- Students who have registered with SAS in a previous semester must reactivate their status within the first 2 weeks of classes for each semester they are enrolled by following instructions on the SAS website or sent to their University email account.

**3.4** Efforts will be taken to support students who delay registration with SAS. However, some options may not be available on short notice and may be deferred to a subsequent semester.

## SAS Exam Centre

**3.5** Students who have been approved to write Examinations in the SAS Exam Centre must normally book the appropriate date and time with SAS:

- At least 7 days prior to a scheduled midterm examination date,
- No later than the 40th class day for final examinations.

**3.6** Where Examinations are written in the SAS Exam Centre, SAS is responsible for working with the academic unit to:

- identify students who will be writing in the SAS Exam Centre at least three working days prior to the scheduled date of the Examination;
- arrange for copies of the Examination to be available in the SAS Exam Centre on the day before it is to be administered to the student, and returned to the department/school on the first working day following the Examination.
- arrange for Examinations written in the SAS Exam Centre to be administered at the same time as the rest of the class, except when alternate timing has been approved by the Course Instructor. Examples of when this may be necessary include but are not limited to when:
  - granting additional time causes the scheduling of two Examinations to come into conflict,
  - a Disability precludes the student from being able to write more than one Examination per day,
  - medication required by the student affects the student's ability to function at particular times of day, or
  - Examinations are scheduled outside of regularly scheduled class times and/or the SAS Exam Centre is closed.

## 4. Documentation Requirements

**4.1** Students requesting Academic Accommodation must provide appropriate documentation to SAS in accordance with this section. The documentation must be from an appropriate Regulated Health Professional who has the authority to diagnose the particular Disability. In the absence of current documentation identified in section 4.2 below, students can request Interim Academic Accommodations.

**4.2** Documentation must be current according to the following standards:

- Learning Disabilities and ADHD must have been assessed at age 18 or older, or within the last three years;
- all other Disabilities must be assessed within the timeframe that the student experiences a functional limitation for which an Academic Accommodation is needed; and
- documentation may need to be renewed as appropriate to reflect the student's on-going need for Academic Accommodation.

**4.3** Documentation must be comprehensive and provide information regarding the student's functional limitations in a university setting. A Functional Assessment form is used for all forms of Disabilities except for Learning Disabilities (see section 4.4 below). Functional Assessment forms are available on the SAS website. All documentation must include the following minimal information:

- a statement of the nature of the Disability (a specific diagnosis is optional but not required);
- information on the severity, duration and intensity of the Disability;

- c. a description of functional limitations; and
- d. whether the Disability is permanent or whether it falls under the definition of a Temporary Disability.

**4.4** Students with Learning Disabilities must provide documentation in the form of a psychoeducational assessment report ("Assessment") that conforms to established standards. The Assessment must contain but is not limited to the following information:

- a. The credentials and signature of the assessor, who must be a registered psychologist or psychological associate;
- b. A description of the procedures used for the Assessment, including relevant contextual information;
- c. Evidence that appropriate psychometric testing has been employed, including instruments that have been validated against adult norms;
- d. Information about the severity of the Functional Limitations experienced by the student;
- e. Ruling out of other possible explanations for the observed assessment results (differential diagnosis);
- f. An indication that the results are believed to be a reasonable representation of the student's normal abilities; and
- g. Confirmation that a specific learning disability exists.

**4.5** Documentation may also include recommendations as to the types of Academic Accommodations that might address a student's specific functional limitations. However, the University retains ultimate decision-making authority as to which forms of Academic Accommodations may be granted.

## 5. Requests for In-Course Academic Accommodation

**5.1** Subject to appropriate documentation, requests for certain common forms of In-Course Academic Accommodation can be granted directly by SAS. These include but are not limited to requests for:

- a. note taking;
- b. arrangements for appropriate seating in a classroom; or
- c. supports for Examinations that are administered by the SAS Exam Centre such as extra time, use of a private or semi-private room, use of a computer, adaptive software or word processor, or access to a reader or scribe.

**5.2** Students requesting In-Course Academic Accommodation are responsible for submitting their requests in accordance with deadlines as provided on the SAS website.

**5.3** Requests for In-Course Academic Accommodations not in subsection 5.1 are considered "Supplementary Academic Accommodations" and are made directly to Course Instructors or the appropriate University units with the support of SAS. Examples may include but are not limited to:

- a. audio recording of lectures;
- b. use of memory aids or calculators for Examinations;
- c. additional time for assignments, or alternate scheduling of Examinations;
- d. advanced access to information about readings and assignments; or
- e. alternative methods of assessing Essential Requirements.

**5.4** SAS provides support to students in learning to negotiate on their own behalf. To that end, SAS encourages students to negotiate directly for Supplementary Academic Accommodations, when appropriate. At the student's request, SAS may provide assistance in requesting Supplementary Academic Accommodations.

**5.5** Course Instructors are encouraged to contact SAS to discuss any requested Supplementary Academic Accommodation that is not consistent with the Notification, or if there are questions related to the impact of the Supplementary Academic Accommodation on the Essential Requirements of a course or program.

**5.6** If SAS supports the need to have textbooks produced in alternate format (e.g. audio books, Braille or e-text), students must make the necessary arrangements directly with Library Accessibility Services. Students are encouraged to make these arrangements early since it can take 4 to 6 weeks to acquire alternate format text.

## 6. Supplementary Academic Accommodation Decision Process

**6.1** If consensus on Supplementary Academic Accommodation cannot be reached between the student, the Course Instructor and SAS, then the Course Instructor shall consult as follows:

- a. for undergraduate students, with the Chair or designate, or
- b. for graduate students, with the Graduate Program Coordinator.

**6.2** If, after the consultation described above, consensus still cannot be reached on the Supplementary Academic Accommodation to be provided, a report will be issued within 5 working days ("Report") as follows:

- a. for undergraduate students, the Chair shall provide a Report to the Dean (or designate).
- b. for graduate students, the Graduate Program Coordinator shall provide a Report to both the Assistant Vice-President (Graduate Studies) and the College Dean (or designate) who has oversight responsibility for the graduate program.

**6.3** The Report will include the Notification from SAS, the type(s) of Supplementary Academic Accommodation being requested, and the rationale for not granting the request including any concerns regarding its impact on the Essential Requirements of the course or program, if applicable. The Report will also include information about any alternative forms of Supplementary Academic Accommodations that have been considered.

**6.4** Within 5 working days of the receipt of the Report, the Dean (or designate) and when applicable, the A.V.P. Graduate Students shall make a decision on the type(s) of Supplementary Academic Accommodation to be granted and advise the parties in writing.

## 7. Appeal Process

**7.1** Decisions by SAS Advisors regarding the In-Course Academic Accommodations under section 5.1 may be appealed to the Manager, SAS.

**7.2** Decisions by SAS regarding Supplementary Academic Accommodations it will support under Section 5.3 may be appealed to the Director, Student Wellness.

**7.3** Decisions by the Dean (or designate) and when applicable, the A.V.P. Graduate Students under 6.4 may be appealed by the student to the Senate Committee on Student Petitions ("Petitions") in accordance with Petitions' Bylaws.

## Academic Misconduct

Academic misconduct is behaviour that erodes the basis of mutual trust on which scholarly exchanges commonly rest, undermines the University's exercise of its responsibility to evaluate students' academic achievements, or restricts the University's ability to accomplish its learning objectives.

The University takes a serious view of academic misconduct and will severely penalize students, faculty and staff who are found guilty of offences associated with misappropriation of others' work, misrepresentation of personal performance and fraud, improper access to scholarly resources, and obstructing others in pursuit of their academic endeavours. In addition to this policy, the University has adopted a number of policies that govern such offences, including the policies on Misconduct in Research and Scholarship and the Student Rights and Responsibilities regulations. These policies will be strictly enforced.

It is the responsibility of the University, its faculty, students and staff to be aware of what constitutes academic misconduct and to do as much as possible through establishment and use of policies and preventive procedures to limit the likelihood of offences occurring. Furthermore, individual members of the University community have the specific responsibility of initiating appropriate action in all instances where academic misconduct is believed to have taken place. This responsibility includes reporting such offences when they occur and making one's disapproval of such behaviour obvious.

University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students should also be aware that if they find their academic performance affected by medical, psychological or compassionate circumstances, they should inform the appropriate individuals, (instructors, program counsellors, graduate advisors) and follow the available procedures for academic consideration outlined in the University's calendars.

## Education and Remediation

Education and remediation are key to promoting an environment in which academic integrity will flourish. It should not be possible for a student to claim that he/she was not warned about the University's academic misconduct regulations, what constitutes academic misconduct and the potential consequences of transgressing. The need to educate students about academic integrity places a particular responsibility on faculty, especially with respect to discipline-specific issues.

The University's Strategic Directions place high value on collaboration and co-operation in the learning process, across disciplines and between institutions. Further, the strategic plan recognizes the importance of students learning to work with others in group projects and situations as key to developing skills as self-reliant learners. This is reflected in the large number of courses at this University which involve group work and encourage co-operation in completing assignments. However, there may be need to limit the amount of collaboration or co-operation. Students need to be aware of, and instructors need to be clear about assignments for which discussing or completing the work with others is not appropriate and where the expectation is that students will work separately. Instructors should be very explicit about expectations with respect to academic integrity, and information with respect to academic misconduct should be presented to students as part of the course outline, academic program orientation materials and other materials posted and distributed to students. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

In addition, in the case of examinations, students should be sure that they read and understand the regulations with respect to conduct in examinations printed on the cover of each examination booklet, and should pay particular attention to any additional instructions from the examination invigilators.

In support of remediation, students convicted of an academic offence may be required to successfully complete an academic integrity remediation process.

*Note: In this policy, the word "dean" means "dean or designated associate dean." The word "chair" means "chair of a department or director of a school." The word "department" means "department or school."*

## Offences

Academic misconduct is broadly understood to mean offences against the academic integrity of the learning environment.

Below are descriptions of academic offences. It is important to note that, while the University has attempted to present as comprehensive a list as possible, this list of potential academic offences should not be considered exhaustive. Students are responsible for knowing what constitutes an academic offence and faculty members have a responsibility to provide students, early in their course or program, with information about academic integrity that might be particular to their discipline. An offence may be deemed to have been committed whether the student knew a particular action was an offence or ought reasonably to have known. Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

It is the responsibility of students working in a group to take all reasonable steps to ensure that work submitted to the group by individual members has not been completed in a way that violates this policy.

Further, as some academic offences may also be viewed as violations of policies on Misconduct in Research and Scholarship, the Student Rights and Responsibilities regulations, the criminal code and/or civil statutes, students may also be subject to procedures and penalties outlined in those policies at the University's discretion, and to criminal prosecution or civil action.

A graduate of the University may be charged with an academic offence committed while he/she was a registered student when, in the opinion of the dean, the offense, if detected, would have resulted in a sanction sufficiently severe that the degree would not have been granted at the time that it was.

## 1. Misappropriation of Other's Work

### 1. Plagiarism

Plagiarism is misrepresenting the ideas, expression of ideas or work of others as one's own. It includes reproducing or paraphrasing portions of someone else's published or unpublished material, regardless of the source, and representing these as one's own thinking by not acknowledging the appropriate source or by the failure to use appropriate quotation marks. In addition to books, articles, papers and other written works, material may include (but is not limited to): 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. Some examples of plagiarism include:

- submission of a take-home examination, essay, laboratory report or other assignment written, in whole or in part, by someone else;
- using 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;
- buying or selling term papers or assignments;
- submitting a computer program developed in whole or in part by someone else, with or without modifications, as one's own;

Students have the responsibility to learn and use the conventions of documentation suitable to the discipline, and are encouraged to consult with the instructor of the course, the academic supervisor, or the department chair for clarification if needed. Instructors should include in the materials they provide to students about academic integrity, information about any unique, discipline-specific understandings with respect to what must be acknowledged or cited<sup>1</sup>.

### 2. Copying

Copying is similar to plagiarism in that it involves the appropriation of others' work as one's own. It includes copying in whole or in part another's test or examination answer(s), laboratory report, essay, or other assignment.

Copying also includes submitting the same work, research or assignment for credit on more than one occasion in two or more courses, or in the same course, without the prior written permission of the instructor(s) in all courses involved (including courses taken at other post-secondary institutions).

### 3. Unauthorized Co-operation or Collaboration

It is an offence to co-operate 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.

<sup>1</sup> In addition to being concerned about appropriate citation, students who wish to use the work of others, from any source, should be aware of copyright laws and other conventions governing intellectual property. See the Office of Research website, [http://www.uoguelph.ca/research/forms\\_policies\\_procedures/index.shtml](http://www.uoguelph.ca/research/forms_policies_procedures/index.shtml) for links to the University's intellectual property policies.

## 2. Misrepresentation and Fraud

This category of offences covers a range of unacceptable activities, including the following:

### 1. Impersonation

Impersonation involves having someone impersonate oneself, either in person or electronically, in class, in an examination or in connection with any type of academic requirement, course assignment or material, or of availing oneself of the results of such impersonation. Both the impersonator and the individual impersonated (if aware of the impersonation) are subject to disciplinary proceedings under this policy.

### 2. Falsification

It is an offence to submit or present false or fraudulent assignments, research, credentials, or other documents for any academic purpose. This includes, but is not limited to:

- falsified research or lab results and data;
- concocting facts or reference;
- false medical or compassionate certificates;
- false letters of support or other letters of reference;
- falsified academic records, transcripts or other registrarial records;
- fraudulent submission practices (e.g., altering date stamps);
- altering graded work for resubmission.

It is also falsification to misrepresent the amount of work an individual has contributed to a group assignment or activity. Both the individual to whom work is falsely attributed and those who acquiesce in its attribution commit an academic offence.

### 3. Withholding

It is an offence to withhold records, transcripts or other academic documents with the intent to mislead or gain unfair academic advantage.

### 4. Unauthorized Aids and Assistance

It is an offence to use or possess an unauthorized aid, to use or obtain unauthorized assistance, or to use or obtain prohibited material in any academic examination or term test or in connection with any other form of academic work. Such aids or material may include, but are not limited to, specific documents, electronic equipment or devices, and commercial services (such as writing, editorial, software, or research survey services). Students should assume that any such aid is prohibited unless they are specifically advised otherwise by the instructor or invigilator. Note that unauthorized assistance does not include student support services offered by the University, such as the Learning Commons.

## 3. Improper Access and Obstruction

### 1. Preventing Access to Materials

It is an offence to alter, destroy, hide, remove without authorization, or in any other way improperly restrict access to library, electronic or other materials intended for general academic use.

### 2. Obstruction and Interference

It is an offence to obstruct or otherwise interfere with the scholarly activities of another, or to alter or falsify the work of others, in order to gain unfair academic advantage. This includes, but is not limited to, deleting data or files, interfering or tampering with experimental data, with a human or animal subject, with a written or other creation (for example, a painting, a sculpture, a film), with a chemical used for research, or with any other object of study or research device.

### 3. Improper Access

It is an offence to improperly obtain through theft, bribery, collusion, or otherwise access to confidential information, examinations or test questions or to gain undue academic advantage as a result of such behaviour.

### 4. Improper Dissemination

It is an offence to publish, disseminate or otherwise make public to a 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 a reasonable expectation of confidentiality.

## 4. Aiding and Abetting

Knowingly aiding or abetting anyone in committing any form of academic misconduct is itself academic misconduct and subject to this policy.

## Penalties

### A. Range of Penalties That May be Assessed

If a student is found guilty of academic misconduct, an Official Warning will be given that an offence is now noted in the student's record and that a subsequent offence will attract a more severe penalty. In addition, one or more of the following penalties may be assessed:

1. A requirement for submission of a new or alternative piece of work.
2. The rescinding of University-funded scholarships or bursaries.
3. Partial or total loss of marks on the examination or assignment in which the offence occurred.

4. Partial or total loss of marks for the course in which the offence occurred.
5. Suspension from the University for a period of between one and six consecutive semesters. For the period of suspension, a student will not be permitted to register and will retain none of the privileges accorded to students with respect to right of access to University faculty, staff, facilities or services.
6. A recommendation for expulsion from the University.
7. A recommendation for revocation/rescinding of a degree. A person who is found guilty of academic misconduct after having been approved for graduation, or after having a degree conferred, may have the degree rescinded or revoked when, in the opinion of the dean, the offence, if detected, would have resulted in a sanction sufficiently severe that the degree would not have been granted at the time that it was.

## B. Notes with Respect to Penalties

The following should be noted with respect to penalties:

1. Senate has approved a set of Guidelines for the Assessment of Penalties for Academic Misconduct. These guidelines are used by chairs/directors and deans to assist them in determining appropriate penalties for individual cases. A copy of the guidelines can be found in the Graduate Calendar, or may be obtained from the Senate Office or the office of any chair or dean.
2. Students who have been found guilty of a course-based offence and who have been assessed a penalty in addition to an Official Warning will not be permitted to drop the course or to withdraw with failure. A student who has dropped the course prior to the offence(s) being detected will have his/her enrolment in the course reinstated if found guilty and if the penalty assessed is other than an Official Warning.
3. Students who have been suspended for academic misconduct will not receive credit for any courses taken while under suspension. This policy applies to any credit course taken during the suspension period, be it distance, or non-campus, taken in open learning programs at the University of Guelph or at another post-secondary institution. In addition, in the case of graduate students, any research or writing completed during the suspension period may not be submitted in fulfillment of program requirements once the period of suspension is concluded.
4. A student who wishes to be considered for readmission after a suspension must make an application that will be judged on the basis of eligibility to continue. A student who is suspended for academic misconduct and also fails to meet the continuation of study requirement will normally be required to serve the associated penalties consecutively.
5. A student who has been expelled from the University of Guelph is not eligible for readmission to the university for at least five years. A student who wishes to be considered for readmission must petition the President to have the expulsion status removed. The President will form a hearing committee to review the case for lifting the admission restriction. If the committee decides to remove the expulsion status, the student who wishes to be considered for readmission must then make an application that will be judged on the basis of eligibility to continue. If the committee decides to leave the expulsion status in place, the student must wait at least another two years before submitting a new petition.
6. Penalties may be applied retroactively if an offence is discovered subsequent to completion of a course or after graduation.

## Procedures

### A. Notes Re: Procedures and Authority to Act

1. Deans may delegate their authority under this policy to an appropriate designate(s). Such delegation may be full (for example, all cases are delegated to an Associate Dean), or partial (for example, authority with respect to offences related to course work may be delegated to departmental chairs). Deans must provide the University's Judicial Officer with the name(s) of individual(s) to whom authority has been delegated under this policy.
2. For offences related to course work (including examinations):
  - a. The designate of the Director of Open Learning will carry out the role of the chair in cases where the offence has been committed in an Open Learning, non-degree credit course. Degree credit courses offered through distance are within the authority of the chair of the department offering the course. The role of the dean in the case of non-degree credit courses offered through the Open Learning program is carried out by the Director of Open Learning.
  - b. For undergraduate students and open learners, the relevant dean is the dean of the college in which the course is offered, and the dean of the college in which the student is enrolled (if different) should receive a copy of the decision. In the event that an offence is committed in a degree credit course by an open learner, the Director of Open Learning should receive the copy of the decision.
  - c. For graduate students, the relevant deans are the dean of the college in which the course is offered and the Assistant Vice-President (Graduate Studies) acting jointly. The dean of the college in which the student is enrolled (if different) should receive a copy of the decision.

3. For offences not related to courses, or for course offences involving students not enrolled in the course, for undergraduate students the dean of the college in which the student is enrolled is responsible for administering the policy. For graduate students, the policy is administered jointly by the Assistant Vice-President (Graduate Studies) and the dean of the college in which the student is enrolled.
4. In the event that a chair/director has a conflict of interest in dealing with a case, the dean will appoint another faculty member to deal with the case. In the event that a dean's designate has a conflict of interest in dealing with a case, the dean may appoint an alternate designate or choose to deal with the case himself/herself. In the case of a conflict of interest on the part of a dean, the Provost will appoint a designate to deal with the case.
5. Wherever in this policy it states that a student is to be contacted, the normal expectation is that such contact will be made using the student's University of Guelph email account, with a copy of any correspondence being sent to the home address provided to the University by the student.

## B. Detection and Documentation

### 1. Examinations

The responsibility for preventing and detecting academic misconduct in an examination lies with the invigilators, although they make use of reports from others to assist them in detection. In cases of suspected impersonation, the chief invigilator shall require the student concerned to remain after the examination until the student is satisfactorily identified. In other cases of suspected academic misconduct, the chief invigilator shall allow the student to complete the examination, but:

- may require that the student complete the examination in another location or setting when it is deemed that such action will cause the least disruption of those taking the examination; and
- shall confiscate any suspect material (including those portions of the examination completed to that point) and give it, along with the student's other examination booklet(s) (collected at the end of the exam) to the instructor immediately following the examination.

The chief invigilator shall give a full report, together with any confiscated material, to the instructor-in-charge of the course if the instructor is not the chief invigilator. In instance of open learning courses, the material will be submitted to the Director of Open Learning. The student is required to contact the instructor no later than the end of the examination period.

### 2. Term assignments, including research and thesis work

The initial responsibility for detecting academic misconduct on term assignments, etc., necessarily lies with the person(s) responsible for evaluation and discussion of the student's work, although that person may make use of reports from others to assist in detection, and may make use of electronic means of detection appropriate to the discipline. Where academic misconduct is suspected, the evaluator/marker shall retain possession of any suspect material and give a full report in writing together with any confiscated material to the instructor-in-charge of the course, or to the student's advisor, if the instructor/advisor is not the evaluator/marker. At this stage, the student will be informed by the instructor/advisor that a suspicion of academic misconduct is being investigated.

### 3. Cases outside the domain of examinations or assignments

The responsibility for detecting academic misconduct in the context of an academic environment that is not part of the formal examination or assignment process rests with the entire University community. Where academic misconduct is suspected, but where it is unclear whether it is directly related to a specific course, or where the specific course is unknown, those with knowledge of an offence should contact the dean of the college in which the student is enrolled and the Assistant Vice-President (Graduate Studies) in the case of a graduate student. If the suspected offence appears to be related to a specific course, then the instructor of the course should be contacted.

## C. Investigation and Judgment

### 1. Offences Related to Course Work, Research, Thesis Work or Examinations

- a. When an instructor or an advisor suspects that an academic offence has been committed, he/she is responsible for gathering evidence to support or allay the suspicion and may invite the student to meet with him/her to discuss the concerns. The instructor/advisor should pursue the gathering of evidence in a timely way. The normal expectation for assignments due within the semester is that instructors/advisors will complete their evidence gathering within ten working days of the due date for the assignment. For assignments submitted at the end of the semester or during the examination period, the instructor has until the tenth day of the subsequent semester to collect the evidence and determine whether to pursue a case. In a case where an instructor/advisor requires substantial additional time to collect and review the evidence, he/she may seek an extension of time from the chair.

- b. If after reviewing the available evidence the instructor/advisor believes an offence may have been committed, he/she shall refer the case to the chair of the department responsible for the course or graduate program. The referral document will include all evidentiary material collected by the instructor/advisor along with the transmittal form on which the instructor/advisor may include a recommendation with respect to penalty should the allegation be upheld. A copy of the first page of the transmittal form shall be sent to Enrolment Services/the Office of Graduate Studies by the Chair.
- c. If the chair believes that there is sufficient evidence to support a charge of academic misconduct, he/she will forward the transmittal form and all evidentiary material to the dean/dean's designate, normally within ten working days of receipt of the allegation from the instructor/advisor.
- d. Normally within ten working days of receipt of the case from the chair, the dean will invite the student to meet with him/her to discuss the allegation(s). If the student does not respond within ten working days to the request for an interview, or if the student refuses to attend an interview, the dean may proceed with the case. The student may be accompanied at the meeting by a support person. Prior to meeting with the student, the dean may consult with any individuals he/she believes pertinent to the case. At the meeting, the student will be presented with the evidence collected by the dean to that point. Based on the student's response to the evidence, the dean may engage in further consultation with any individuals he/she deems pertinent to the case. The student will be informed of any other evidence gathered as a result of those consultations and be given an opportunity to respond prior to the dean's reaching a decision on the case.
- e. If after weighing the available evidence the dean finds an offence has been committed, the dean will contact Enrolment Services/the Office of Graduate Studies as appropriate to determine whether this is a first offence.
- f. In determining the appropriate penalty, the dean will consult the Guidelines for Penalties for Academic Misconduct, will take into consideration the recommendation from the instructor/advisor, and consider such factors as the relative weight of the assignment, the semester level of the student, any record of previous offences, the seriousness of the offence (e.g. the amount of work plagiarized), and any mitigating circumstances presented by the student. For graduate students, attention will also be paid to whether the work in which the offence has been committed is one of the major milestones of the graduate program (e.g., qualifying examination, thesis).
- g. Normally within ten working days of the meeting with the student, or ten days from the date of the final communication with the student with respect to any additional evidence, the dean will inform the student in writing of the disposition of the case. In a case where the dean requires substantial additional time to review the evidence and come to a judgment, she/he may seek an extension of time from the Provost.

Should the dean determine that an academic offence has not been committed he/she shall so inform the student, the instructor/advisor and the chair in writing. A copy of the letter will be forwarded to Enrolment Services/the Office of Graduate Studies as appropriate. Thereafter, the complaint shall have no official status as an accusation of academic misconduct and no record of the complaint shall be maintained on the student's record.<sup>2</sup>

Should the dean determine that an academic offence has been committed, he/she shall inform the student in writing. The written notification should include the offence for which the student has been found guilty and information with respect to penalty. Copies of the written notification should be sent to any other relevant dean(s) office(s), to the instructor/advisor, the department chair, the program counsellor and to Enrolment Services/the Office of Graduate Studies (as appropriate).

- h. In a case where the dean believes suspension or a recommendation for expulsion/revocation is warranted, he/she should consult with the Provost and Vice-President Academic before making a final determination with respect to penalty.
- i. Should the dean recommend expulsion or revocation/rescinding of a degree, he/she shall so inform the student in writing and forward the matter to the Senate Committee on Student Petitions.

At that time, the student may appeal the recommendation of expulsion/revocation and request a hearing of the Senate Committee on Student Petitions. Whether or not a hearing is requested, the Senate Committee on Student Petitions will proceed with the case and inform the parties involved of its decision.

In the case of an expulsion, the Senate Committee on Student Petitions may decide to uphold the recommendation to expel, in which case the recommendation will be forwarded to the President for final decision. Alternatively, the Senate Committee on Student Petitions may decide to impose a lesser penalty, in which case the President's assent is not required. When a recommendation is referred to the President, the President may uphold the recommendation to expel or impose a lesser penalty, which will be final.

In the case of revocation/rescinding of a degree, if the Senate Committee on Student Petitions confirms the recommendation of rescinding/revocation of a degree, the recommendation will be forwarded to the President. If the President does not confirm the recommendation of rescinding/revocation of a degree, the President may impose a lesser penalty, which will be final. If the President confirms the recommendation, the recommendation will be forwarded to Senate for final decision with respect to revocation/rescinding. If the Senate does not confirm the recommendation of revocation/rescinding, the matter will be returned to the President for a final decision with respect to a lesser penalty.

<sup>2</sup> A statistical record will be kept by the Office of the Dean for annual reporting purposes.

## 2. Other Offences

- a. Cases involving offences that are not course-related or are not related to graduate program work are dealt with by the relevant dean (see Procedures A. Notes Re: Procedures and Authority to Act). Examples of such offences include, but are not limited to falsification of credentials for admission purposes, damaging of library materials, abetting the cheating of another in a course in which the abettor is not enrolled, and obstructing or interfering with the academic activities of others.
- b. When a case is brought to the attention of the dean, the dean shall inform the student that an allegation has been made and invite the student to meet to discuss the allegation. The dean will also inform Enrolment Services/the Office of Graduate Studies (as appropriate). If the student does not respond within ten working days to the request for an interview or refuses to attend an interview, the dean may proceed with the case. The student may be accompanied at the meeting by a support person. Prior to meeting with the student, the dean may meet with any individuals or collect evidence as he/she deems pertinent to the case. At the meeting, the student will be presented with the evidence collected by the dean to that point. Based on the student's response to the evidence, if necessary the dean may consult with any other individuals he/she deems pertinent to the case. The student will be informed of any other evidence gathered as a result of those consultations and be given an opportunity to respond prior to the dean's reaching a decision on the case.
- c. If after weighing the available evidence the dean finds that an offence has been committed, the dean will contact Enrolment Services/the Office of Graduate Studies as appropriate to determine whether this is a first offence. The dean may impose penalties in accordance with Penalties A. and B., above. In the event that the dean believes suspension, expulsion or revocation to be warranted, he/she shall proceed as in Procedures C.1. (h) and (i).
- d. Normally within ten days of meeting with the student, or of the final communication with the student with respect to evidence, the dean shall inform the student in writing of his/her decision in the case, and copy the letter to the relevant university officials, including Enrolment Services/the Office of Graduate Studies (as appropriate). In a case where the dean requires substantial additional time to gather evidence and make a judgment, he/she may seek an extension from the Provost and Vice-President Academic.

## Appeals

- 1. Students may appeal either the finding, the penalty, or both to the Senate Committee on Student Petitions.
- 2. Appeals must be submitted to the Senate Committee on Student Petitions within 10 working days of receipt of the decision. If the decision is mailed, it will be deemed to have been received by the student the fifth day after it has been mailed. If the decision is sent by courier, fax or email it shall be deemed to have been received one day after it has been sent.
- 3. An appeal to the Senate Committee on Student Petitions involves an examination of all relevant documents and evidence to determine the appropriateness of a finding of guilt or of the assessed penalty. The procedures for conducting an appeal and for holding a hearing are set out in the Regulations of the Senate Committee on Student Petitions. Following an appeal or hearing, the Senate Committee on Student Petitions may take one or more of the following courses of action:
  - a. confirm a finding of guilt;
  - b. reverse a finding of guilt (in which case no penalty shall apply);
  - c. confirm a penalty;
  - d. assess a different penalty.

## Record of Academic Misconduct

Enrolment Services, or the Assistant Vice-President (Graduate Studies), or the Director of Open Learning as appropriate, shall place in the student's file a record of all academic misconduct for which the student is penalized. Students in the Associate Diploma Program who are found guilty of academic misconduct in an Independent Study course taken through OAC Access towards their Associate Diploma will have the record of the finding of guilt placed against the appropriate term.

The record of academic misconduct shall be expunged from the student's file upon graduation, or for open learners, upon completion of a certificate or diploma. Students who do not graduate from the University of Guelph or another university may submit an application to the Senate Committee on Student Petitions to have the record expunged no sooner than five years after the date of last registration. Students who have graduated at another accredited university may submit verification of graduation to Enrolment Services/the Office of Graduate Studies and have their record expunged. The record for expulsion is permanent, unless removed by petition to the President.

Access to the record of academic misconduct will be limited to those involved in processing appeals and those involved in processing additional complaints against the student.

*Note: Template letters to students, forms for Enrolment Services and the Office of Graduate Studies, and suggested wording for course outlines are available from the Judicial Office.*

### Guidelines for Penalties for Academic Misconduct

With the finding of academic misconduct, there is a mandatory penalty of **Official Warning** which will stay on the student's record until graduation. In addition, one or more other penalties may be assessed. Following are guidelines used by chairs/directors and deans in determining the appropriate additional penalties. Users need to be aware that these are guidelines and that not all cases will fit neatly into the categories.

The guidelines below provide a range of penalties (minima and maxima) for the various offences identified in the Policy on Academic Misconduct as well as indicate what penalty is deemed to be the "norm" for the offence in the case of a first or second year student. It should be noted that "subsequent offence" means any subsequent offence, not only a subsequent offence in the same category.

For a course-based offence, the chair/director may assign penalties up to and including loss of grades if the offence is a first offence. If there is a previous offence on the student's record, or if the chair/director believes a stronger penalty is merited, the case is forwarded to the dean for penalty assessment.

In cases where the dean is of the opinion that there is cause for a penalty different from those indicated in the guidelines (either higher or lower), she/he will review the penalty with the Provost and Vice-President Academic. The dean will also consult with the Provost in cases where the contemplated penalty is suspension or expulsion.

In a case where the dean is of the opinion that the finding of guilt is not supported by the evidence, the dean will review the case with the chair/director. If the chair/director and dean are unable to reach an agreement on the case, the dean will consult with the Provost before making final determinations as to the finding of guilt and any penalty to be applied in the event that dean upholds the finding of guilt.

In determining the appropriate penalty the chair/director or dean will take into consideration these guidelines, the recommendation from the instructor, the recommendation from the chair/director (in the case of a dean assigning a penalty), and any other relevant factors such as the relative weight of the assignment, the semester level of the student, the seriousness or extent of the offence (e.g. the amount of work plagiarized), any record of previous offences, and any mitigating circumstances presented by the student.

### Guidelines for Penalties for Academic Misconduct in Addition to Official Warning

#### A. Misappropriation of Other's Work

In the tables below (N) indicates the normal expectation for penalty for a first or second year undergraduate, or first year graduate student.

##### 1. Plagiarism

Misappropriation of Other's Work - Plagiarism

Offences	First Offence	Subsequent Offences
Minor	Resubmission of new work (N) <b>Loss of grades</b> Zero on the assignment	Loss of grades (N) <b>Zero on the assignment</b> Zero in the course Loss of scholarship/bursary Suspension
Major	(N) <b>Zero in the course</b> Loss of scholarship/bursary Suspension	Zero in the course Loss of scholarship/bursary (N) <b>Suspension</b> Expulsion/Revocation

##### 2. Copying

Misappropriation of Other's Work - Copying

Offences	First Offence	Subsequent Offences
Minor	Resubmission of new work (N) <b>Loss of grades</b> Zero on the assignment	Loss of grades (N) <b>Zero on the assignment</b> Zero in the course Loss of scholarship/bursary Suspension
Major	(N) <b>Zero in the course</b> Loss of scholarship/bursary Suspension	Zero in the course Loss of scholarship/bursary (N) <b>Suspension</b> Expulsion/Revocation

### 3. Unauthorized Collaboration

Misappropriation of Other's Work - Unauthorized Collaboration

Offences	First Offence	Subsequent Offences
Minor	Resubmission of work (N) <b>Loss of grades</b> Zero on the assignment	Loss of grades (N) <b>Zero on the assignment</b> Zero in the course Loss of scholarship/bursary Suspension
Major	(N) <b>Zero in the course</b> Loss of scholarship/bursary Suspension	Zero in the course Loss of scholarship/bursary (N) <b>Suspension</b> Expulsion/Revocation

### B. Misrepresentation and Fraud

#### 1. Impersonation

Misrepresentation and Fraud - Impersonation

Offences	First Offence	Subsequent Offences
Minor	(N) <b>Zero on the assignment</b> Zero in the course Loss of scholarship/bursary Suspension	(N) <b>Zero in the course</b> Loss of scholarship/bursary Suspension
Major	Zero in the course Loss of scholarship/bursary (N) <b>Suspension</b>	Zero in the course Loss of scholarship/bursary Suspension (N) <b>Expulsion/Revocation</b>

#### 2. Falsification

In addition to any penalty that may be applied, if a document is discovered to have been falsified, the document is null and void and the action permitted by the document is reversed.

If the falsified document is course-related (e.g. medical note) a zero in the course is the normal expectation for penalty for a first offence.

Misrepresentation and Fraud - Falsification

Offences	First Offence	Subsequent Offences
Minor and Major	Resubmission of work Loss of grades Zero on the assignment (N) <b>Zero in the course</b> Loss of scholarship/bursary Suspension/revocation of admission offer	Zero in the course Loss of scholarship/bursary (N) <b>Suspension/revocation of admission offer</b> Expulsion/Revocation

#### 3. Withholding of documents

If the withheld information would have affected admission to a course then a zero in the course is the normal expectation for penalty for a minor subsequent offence.

Misrepresentation and Fraud - Withholding of documents

Offences	First Offence	Subsequent Offences
Minor	(N) <b>Official warning</b> Loss of grades Resubmission of work Zero on the assignment	(N) <b>Zero in the course</b> Loss of scholarship/bursary (N) <b>Suspension</b> Expulsion/Revocation of degree or admission offer
Major	Zero in the course Loss of scholarship/bursary Suspension (N) <b>Expulsion/Revocation of degree or admission offer</b>	Zero in the course Loss of scholarship/bursary Suspension (N) <b>Expulsion/Revocation of degree or admission offer</b>

#### 4. Unauthorized Aids

Misrepresentation and Fraud - Unauthorized Aids

Offences	First Offence	Subsequent Offences
Minor and Major	Resubmission of work Loss of grades (N) <b>Zero on the assignment/exam</b>	Zero in the course Loss of scholarship/bursary (N) <b>Suspension</b> Expulsion/Revocation

### C. Improper Access and Obstruction

These offences may also be subject to penalty under the Non-Academic Misconduct Policy.



### 1. Preventing Access

#### Improper Access and Obstruction - Preventing Access

Offences	First Offence	Subsequent Offences
Minor	<b>(N) Official warning</b> Resubmission of work Loss of grades Zero on the assignment	<b>(N) Zero in the course</b> Loss of scholarship/bursary Suspension
Major	<b>(N) Zero in the course</b> Loss of scholarship/bursary Suspension	Zero in the course Loss of scholarship/bursary <b>(N) Suspension</b> Expulsion/Revocation

### 2. Obstruction and Interference

#### Improper Access and Obstruction - Obstruction and Interference

Offences	First Offence	Subsequent Offences
Minor and Major	Loss of grades ObstZero on the assignment Zero in the course Loss of scholarship/bursary <b>(N) Suspension</b>	Zero in the course Loss of scholarship/bursary Suspension <b>(N) Expulsion/Revocation</b>

### 3. Improper Access

#### Improper Access and Obstruction - Improper Access

Offences	First Offence	Subsequent Offences
Minor and Major	Zero in the course Loss of scholarship/bursary <b>(N) Suspension</b> Expulsion/Revocation	Zero in the course Loss of scholarship/bursary Suspension <b>(N) Expulsion/Revocation</b>

### 4. Improper Dissemination

#### Improper Access and Obstruction - Improper Dissemination

Offences	First Offence	Subsequent Offences
Minor and Major	Zero in the course (if applicable) <b>(N) Suspension</b>	Zero in the course Loss of scholarship/bursary <b>(N) Suspension</b> Expulsion/Revocation

## Grade Reassessment

Grade reassessment is the process of reviewing the calculation of grades, or the methods and criteria used to establish final grades, or the application of academic regulations or procedures in course grading. The outcome of a grade reassessment may be a grade increase, a grade decrease, or no change to the grade. The detection of errors or omissions in the calculation of final grades will result in the assignment of a revised grade. Students normally initiate grade reassessments, but instructors may initiate this process. In the event that the reassessment results in a change in grade, the department chair may arrange for the review of the grades of other students in the course and ensure that other grades are changed, if necessary.

### Calculation Errors or Omissions

Students who believe there have been errors or omissions in the calculation of their final grade for a course may request a grade reassessment. They must submit a request in writing to the chair of the department offering the course within 14 working days of receiving notification of the grade. The request must pertain to work completed in the course and must contain a statement of the specific reasons why the grade does not adequately reflect academic performance in the course. Students must also submit relevant assignments or tests that have been returned to them. The chair shall forward the student's request to the instructor and the instructor shall respond to the chair within one week. The instructor has the responsibility of reviewing the appropriateness of the assigned grade in relation to the student's work, and of ensuring that the calculation of marks is accurate. The instructor must reply to the chair, in writing, giving assurance that the review is complete. If there is a change in the grade, the chair will forward a Grade Reassessment form to the college dean. Upon approving the grade change, the dean signs the form and forwards it to the Office of Graduate Studies. The Office of Graduate Studies will advise the student in writing of the change of grade. If there is no change to the grade, it is the chair's responsibility to inform the student in writing.

### Methods or Criteria Used in Establishing Final Grades

The course outline distributed to the class at the beginning of the semester defines the methods and criteria used in establishing final grades for a course. The methods and criteria must conform to the grading procedures established by Senate.

A student who believes that the methods or criteria used by an instructor in determining a final grade are unfair, unreasonable or inconsistent with the course outline, must request the chair of the department offering the course to review the methods or criteria used. The student must submit the request in writing within 14 working days of receiving notification of the grade and must state the reasons for the request.

The chair shall attempt to resolve the matter to the satisfaction of both parties. Both the instructor and the chair are free to discuss the student's work with the student or another instructor in the department, but are not obliged to do so. The student, instructor, or chair of the department may request an internal or external assessor who shall be identified by mutual agreement between the instructor and the student. If agreement as to the assessor cannot be reached within 10 working days, the chair shall notify the dean of the College, who shall select the assessor in consultation with the parties.

If both parties are able to come to an agreement, the chair shall prepare a statement of the agreement to be signed by both parties. If the agreement results in a change to the grade of the student, the chair shall send a copy of the statement to the college dean who shall inform the Office of Graduate Studies.

If at any time the chair decides that the matter cannot be resolved informally, he or she will terminate all efforts at reconciliation and notify both the student and the instructor of this decision in writing. Results of any internal or external assessment must be included. The chair will advise the student that an appeal can be made to the Senate Committee on Student Petitions. The student must appeal to the committee within 10 working days of being advised of the termination of the chair's efforts. In cases where the student, instructor, or chair of the department has requested an internal or external assessment of the student's work, the materials submitted to the Petitions Committee must include a copy of the internal or external assessment obtained by the chair.

### Misapplication of an Academic Regulation or Procedure

Students who believe that the misapplication of an academic regulation or procedure has affected their final grade in a course, must discuss their concern with the instructor. If the concern is not resolved to their satisfaction they may submit a complaint in writing to the chair of the department offering the course within 14 working days of receiving notification of the grade.

If the chair has reason to believe that the instructor has not adhered to the grading procedures established by Senate or other academic regulations of Senate, the chair will consult with the faculty member and, if necessary, the college dean, to resolve the matter. If the matter cannot be resolved the chair will advise the student that the student can appeal to the Admissions & Progress Committee within 10 working days.

## Unsatisfactory Progress

When it is necessary to take action to be taken with respect to unsatisfactory performance by a graduate student, the following process applies. The Advisory Committee makes a recommendation to the department Graduate Program Committee which forwards a recommendation to the Office of Graduate Studies. The Assistant Vice-President (Graduate Studies) ensures that the student is aware of the department's recommendation and is offered the opportunity to make a submission. The recommendation of the department and any submission from the student are considered by the Admissions & Progress Committee of the Board of Graduate Studies. The Admissions & Progress Committee makes a decision on behalf of the Board of Graduate Studies.

At any stage of the above process, a graduate student may request a reconsideration. It is hoped that communication with the Advisor, the Chair of the departmental Graduate Program Committee and the Admissions & Progress Committee will be forthright and constructive.

## Appeals of Decisions

Circumstances may arise in a graduate student's program where requests for changes are considered by the Admissions & Progress Committee. Examples are requests for extended leaves of absence and requests for the removal of course records. In the event of a negative decision, the graduate student may, within 14 days of notification of the decision, request re-evaluation by the Admissions & Progress Committee. Such a request should be accompanied by any information not previously available to the Committee. If the negative decision is maintained, the student may, within 10 working days of notification of the decision, appeal to the Senate Committee on Student Petitions. The decision of the Senate Committee on Student Petitions is final.

In the event of a decision by the Admissions & Progress Committee that the student be required to withdraw, the graduate student may, within 10 working days of receiving notification of the decision, appeal to the Senate Committee on Student Petitions. Details concerning appeals may be obtained from the Secretary of Senate. The decision of the Senate Committee on Student Petitions is final.

## Senior Undergraduates in Graduate Courses

Under exceptional circumstances a senior registered undergraduate student may take a graduate course with the permission of the chair or director of the academic unit offering the course and the permission of the course instructor. The graduate course may be used as credit toward an undergraduate honours degree, with the permission of the chair of the department responsible for the undergraduate program. The course may not be used as a credit toward a future graduate program at the University of Guelph.

## Policy On Intellectual Property

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The University of Guelph (the “University”) is one of the most research intensive universities in Canada, and has a long history of high-quality, innovative research that changes lives and improves life. The University is committed to enabling and supporting the people and partnerships that advance the quality, pre-eminence and societal value of the University’s research and creative endeavors.

It is recognized that in the course of research, new Intellectual Property will be created that may be commercially valuable and that may require patent or other protection in order to reach its full potential. Accordingly, the goal of the Policy on Intellectual Property is to encourage the creation of Intellectual Property and to facilitate its development and commercialization, while preserving the principles of academic and intellectual freedom.

No Personnel will be obliged to engage in the commercial exploitation of the results of their University Activities or to provide commercial justification for it, except as required in any grant application, award, or Contract.

The fundamental principle of this Policy is that, subject to the specific exceptions set out herein, Intellectual Property is owned by those who create it.

This Policy replaces the Inventions Policy (1991), the Copyright Policy (1989) and the Software Creation Policy (1989). It does not replace or supersede any other policy or collective agreement. This Policy became effective as of May 1, 2014 and is not retroactive. The Intellectual Property Policy applies to all Personnel and may be found on the University Policies webpage at <https://www.uoguelph.ca/secretariat/office-services/university-policies>

## III. General Information

### Learning Objectives

Arising from the Aims and Objectives Report, the following Objectives were approved by the Senate of the University in 1987. They are a set of objectives described in terms of the desired characteristics of educated graduates, and are used in part to guide educators in their development of courses and programs.

#### Literacy

Literacy is the base on which all else is predicated. The ability to read and write and, in general, to communicate properly is a fundamental intellectual tool. With it, students can learn to think clearly and to some purpose. Without it, they cannot analyze properly nor develop an independence of thought. Literacy affords a means of access to the raw material upon which the critical or creative intelligence is to be exercised. It affords a means of communication, of shaping ideas and concepts, of selecting between different or competing formulations. It is a means of instructing others.

The most basic experience in literacy given to the student should be the writing of a short expository paper, or the oral presentation of an informational report, on a prescribed topic or on a topic chosen from a restricted list.

At the next level, the student should be required to write a paper (or give a seminar), critical and analytical in its intent, on a topic of the student's devising. The ability to devise a topic, to frame its bounds, is at the same time an aspect of understanding of first order importance.

At the highest level, there should be produced a paper, in an appropriate style, that analyses, synthesizes or argues from a hypothesis and itself generates hypotheses; that produces knowledge, insight, or understanding in the reader and manifests it on the part of the writer; that shows a breadth of understanding in drawing out implications and making connections between remote features of the domain; that, in short, demonstrates a love of learning and an intelligent creativity. This requirement may readily be met in existing senior honours paper courses and the like.

Over the course of an undergraduate education, the level of difficulty of the material which the student can read, comprehend, and utilize should increase. One way of securing this might be to encourage, in each discipline program where they do not now exist, reading courses requiring independent work at the 400 level.

In general, the ability to read and comprehend materials of the highest difficulty is enhanced in semester long research paper courses and in reading courses. Such courses contribute also to independence of thought and to depth and breadth of understanding. In its broadest sense, the objective of literacy implies that it is desirable that the student have skill in another language, so as to be able to comprehend material of the appropriate level of sophistication in that language.

#### Numeracy

For the purposes of this discussion, numeracy may be defined as the ability to use mathematics at a level and in a manner appropriate to good citizenship and to vocational fitness. Mathematics deals with quantity and form, with measurement, structures, and relations, and encompasses a richer intellectual domain than just the utilitarian skills of numerical computation. It is as a mode of thinking, no less than as a collection of useful techniques, that it justifies its place in any well-rounded curriculum.

Numeracy, in the sense adopted here, is an essential attribute of the informed and responsible citizen. A correct understanding of the proper use of numbers is necessary in a culture in which information routinely comes in numeric form and significant decisions of social policy often have quantification at their base. Without the ability to comprehend the use of quantitative data, and to detect instances of misuse, we may have to forego opportunities for independent judgment.

Numeracy, more generally, enforces an accuracy and precision of procedure and thought that is valuable to all educated persons. As a mode of conceptualization of thought, it should be part of the mental apparatus of all graduating students. While a grasp of the nature and principles of mathematical forms of inquiry is essential to an understanding of scientific thought, it can be of benefit in other areas of intellectual activity. Opportunities for fostering numeracy exist in more disciplines than those traditionally requiring a substantial knowledge of mathematics. A recognition that numeracy, in association with literacy, forms the foundation of most if not all of the other learning objectives, should result in greater exploitation of those opportunities than in their avoidance.

#### Sense of Historical Development

All disciplines have a history, an understanding of which contributes to an understanding of the place each has in contemporary society. No discipline is self sufficient, and no discipline is autonomous. "Historical development" should not be narrowly construed to mean only the history of the discipline within its own limits, but efforts should be made to connect developments in the discipline to wider coeval social conditions. Students may thereby be endowed with a sense of the fundamental relativity of knowledge and understanding at any given time. This objective comport also a sense of the continuity of change (and, indeed, of discontinuities), over time. This objective may facilitate the acceptance, on the part of students, of intellectual ambiguity or uncertainty; such acceptance is a mark of depth of understanding.

#### Global Understanding

Global understanding may be associated with "Sense of Historical Development". It can be described as comprehension of the variety of political, religious, cultural, geographical, biological, environmental, and historical forces in the shaping of nature and the human condition. It conveys to the student an understanding of the ways in which specific cultural or geographical or other circumstances condition the differences between nations or peoples, and an understanding of the place of his or her discipline in the international setting. Global understanding may be enhanced by a sense of historical perspective, by breadth of understanding, and by independence of thought. In its turn it may itself contribute to these.

#### Moral Maturity

Moral Maturity is marked by depth and consistency of moral judgement; by recognition that any moral judgement may be fallible; that moral judgement is complex, in that moral principles, if they are to be applied to a specific case, may need to be interpreted. Moral maturity is a requirement in the person who is to apply a body of knowledge or a skill to the solution of a problem, or to the understanding of a situation, if the knowledge is not to remain abstract and the skill potential unrealized.

Attainment of this objective is probably best realized by appropriate consideration of moral issues in context, as they arise in the course of study. In this way, a moral perspective may be shown to be inherently important to study of a body of material, and not merely something supplementary to it (guidelines for conducting ethical discussion in the classroom have been written by the Ethics Research Group in the Department of Philosophy). Scope for demonstration of moral maturity can be provided in seminars and other assignments, if problems in the moral issues associated with a subject are set for consideration alongside problems in content and process.

#### Aesthetic Maturity

Aesthetic Maturity may be described as a quality of the critical response to some object, natural or artificial, external to the self. Or it may be a process of creation and development of the self. In the former case, aesthetic maturity may be attained by a sufficient exposure, not necessarily in courses alone, to works of art (inclusive of music, literature, and drama) and to the critical traditions concerning them. Such maturity may also be directed at aesthetic valuing of features of the natural environment.

In the latter case, attainment of the quality will require an active involvement in the work of creation itself. A different order of aesthetic maturity may be attained by practice of that form of manipulation and recreation of the original object known as criticism (as distinct from appreciation).

Viewed this way, aesthetic maturity has a certain resemblance to both independence of thought and depth of understanding, in requiring an active creativity. Aesthetic maturity need not be divorced from the specific character of individual disciplines. By possession and exercise of aesthetic maturity, students may be brought to appreciate the order, elegance, and harmony not only of the subject matter, but also of the procedures, of the discipline.

#### Understanding of Forms of Inquiry

Inquiry, the search for truth, information, knowledge and understanding, follows a methodology based upon systematic study, reflection, intuition and innate creativity. Inquiry involves resolving an identified problem, collecting relevant information, evaluating the information and observing relationships in order to reach a conclusion. The student is the active inquirer and must be able to undertake the process independently. Scientific method represents a form of inquiry concerned with hypotheses development, data collection, analyses and interpretation. Just as an understanding of scientific inquiry is necessary for the educated citizen functioning in the midst of the technologies of the contemporary world, so too an appreciation of other modes of inquiry is an essential characteristic of an educated citizen. Graduates should be familiar with the modes of inquiry utilized, for example, by historians, by philosophers and by scholars concerned with the various fields of creative expression.

As outcomes of this objective, students will understand the strengths and limitations of the various forms of inquiry, and the cultural, intellectual and historic impact of these forms. The student will be able to describe similarities and differences between the inquiry methods of the physical scientist, the biological scientist, the social scientist and the scholar of the humanities.

#### Depth and Breadth of Understanding

Breadth of understanding is an expression of the ability to operate across disciplinary boundaries in a coherent and productive way, with principles drawn from different disciplines. Depth of understanding depends upon mastery of a body of knowledge, but it is not to be confused with knowledge, and is not necessarily commensurate with the number of courses taken in a subject.

Depth and breadth of understanding depend upon, and themselves contribute to, independence of thought; they contribute also to a love of learning. Possession of a historical perspective may be essential to a broad and deep understanding of a subject.

At the lowest level of experience, in courses introductory to a subject, students might be shown how sets of facts may be related to others both laterally and vertically (or hierarchically). The outcome of this might be simply consciousness, on the part of the student, of the possibilities of understanding, as distinct from simply knowing.

The next higher level moves from demonstration to the student, of interrelationships to the development of the student's own ability to create interrelations. The experience provided will develop a creative imaginativeness skillfully exercised on a body of material mastered in some detail. But the experience, like that provided for independence of thought, goes beyond display of erudition, and requires alert curiosity and a refusal to be content with mere assemblage of data. At this level, the student should be expected to integrate knowledge and modes of interpretation and comprehension from different disciplines, so as to generate a new understanding. The highest level takes the student to the ability to deal in abstractions, to generate abstractions.

In general, depth and breadth of understanding are characterized by the ability to recognize the implications of the information at hand and to put it into a broader context; and by the ability to draw upon different disciplines to provide a clearer and deeper understanding of the discipline with which the student is immediately concerned. These outcomes might be assessed in a piece of written work such as an independent research paper, in the design of an experiment, in the identification and solution of a problem, or in a work of aesthetic creation.

### **Independence of Thought**

At the lowest level, students are shown the possibilities of independent thinking, by an instructor who, in the classroom and elsewhere, challenges orthodoxies and criticizes received opinions. The experience provided is that of imitation or emulation of a role model. At this level, the outcome might be no more than a receptivity, on the part of the student, to critical thinking and an openness to reasoned skepticism about the authority of the expert.

At a higher level, students become actively engaged in learning and thinking. At this level, they should be given the opportunity, in seminars, tutorials, or structured small group discussions, to offer their own challenges. The bases for such challenges may be unformed, and so the challenges themselves will be open to challenge. As students become more independent in thought, they are better able to combine ideas and to generate new ideas.

At the highest level, independence of thought is a manifestation of love of learning, and it may contribute to a sense of self worth and of well being. At this level, opportunities are provided for self directed learning. One accomplishment may be the ability to ask the right kinds of questions, rather than the ability always to have answers.

### **Love of Learning**

Love of Learning is perhaps the quality that activates all other qualities that are the focus of learning objectives. Its expression is not easily separable from demonstration of other virtues. Thus, the true lover of learning will demonstrate both independence of thought and depth of understanding. As a consequence, setting an objective for love of learning comports also setting an objective for other qualities as well. But love of learning is not exhausted by (e.g.) independence of thought.

Love of learning may be reflected in, or expressed in terms of, intellectual curiosity; the ability (as in independence of thought) to ask useful kinds of questions (rather than the ability always to have answers); the ability to see far reaching implications; the ability to make connections between disparate topics; energy and passion in the pursuit of knowledge and understanding; dissatisfaction with simply accumulating facts or data; critical ability. Testing and instruction must minimize rote learning, and, so far as possible, give scope for the exercise of individual patterns of learning and individual interests.

Love of learning may be impeded by the demands of frequent evaluation of students' performance. The time frames imposed at an institutional level, to provide an organizational framework for the university experience, may also impair love of learning.

Love of learning may best be enhanced by the provision of opportunities for the student's personal involvement in learning. Such opportunities are perhaps best furnished in independent research projects initiated by the student. In such autonomous, but supervised, study the student can not only engage with the conflicting views of published authorities but also see in action, close at hand, the supervisor's own love of learning.

In courses of formal instruction, the use of team teaching might help to encourage a student's own love of learning, especially if members of the teaching team take an appropriate role as "students", and if true dialogue is developed between the teachers.

## **Policy on Responsibilities of Advisors, Advisory Committees and Graduate Students and Graduate Student-Advisor Mediation Procedures**

This is the official policy of the University of Guelph approved in principle by the University Senate on January 15, 1991, and revised and reprinted annually thereafter. The request for a policy originated in the Board of Governors Committee on Student Rights and Responsibilities. The policy was developed by faculty/student committees of the Board of Graduate Studies in consultation with the departments and schools and with the university's solicitors. Mediation procedures for the resolution of disputes arising from disagreements in interpretation of the policy are included.

### **Preamble**

Many individuals bring to graduate programs a rich and varied experience derived from universities throughout the world. This policy provides an outline of best practices and principles to guide the normal interactions within a graduate program at the University of Guelph. The University offers advanced degrees across a wide range of academic disciplines each of which has its own cultural variances with respect to how graduate research is conducted and how students are advised. Practices will vary as well depending on the nature of the student's research project and the stage the student is at in his/her program. Thus, the level of scrutiny and interaction may range from that occurring on a continuous basis to that in which the student operates quite independently with only occasional guidance. Regardless of the discipline, however, the underlying principle is one of mutual respect among students, faculty, and staff in an academic environment governed by traditional standards of research and professional integrity, without prejudice or discrimination. Within this context, the student, the Advisor, the Advisory Committee and the Department assume certain responsibilities or obligations and are entitled to expect reciprocal commitments. The policy is neither exhaustive nor exclusive and should be viewed in the context of normal circumstances.

This policy should be viewed as complementary to the University of Guelph statement on Student Rights and Responsibilities.

### **Responsibilities of the Advisor**

A Faculty Advisor's primary task is to guide and inspire his or her students to reach their scholarly potential. The Advisor should promote conditions conducive to a student's research and intellectual growth, providing appropriate guidance on the progress of the research and the standards expected. Good supervisory practice includes the following:

1. Facilitating the student's intellectual growth and contribution to a field of knowledge.
2. Guiding the student, with the assistance of the Advisory Committee, in the development of a program of study.
3. Assisting in the development and execution of a research program or project.
4. Being reasonably accessible to the student via telephone, electronic communication or in person for consultation and discussion of the student's academic progress and research problems. What constitutes "reasonable accessibility" may vary according to discipline, stage of research, etc. However, an Advisor must be in contact with the student frequently enough to be able to make an informed judgement on the student's progress on a semesterly basis.
5. Thoroughly examining written material submitted by the student and making constructive suggestions for improvement. Informing the student of the approximate time it will take for submitted written material to be returned with comments. Normally, comments should be returned to the student within two weeks, although circumstances such as absences from campus or unusually heavy workload may require that the Advisor take longer than two weeks to review the student's work. Timing of submission and review should be negotiated between student and Advisor.
6. Advising the student as to the acceptability of the draft thesis or research project prior to submission to the Advisory Committee. If the Advisor believes the thesis or research project is not ready for submission or will not be ready within a particular time, the Advisor should so indicate with written reasons to the student. In cooperation with the Chair or Departmental Graduate Program Coordinator, helping to organize qualifying and final examinations.
7. Assisting the student in learning about all appropriate deadline dates and regulations associated with thesis review, examination and submission, as specified in the Graduate Calendar and/or by the Office of Graduate Studies and/or the Department or School.
8. Giving ample notice of extended absences from campus such as research leaves, and making satisfactory arrangements for the advising of the student when the Advisor is on leave or on extended absence from the campus. Where a faculty member knows that he/she will be on leave for part of a student's program prior to the start of the program, the student should be informed of this at the outset. Depending on the length of absence and the stage of the student's program, it may be necessary to make arrangements for an interim Advisor.
9. Making reasonable arrangements, within the norms appropriate to the discipline and the limits of the material and human resources of the University, so that the research resources necessary for execution of the student's thesis or major paper research are available.
10. Advising the student of regulations designed to provide him/her with a safe environment. These include relevant safety and/or workplace regulations as well as policies designed to protect individual rights and freedoms. Alerting the student to any personal risks that may be encountered in the course of the research and providing training, guidance and adequate equipment appropriate for those risks.
11. Chairing the Advisory Committee. Responsibilities will include:
  - holding regular Advisory Committee meetings with the student, normally no less than once per semester
  - submitting evaluation reports every semester, when required by the program of study, in consultation with the Advisory Committee, to the Departmental Graduate Program Committee

- formulating a plan of action with the student and the Advisory Committee to address any problems that have been identified as a result of a semester progress review, and
- when a semester progress rating of "Some Concerns" or "Unsatisfactory Progress" has been assigned, providing written notification, including the signatures of all Advisory Committee members, to the Faculty of Graduate Studies.

### Note

A "satisfactory" evaluation represents normal progress on course work and research. A "some concerns" report is compatible with an expectation for successful completion of the program, but indicates some specific concerns regarding the student's current performance and/or progress on course work or research or both. An "unsatisfactory" report is a clear indication of concern about the student's ability to complete the program. Such concern may be based on poor performance in course work or research or both. Unsatisfactory progress could include failure to meet agreed research milestones, including the timely preparation of a research proposal, including the signatures of all Advisory Committee members, to the Faculty of Graduate Studies.

12. Complying with any commitment of financial support made to the student as part of the offer of admission. In the event that expected financial support becomes unavailable, the Advisor will work with the Department and Faculty of Graduate Studies to ensure support for the student.
13. Acknowledging, in accordance with University policies, the contributions of the student in presentations and in published material, for instance through joint authorship.
14. Immediately disclosing to the Department Chair any conflict of interest that arises with the student. Conflicts of interest will arise when there are sexual, romantic, or familial ties between the Advisor and student or when there are irreconcilable interpersonal conflicts, and in such cases it is expected that the faculty member will withdraw from the role of Advisor. Conflicts of interest may also arise when i) the Advisor or student have a financial interest in the outcome of a research project (in these cases, the decision as to whether withdrawal is appropriate should be made in consultation with the Department Chair) and ii) the Advisor is the instructor of a graduate course in which their student(s) is/are the sole registrant(s) (in these cases, the Department Chair (or designate) should ensure that work for grading is also evaluated by a second Graduate Faculty member with appropriate expertise.)

### Responsibilities of Advisory Committees

Members of an Advisory Committee can do much to enhance the academic experience for a student, allowing the student to take advantage of a range of expertise in the discipline. The specific responsibilities of an effective Advisory Committee are as follows:

1. Encourage the student's intellectual growth to become a competent contributor to a field of knowledge. In this context, the Advisory Committee must provide constructive criticism and provocative discussion of the student's ideas as the program develops. The Committee should ensure that the student is exposed to a wider range of expertise and ideas than can be provided by the Advisor alone, including directing the student as appropriate to consult with experts outside the Committee.
2. Be reasonably accessible to the student for consultation and discussion of the student's academic progress and research problems.
3. Attend regular meetings of the Advisory Committee with the student, normally no less than once per semester.
4. Develop, with the student's involvement, and formally approve a list of courses that would constitute the program of study, no later than the end of the second semester. (This program of study is not considered final until also approved by the Department and the Faculty of Graduate Studies. Such approval will not normally be withheld if the proposed program meets the published program requirements.)
5. In consultation with the Advisor, confirm and approve progress reports in those cases where there are concerns or when the progress being made is unsatisfactory. ("Some Concerns" and "Unsatisfactory" progress reports will also be forwarded to the Department and the Faculty of Graduate Studies.)
6. Formulate a plan of action with the student to address any problems that have been identified as a result of a semester progress review of "Some Concerns" or "Unsatisfactory".
7. Inform the student of the approximate time it will take for submitted written material to be returned with comments. If the expected time exceeds the normal two-week turnaround, for instance because of absence from campus or an unusually heavy workload, provide the student and the Advisor with an estimate of the time required.
8. Thoroughly review and comment on drafts of written material. Inform the student as to whether or not a research project is complete or a thesis ready for submission to the final examination committee. If additional work is required, provide feedback to guide the student in satisfactory completion of the work.

9. Immediately disclose to the Advisor and the Department Chair any conflict of interest that arises with the student. Conflicts of interest will arise when there are sexual, romantic, or familial ties between the Advisory Committee member and the student or when there are irreconcilable interpersonal conflicts, and in such cases it is expected that the faculty member will withdraw from the Advisory Committee. Conflicts of interest may also arise when the Advisory Committee member or student have a financial interest in the outcome of the research project. In these cases, the decision as to whether withdrawal is appropriate should be made in consultation with the Department Chair and the Advisor.

### Departmental Responsibilities

The development and maintenance of a high-quality graduate program is of key importance to every department in the Faculty of Graduate Studies. It is, therefore, in each Department's best interest to encourage and support effective graduate advising.

The responsibilities of the Department may be assigned by the Chair in whole or in part to the Graduate Program Coordinator and shared by the Graduate Program Committee. If such a designation of responsibilities occurs, that division of responsibilities should be clearly outlined and publicly available. In the case where the Graduate Program Coordinator is the faculty advisor, the responsibilities of the Graduate Program Coordinator with respect to departmental advising duties will be carried out by the Chair or his/her designate. Where the Chair, is the faculty advisor, his/her Departmental Responsibilities with respect to advising will be carried out by the Graduate Program Coordinator or his/her designate. The Department should:

1. Assist the Advisor and student in determining appropriate deadline dates and regulations associated with review, examination and submission of the thesis or research project as specified in the Graduate Calendar and/or the Office of Graduate Studies and the Department or School.
2. Make available to faculty and students information about current courses, areas of expertise of faculty members, and pertinent information not already outlined in the Graduate Calendar. This information may be available through the Department website, graduate handbook or occasional flyers.
3. Ensure that a Co-Instructor is assigned to a graduate course (eg. "reading" course) in situations where the Instructor is also the Advisor to the only student(s) registered.
4. Set up procedures that match students and advisors, with the matching to be completed as quickly as possible, not later than within six months of initial registration.
5. Approve the advisory committee/graduate degree program form no later than the 20th class day of the student's second registered semester.
6. Establish procedures by which the Graduate Program Coordinator and, if appropriate, the Graduate Program Committee can monitor progress of graduate students through reports by the Advisor, student, and appropriate others, and to communicate this progress to all involved parties.
7. Investigate situations where an Advisory Committee has not met for two or more consecutive semesters. In addition, investigate perceived irregularities in student/Advisor/Advisory Committee relationships.
8. If a student has received an unsatisfactory evaluation report for two consecutive semesters then the Departmental Graduate Program Coordinator will meet with the student, the Advisor and the Advisory Committee to consider the lack of progress and any possible remedial measures.
9. Maintain a list of scheduled faculty leaves and, where warranted, assist in making satisfactory arrangements for the advising of the student when the Advisor is on leave or on extended absence from the campus. Depending on the length of absence, it may be necessary to make arrangements for an interim Advisor.
10. Encourage the interaction of graduate students with other students and faculty, and the development of a professional identity through research seminars, posting of conferences, and other means.
11. Inform the Office of Graduate Studies should there be unresolved concerns about either the Advisor's effectiveness or the student's performance.
12. Allow students to change Advisors if their research interests shift or develop in a new direction and if the change reasonably can be accommodated by the Department.
13. In the event that an Advisor or Advisory Committee member withdraws because of a conflict of interest, work with all parties to mitigate any negative consequences of the withdrawal.

### Graduate Student Responsibilities

From the choice of Advisor, choice of research project and through to degree completion, graduate students must recognize that they carry the primary responsibility for their success. The responsibilities assigned to Advisors, Advisory Committees and Departments provide the framework within which students can achieve success. Students should take full advantage of the knowledge and advice that the Advisor and Advisory Committee have to offer and make the effort to keep the lines of communication open. Specifically, each graduate student has a responsibility to:

1. Make a commitment to grow intellectually, in part by fulfilling course requirements as outlined by the Advisory Committee, and to contribute to a field of knowledge by developing and carrying out a program of research.

2. Learn about all appropriate deadline dates and regulations associated with registration, award applications and graduation requirements, as specified in the Graduate Calendar and/or the Office of Graduate Studies and/or the Department or School.
3. Recognize that thesis and research project topics must be within the scope of the appraised and approved graduate program as set out in the program descriptions in the Graduate Calendar.
4. Choose, with the approval of the Advisor and Advisory Committee, a topic of research for which adequate resources are available, including financial and physical resources and faculty expertise.
5. Conform to University, Faculty and Program requirements, academic standards, and guidelines including those related to deadlines, thesis or research project style, course requirements, intellectual property, academic misconduct and any relevant safety and/or workplace regulations.
6. Produce a thesis or research project which is the student's own work and which meets the University and Department standards for style and quality, reflecting a capacity for independent scholarship in the discipline.
7. Recognize that the Advisor and members of the Advisory Committee have other educational, research and service obligations which may preclude prompt responses to the graduate student. It is expected, however, that the approximate time for submitted written material to be returned with comments is usually two weeks.
8. Consider and respond to advice and criticisms provided by the Advisor or members of the Advisory Committee.
9. Meet or communicate regularly with the Advisor (or designate). The frequency and timing of meetings will depend on the nature of the research being undertaken and the stage in the student's program. However, meetings should be of sufficient frequency that the Advisor can make an adequate assessment of the student's progress each semester and the student receives timely feedback on what is being done well and where improvement is needed. The student should also interact with individual Advisory Committee members and other faculty as appropriate and meet with the Advisory Committee, normally no less than once per semester, to review progress.
10. On a regular basis, make available to the Advisor all original research materials, retaining a copy where appropriate.
11. Be prepared to approach first the Advisor and then the Graduate Program Coordinator or Chair with any perceived problems or changes in circumstances that could affect performance. (If circumstances warrant, students may wish to consider a leave of absence on compassionate grounds. Information about this may be obtained from the Office of Graduate Studies or from the departmental Graduate Program Coordinator.)
12. Submit, with specific reasons, any request for the replacement of an Advisor or member of the Advisory or Examining Committee to the Departmental Graduate Program Coordinator should a personal or professional conflict arise. Students should take immediate steps to change their Advisor or a member of their Advisory Committee in cases where an appropriate academic relationship cannot be maintained. In most circumstances, the first step would be to meet with the Graduate Program Coordinator.
13. Recognize that changing Advisors after program entry may have consequences in terms of the nature and focus of an appropriate research topic, and may alter funding planned prior to the change from the initial Advisor as outlined in the Department's letter of funding.
14. Recognize that the student may be obliged to satisfy specific performance requirements that were agreed to at the time of acceptance to the graduate program. These performance requirements may relate to internal or external funding support that the student receives.
15. Recognize that progress will be evaluated every semester by the Advisor and Advisory Committee, and reported to the Program and in the case of "some concerns" or "unsatisfactory" performance, to the Faculty of Graduate Studies.

### Dispute Resolution Mechanisms (with flowchart)

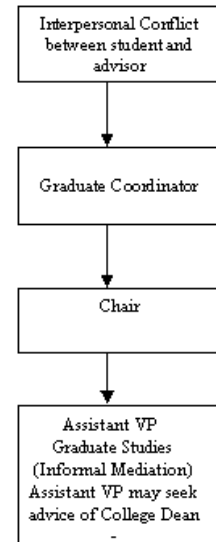
Regardless of the best intentions of all involved, conflict can arise in the course of graduate studies. Depending on the type of conflict and the issues involved, different resolution mechanisms will be appropriate. Four types of conflict can arise in the course of graduate studies. These are:

1. Interpersonal conflict between the student and the advisor.
2. Dispute about evaluation of progress, qualifying or oral examination; includes procedural irregularity.
3. Disruptive, abusive, or destructive behaviour on the part of the advisor.
4. Disruptive, abusive, or destructive behaviour on the part of the student.

Following is a brief summary of the various conflict resolution processes currently in place at the University and based upon current policies. Complainants, responding administrators or committees who believe they have or are dealing with a human rights complaint may, at any time, consult the University's Human Rights Policy and the Human Rights and Equity Office. The attached flow chart provides a visual representation of the various processes.

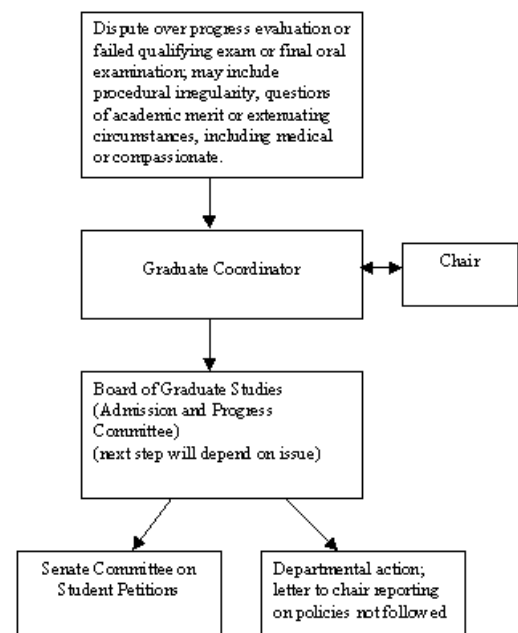
### Interpersonal conflict between the student and the advisor

As in any other domain of human endeavour, conflict can arise between the student and Advisor simply because of differences in personality, communication style, or unspoken expectations. In many cases, such conflict can be resolved through improved communication, but occasionally the situation deteriorates to the point where external mediation is required. The proposed dispute resolution mechanism is consistent with other University policies, emphasizing action first at the local level. The initial complaint should be brought to the attention of the Graduate Program Coordinator, but if that individual is unable to resolve the dispute the Chair should become involved. If the Chair cannot resolve the matter, the Chair should inform the Assistant Vice-President (Graduate Studies) who, in consultation with the College Dean, will provide informal mediation.



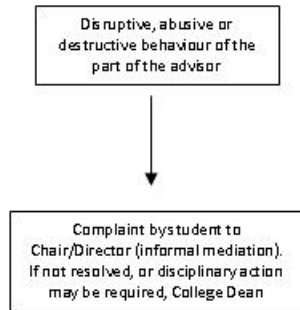
### Dispute about evaluation of progress, qualifying or oral examination; includes procedural irregularity

Disputes may arise regarding the quality of a student's work or the procedures used to assess this work. For example, there may be disagreement about the outcome of a failed qualifying examination or final oral examination. There may also be disagreement over the methods of assessing academic work or evaluating progress, including the means used to accommodate a student's disability or special circumstances. These disputes should first be brought to the attention of the Graduate Program Coordinator who may also consult the Chair. If the matter cannot be resolved at the departmental level, and/or the Department is unsure about options for resolution, the case should be referred to the Admissions & Progress Committee of the Board of Graduate Studies. The Committee will issue a ruling on the case to the Department, and may require specified action. Such action may include a requirement to seek independent evaluation by one or more internal or external assessors of the student's work. If the Admission and Progress Committee upholds the Departmental decision, and the student wishes to make the case that the methods and criteria used by the Department did not conform to procedures established by Senate, the student may appeal the decision to the Senate Committee on Student Petitions within 10 working days.



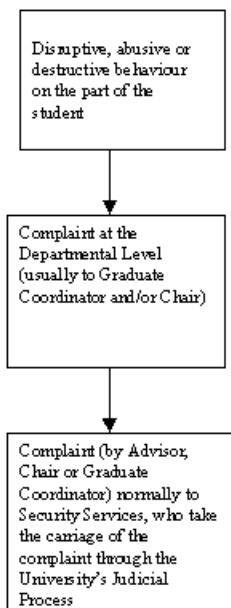
### Disruptive, abusive or destructive behaviour on the part of the advisor

Disruptive, abusive, and destructive behaviour on the part of the Advisor is unacceptable in a scholarly environment. Investigation and remediation of such cases will be as per the Collective Agreement between the University and University of Guelph Faculty Association.



### Disruptive, abusive, or destructive behaviour on the part of the student

Disruptive, abusive, and destructive behaviour on the part of the student is also unacceptable in a scholarly environment. The University's Student Rights and Responsibilities Policy, which is stated in the Graduate Calendar, lists a number of offences against individuals and property. Advisors, fellow students, or other faculty may register an informal complaint about a student's behaviour with the Graduate Program Coordinator or Chair, who will attempt to resolve the matter. The Graduate Program Coordinator/Chair may also choose to involve the Assistant Vice-President (Graduate Studies) in attempting to reach a resolution. If the Graduate Program Coordinator, in consultation with the Chair and/or Dean, is unable to resolve the matter, a formal complaint should be made, normally to Security Services, who take carriage of the complaint through the University's Judicial Process.



## Policy On Non-Academic Misconduct

### Purpose and Jurisdiction

1. The University of Guelph is an environment that develops the person, scholar & citizen. This Policy sets out the University's expectations regarding student conduct as members of the University of Guelph community.
2. In this Policy, a "student" is any person registered in a diploma, undergraduate or graduate program at the University of Guelph or otherwise taking credit or non-credit courses offered by the University of Guelph, or any person who was a student at the time the alleged breach occurred. "Campus" means the physical grounds of either the University's main campus or the regional campuses. This Policy does not apply to students registered at University of Guelph-Humber programs and attending Humber College.

3. Except as noted in paragraph 4 and 5, this Policy applies to all student non-academic behaviour on campus and to students who are engaged in University programs off campus. Allegations regarding other off campus conduct may be brought forward under this Policy if the violation in question materially affects the safety, integrity or educational interests of the University community or as provided under the **Community Standards Protocol**.
4. Alleged breaches of this Policy which arise within University residences may in the discretion of Student Housing Services, proceed under the **Residence Community Living Standards**.
5. Alleged breaches of this Policy which arise at the regional campuses will be subject to the process and procedures specific to the regional campuses.

### University Community Values

6. The University of Guelph's core value is the pursuit of truth. It is animated by a spirit of free and open enquiry, collaboration, and mutual respect. It asserts the fundamental equality of all human beings and is committed to creating for all members of its community, an environment that is hospitable, safe, supportive, equitable, pleasurable, and above all, intellectually challenging (*University of Guelph Act, 1964*). It is expected that all members of the University community will support and enrich these values by interacting with each other in a manner that is respectful, civil and consistent with the following responsibilities. Failure to abide by these responsibilities may result in penalties.

### Diversity

7. Students have a responsibility to help create and uphold an environment that respects the diversity and differences of members of our campus, and allows all members to be treated with dignity, worth and respect. An example of this type of responsibility is the requirement to abide by the University's commitment to the Ontario Human Rights Code and the **Human Rights at the University of Guelph Policy** <sup>1</sup>.

<sup>1</sup> *Allegations of breach may be pursued either under this Policy or the applicable human rights policy or legislation*

### Integrity

8. Students have a **responsibility** to help maintain the integrity of the University as a community for learning. An example of this type of responsibility is the requirement to abide by all Federal, Provincial and Municipal laws<sup>2</sup> and University policies including but not limited to:

- a. **Drugs and Drug Paraphernalia** - to not possess, use, supply or traffic illegal drugs, drug paraphernalia or controlled substances.
- b. **Alcohol** -to possess, purchase, and/or use of liquor by those under the age of 19 is prohibited. The sale or provision of alcohol to anyone under the age of 19 is prohibited. Consumption or open possession of liquor is prohibited on campus other than in those areas where it has been specifically permitted.
- c. **Smoking** -to abide by the **University's policy, Smoking in the Workplace**, which includes not smoking inside any University building or vehicle, or within nine metres of any building entrance or exit.
- d. **Information Technology (IT)** -to use computer login codes or passwords and University IT resources (e.g., computing account or workstation) in accordance with the **University's Acceptable Use Policy**.
- e. **Permits and Identification** - to not acquire, use, loan or disseminate University identification, express plans, building access cards, bus passes or parking permits that are stolen, borrowed, cancelled, lost, false, altered or expired. To not loan any of your identification to others nor alter or produce fake identification

<sup>2</sup> *Allegations of criminal or other offences may be addressed off-campus under the applicable legislation. The University may also initiate charges under this Policy with respect to the same incident(s) if the allegation in question materially affects the safety, integrity and/or educational interests of the University community.*

### Learning

9. Students have a **responsibility** to help support community members' access to the tools they need to engage in their learning and development, both in and outside of the classroom. An example of this type of responsibility is the requirement to abide by the following:

- a. **University Property** - to respect posted hours and limits on entry where such conditions exist and not destroy, tamper with, deface or vandalize, monopolize, unlawfully access, remove or possess property not your own.
- b. **Disruption** - to not interfere with the normal functioning of the University, nor to intimidate, interfere with, threaten or otherwise obstruct any activity organized by the University, including classes, or to hinder other members of the University community from being able to carry on their legitimate activities, including their ability to speak or associate with others.

### Safety

10. Students have a **responsibility** to support an environment that enables students to be safe and free from harm. An example of this type of responsibility is the requirement to abide by the following:

- a. **Harassment** - to treat all members of the University community with respect and without harassment. Harassment is defined as any attention or conduct (oral, written, virtual, graphic or physical) by an individual or group who knows, or ought reasonably to know, that such attention or conduct is unwelcome/unwanted, offensive or intimidating. Examples include but are not limited to bullying, hazing, sexual harassment, or unwanted sexual attention.
- b. **Sexual Assault** - to not assault any person sexually or threaten any person with sexual assault.
- c. **Bodily Harm** - to not engage in activities that are likely to endanger the health or safety of yourself or another person, or to assault or threaten to assault another person or to knowingly cause another person to fear bodily harm.
- d. **Firearms and Other Weapons** - to not bring onto campus any firearms or weapons (examples include but not limited to: BB guns, slingshots, paintball guns, firecrackers, gunpowder or any other forms of unauthorized hazardous materials). Students are not allowed to use any objects to injure, threaten or intimidate a person.
- e. **Fire and Life Safety Equipment** - to not tamper or interfere with, discharge or activate any life safety or fire equipment on campus unless for the purposes of responding to an emergency. Life safety equipment includes but is not limited to defibrillators, fire extinguishers, fire alarms and emergency phones.
- f. **Guests** - to take reasonable steps to ensure your guests comply with this Policy. Students may be held responsible for any breach of the rules committed by your guests on campus.

### Interim Suspension

11. If a student has been charged with a breach under this Policy and a student's conduct raises a reasonable apprehension of harm to the student or to others at the University, or the normal functioning of the University, the President or designate may, in his or her discretion, implement an interim suspension order. A Judicial Hearing will be undertaken as soon as possible and, in any event, no longer than fourteen working days from the laying of the charge.

### Process - Main Campus(3)

12. Students who do not comply with these responsibilities may be charged with a breach of this Policy in two ways:

- a. a ticket issued by Campus Community Police (a **University of Guelph Offence Notice** or "UGON") or
- b. a charge laid by an individual or by the University.

13. The hearing process under this Policy is carried out by the Judicial Committee based on the principles of fairness, participation and efficiency.

14. The Judicial Committee has authority to issue orders and penalties as outlined in its Terms of Reference. If a student has been found guilty of previous breaches of this Policy or the Residence Community Living Standards, that information is made available to the Judicial Committee for penalty consideration

Information on the Judicial procedures or common penalties may be obtained from the Judicial Website, or by calling the Judicial Officer, University Centre, at extension 52464 or from the Director's Office at each regional campus.

(3) *Process and Procedures for the regional campuses are available at:* <http://www.uoguelph.ca/registrar/calendars/diploma/current/>

### Periodic Review Process

15. This Policy will be reviewed no less than every five years by the Student Rights & Responsibilities Committee. Comments and specific suggestions for amendments or additions to the Policy are welcome at any time and should be referred to the Office of Student Affairs at: [st\\_affs@uoguelph.ca](mailto:st_affs@uoguelph.ca).

## Responsible Conduct of Research Policy and Procedures

The University of Guelph ("University") expects the highest standards of integrity in every aspect of research carried out by all members of its academic community. For the purposes of this document, "research" encompasses the creation and application of new knowledge and/or the use of existing knowledge in new and creative ways through research, scholarly, and artistic work.

The University is committed to exemplifying the values and behaviours associated with research integrity, in part, because the University recognizes that research must be built on a foundation of trust. Researchers must have trust in the data/results reported by others, and trust that when undertaking collaborative projects that they will be appropriately recognized for their contributions. The general public must have trust that public research funding will be managed and spent appropriately and accountably, and society must be able to have confidence in the research communicated and disseminated by the University. Maintaining the trust and confidence of both the academic community and general public is a responsibility the University takes very seriously and as such misconduct in research is clearly incompatible with the ethical standards of the University.

This policy found at <http://www.uoguelph.ca/research/guelph-conduct-research/responsible-conduct> provides guidance as to the expectations regarding research integrity and to those behaviours which may form the basis of action regarding research misconduct.



## IV. Degree Regulations

The academic requirements of the master of arts (MA), master of arts in leadership (MA[Leadership]), master of applied nutrition (MAN), master of applied science (MAsc), master of bioinformatics (MBNF), master of biotechnology (MBIOT), master of business administration (MBA), master of engineering (MEng), master of environmental sciences (MES), master of fine arts (MFA), master of food, agricultural and resource economics (MFARE), master of landscape architecture (MLA), master of public health (MPH), master of science (MSc), master of science in planning (MSc[Planning]), master of planning (MLAN), doctor of philosophy (PhD), doctor of veterinary science (DVSc), and graduate diplomas (GDIP).

### Doctor of Philosophy

#### Admission

There are three means of entry to PhD study:

- An applicant who holds a recognized master's degree obtained with high academic standing may be admitted to PhD studies as a regular or provisional student.
- An applicant who has achieved excellent standing at the honours baccalaureate level and who wishes to proceed to doctoral study may enrol, in the first instance, in a master's degree program. If the student achieves a superior academic record and shows a particular aptitude for research, the Board of Graduate Studies, on the recommendation of the department, may authorize transfer to the PhD program without requiring the student to complete the master's degree. The application for transfer must be made between the end of the second semester and the end of the fourth semester.
- At the applicant's request, some departments may choose to recommend to the Board of Graduate Studies direct admission to the PhD program after completion of an honours baccalaureate with high (first-class) standing and demonstration of research promise. Information on direct admission and procedures to be followed is available from the Office of Graduate Studies.

#### Minimum Duration

At least five semesters of full-time study must be devoted to the doctoral program following completion of a recognized master's degree. At least seven semesters are required for those who are permitted to proceed from the honours baccalaureate without completing the master's degree. For a student registered part-time, the minimum duration period is nine part-time semesters for those with a recognized master's degree, and ten part-time semesters for those who are permitted to proceed from the honours baccalaureate without completing the master's degree.

#### Completion

Normally, a thesis must be formally submitted (see Submission of Thesis) or the program otherwise completed, within twelve semesters see. Candidates must understand, however, that announced departmental policy may require completion of the degree requirements within a briefer time period.

#### Advising

The advisory committee will consist of no fewer than three members of the graduate faculty in the selection of whom the graduate student normally participates. It is recommended that one of the committee members be from another department other than that in which the student is registered. The committee chair is normally the advisor of the student's research, and is nominated by the department chair. The advisory committee must be established and the Advisory Committee Appointment form submitted to the Office of Graduate Studies not later than the mid-point of the student's second registered semester.

#### Courses

The PhD degree is primarily a research degree; for that reason course work commonly comprises a smaller proportion of the student's total program than is the case at the master's level.

*Prescribed Courses:* Some departments may designate that certain courses be taken as part of the student's background in his or her discipline. Other courses may be designated because of the close relationship to the research topic. It is such substantive courses that should comprise the prescribed courses in which the candidate must obtain an overall weighted average of at least 'B-' standing (see Establishment of Program and Prescribed Studies).

*Additional Courses:* In addition to the prescribed courses, it is not unusual for the student to complete ancillary courses supportive of the discipline and special field. The language requirement of some departments may be for some students most readily met by completing one or more courses in the language concerned (see entry for Departments of French Studies and Languages). They would not be regarded as prescribed. It is highly recommended that students admitted to a doctoral program directly from an honours baccalaureate complete at least 0.5 graduate level course credits.

### Research

In the total program of a doctoral student, it is expected that the major part of the student's time will be devoted to research for their thesis. The research proposal should be formulated at as early a date as possible and presented to the advisory committee for approval. When it is necessary for the research, or some part of it, to be conducted off-campus, the arrangements are subject to the prior approval of the Assistant Vice-President (Graduate Studies).

#### Qualifying Examination

As early as possible and in no case later than the final semester of the minimum duration requirement (the 5<sup>th</sup> semester for a full-time student), the student is required to pass an examination to assess his or her knowledge of the subject area and related fields. The examination ordinarily will be in several parts (written and/or oral) and should be completed within a two-week period if possible.

The qualifying examination is an examination by the academic unit in which the student is enrolled (as distinct from an examination by the advisory committee). Upon completing it satisfactorily, the student is deemed to have met the departmental standards and becomes a candidate for the PhD degree. The examining committee, appointed by the chair or director of the academic unit concerned, consists of five members:

- The chair/director of the academic unit (or designate) or the chair of the Graduate Program Committee, who acts as chair of the examination committee *except* when this person is also a member of the advisory committee. In that event, the chair will designate another member of the regular graduate faculty of the unit to chair the examination;
- Two members, normally of the regular or associated graduate faculty who are not members of the advisory committee;
- Two members of the advisory committee;
- Normally, at least one of the qualifying examination committee members must be from outside the department/discipline in which the student is registered. That person may be a member of the advisory committee.

#### Note

The chair serves to administer the examination according to the approved format of the program. The chair does not serve as an additional examiner. In unforeseen circumstances where a committee member is unable to attend, the chair will attempt to receive questions to ask on behalf of the absent member, to be answered by the student to the satisfaction of the examiners.

As a qualifying examination, consideration is to be given not only (1) to the student's knowledge of the subject matter and ability to integrate the material derived from his or her studies, but also (2) to the student's ability and promise in research. The examining committee, therefore, will receive from the advisory committee a written evaluation of the quality of the student's research performance to date and of the student's potential as a researcher. The examining committee will determine the relative importance to be given to these two major components of the qualifying examination.

The student is deemed to have passed the qualifying examination if not more than one of the examiners votes negatively. An abstention is regarded as a negative vote. The results of the qualifying examination will be reported to the Assistant Vice-President (Graduate Studies) through the chair of the academic unit. The report to the Assistant VP will record the decision as unsatisfactory or satisfactory. The Office of Graduate Studies will register the student in UNIV\*7000 and record the result of the report. If it is unsatisfactory, the student may be given a second attempt at the examination. A student who fails the qualifying examination and who is being given a second opportunity to pass the examination will be required to repeat it no later than six months after the failed attempt. Academic units may impose a shorter time limit. A second failure constitutes a recommendation to the Board of Graduate Studies that the student be required to withdraw (see Unsatisfactory Progress and Appeals of Decisions).

#### Thesis

Each candidate shall submit a thesis, written by the candidate, on the research carried out by the candidate on an approved topic. The thesis is expected to be a significant contribution to knowledge in its field and the candidate must indicate in what ways it is a contribution. The thesis must demonstrate mature scholarship and critical judgement on the part of the candidate and it must indicate an ability to express oneself in a satisfactory literary style. Approval of the thesis is taken to imply that it is judged to be sufficiently meritorious to warrant publication in reputable scholarly media in the field.

## External Examiner

For each doctoral thesis an external examiner from outside the university is appointed on behalf of the Assistant Vice-President (Graduate Studies) by the department chair, in consultation with the advisor. The external examiner must not have served as advisor to the student's advisor or have been a trainee of the advisor in the last six years, must not have directly collaborated in joint projects or co-authored publications with the advisor or the student in the last six years, and must not have an existing plan to collaborate with the advisor or the student. In addition, the external examiner must not have been a student or member of the graduate faculty at the University in the last five years. The nomination will be made when the candidate's advisor declares that the thesis is about to be prepared, normally no later than the beginning of the student's last semester. The external examiner will submit a written appraisal of the thesis (at least seven days prior to the examination) to the chair of the department who will then provide these comments to the candidate and the Advisory Committee. The external examiner is expected to participate in the final oral examination and to assist in evaluating all aspects of the candidate's performance. Any individual who serves as an External Examiner may not serve again until a period of 3 years has passed.

## Procedures

The thesis may be submitted at any time of the year, but candidates are advised to allow ample time for revision and examination. A copy of the schedule of deadlines should be obtained from the Office of Graduate Studies by the candidate no later than the beginning of the semester in which the candidate intends to graduate.

It is understood that, as the thesis is being written, the candidate will be in regular communication with the advisory committee. When a draft is completed which the advisory committee recommends for examination, the candidate, with the endorsement of the departmental chair, formally requests an examination. A copy of the final draft is then sent to the external examiner as fair copy of the thesis. Arrangements for the final oral examinations are made. It is understood that as a result of the final oral examination corrections may be necessary to produce a revised final draft of the thesis.

## Final Oral Examination

The final oral examination is devoted chiefly, but not necessarily entirely, to the defence of the doctoral thesis. It is a faculty (as distinct from a departmental) examination, for which the arrangements are made by the department on behalf of the faculty in consultation with the Office of Graduate Studies.

The examination is conducted by a committee consisting of five members:

- A member of the regular graduate faculty who is not a member of the advisory committee appointed to act as chair by the department chair on behalf of the Assistant Vice-President (Graduate Studies);
- The external examiner;
- A member of the regular graduate faculty, who is not a member of the advisory committee, selected by the departmental Graduate Program Committee;
- Two members of the student's advisory committee, selected by the advisory committee.

## Note

The chair serves to administer and ensure the proper conduct of the examination. The Chair is expected to exercise full control over the proceedings and does not participate directly in questioning the candidate during the examination. In unforeseen circumstances where an examiner is unable to attend due to, eg sudden illness, accident, etc., the chair will attempt to receive questions to ask on behalf of the absent member, to be answered by the student to the satisfaction of the examiners.

The Assistant Vice-President of Graduate Studies, or a designate, may attend a part or all of the examination. The examination is open to the public but members of the audience may question the candidate only upon invitation of the chair of the committee.

The members of the examination committee, including the external examiner, report individually on the final examination and the thesis. The candidate is deemed to have passed if no more than one of the four examiners votes negatively. An abstention is regarded as a negative vote. Concurrently, the members sign the Certificate of Approval, which is submitted with the approved thesis in its final form to the Assistant Vice-President Graduate Studies via the Office of Graduate Studies (see Submission of Thesis) where the decision of satisfactory or unsatisfactory will be recorded. If unsatisfactory, the candidate may be given a second attempt. A second unsatisfactory result constitutes a recommendation to the Board of Graduate Studies that the student be required to withdraw (see Unsatisfactory Progress and Appeals of Decisions).

## Copies of Thesis

One electronic (.pdf) copy of the certified thesis must be submitted to [the Atrium](#) by the thesis submission deadline date shown in the Academic Schedule in the calendar. Also included in the electronic submission must be a copy of an abstract consisting of no more than 350 words. The Certificate of Approval signed by the external examiner and the members of the examination committee, a copy of the circulation waiver and the copying license must also be submitted to the Office of Graduate Studies. Departments may have a requirement to submit a bound copy of the thesis.

## Publication

The Certificate of Approval indicates that the thesis is suitable for publication. The university requires publication of the thesis in the following manner:

One electronic copy of the thesis is uploaded by the National Library of Canada, and the agreement form signed by the candidate authorizing the National Library to publish the thesis and to make copies available for sale on request. The National Library will upload the thesis exactly as it is and will list the thesis in [Theses Canada](#) as a publication of the National Library.

An abstract of not more than 350 words, prepared by the author and approved by the advisor and submitted as part of the electronic thesis submission, is also uploaded by the National Library.

The National Library's [Theses Non-Exclusive License](#) will be sent to the candidate prior to the final oral examination, to be signed and submitted to the Office of Graduate Studies immediately after the successful completion of the examination.

The candidate, in consultation with the advisor and the department chair, shall have the right to request that circulation and/or copying of the thesis in any form be withheld for up to one year.

Publication in the above manner does not preclude publication of all or part of the thesis in journals or in book form.

## Departmental Regulations

Individual departments may have specified regulations in addition to those described in this calendar. The student is responsible for consulting the department concerning any such regulations. University regulations, as specified herein, take precedence and may not be overruled by any department regulations.

## Doctor of Veterinary Science

### Admission

- The normal basis for admission to DVSc studies as a regular or a provisional student is a DVM or equivalent degree which would allow the applicant to be eligible for licence to practice veterinary medicine in Ontario. The applicant must have achieved high academic standing as set out in the Admission Requirements. If a student enrolled in the graduate diploma program achieves a superior record and shows a particular aptitude for applied studies, the Board of Graduate Studies, on recommendation of the Interdepartmental DVSc Program Committee may authorize transfer to the DVSc program effective in the following semester. The recommendation must be made no later than the end of the second semester.
- An alternative basis for admission is a DVM or equivalent degree plus either an acceptable graduate diploma or an acceptable MSc degree or PhD degree, with a 'B' average. Students so admitted may be granted credit for two semesters in the DVSc program.

### Minimum Duration

At least nine semesters of full-time study must be devoted to the doctoral program. Credit may be allowed for up to two semesters of previous graduate study as indicated above. For a student registered part-time, the minimum duration period is fifteen part-time semesters.

### Completion

Normally, a thesis must be formally submitted (see Submission of Thesis) or the program otherwise completed, within nine semesters see. Candidates must understand, however, that announced departmental policy may require completion of the degree requirements within a briefer time period.

### Advising

### Advisory Committee

This committee will consist of no fewer than three members of the graduate faculty. The graduate student normally participates in their selection. At least one of the committee members must be in a department outside the one in which the student is registered. The committee chair is normally the advisor of the student's program and is nominated by the department chair. The advisory committee must be established and the Advisory Committee Appointment form submitted to the Office of Graduate Studies not later than the mid-point of the student's second registered semester.

### Interdepartmental DVSc Program Committee

This program committee, appointed by the Board of Graduate Studies, will consist of one member of the graduate faculty in each of the departments involved, and will be chaired by the Dean of the Ontario Veterinary College or a designate. The program committee will review and make recommendations to the Assistant Vice-President (Graduate Studies) upon all applications for admission; it will review the proposed program of study and the semester evaluation reports of each student (see Department Review); and it will determine the membership of each qualifying examination committee. The program committee may specify regulations in addition to those set out here, and will be responsible for publicizing them in each department, where the student is responsible for seeking out this information.

## Courses

The DVSc degree is an advanced applied degree which requires the acquisition of applied skills and in-service training, and the submission of a thesis based on research investigations in an applied area. Depending upon the background of the individual student, the proportion of time devoted to investigational work normally will be no less than one-third of the total.

## Prescribed Studies

The program committee may designate certain courses be taken as part of the student's background in the disciplinary area of specialization. Other courses may be designated because of the relationship to in-service training and applied skills. Such substantive courses comprise the prescribed courses in which the candidate must achieve an overall weighted average of at least 'B-' standing (see Establishment of Program and Prescribed Studies). At least 2.5 credits of prescribed courses must be completed, of which no more than 1.0 credits may be in Special Topics courses. Students who are granted credit for previous graduate study may, with the approval of the DVSc Program Committee and the Assistant Vice-President (Graduate Studies), have the credits from prescribed courses reduced to no fewer than 2.0.

## Additional Courses

In addition to the prescribed courses, the student may complete ancillary courses supportive of the discipline and specialty fields.

## Program of Study

The program of study will involve course work and research work on a problem with applied aspects. The total program, including the research proposal, should be formulated as early as possible, but in no case later than the end of the second semester. Prepared in consultation with the advisory committee, the program is subject to the approval of the program committee and, ultimately, the Assistant Vice-President (Graduate Studies). If it is necessary for any part of the program to be conducted off-campus, the arrangements are subject to the prior approval of the program committee and the Assistant Vice-President (Graduate Studies).

Each semester, the student's advisory committee prepares a written evaluation of the student's performance in course work and of progress in applied skills. The evaluation will be discussed with the student before being sent to the program committee. If the student fails to make satisfactory progress, the program committee may recommend to the Board of Graduate Studies that the student be required to withdraw (see Cancellation of Registration).

## Qualifying Examination

Prior to the end of the sixth semester, the student is required to pass a qualifying examination to assess his or her overall ability in the selected area of specialization. The examination will be in two parts (one written, one oral), and will normally be completed within a two-week period. Upon completing it satisfactorily, the student is deemed to have met the departmental standards and becomes a candidate for the DVSc degree.

The qualifying examination is an examination by the academic unit in which the student is enrolled and the examination committee is appointed by the departmental Graduate Program Coordinator. The examination is conducted by a committee consisting of five members, as follows:

- The departmental graduate program coordinator of the program committee, who acts as chair of the examination committee;
- Two members, normally of the regular or associated graduate faculty who are not members of the advisory committee, at least one of whom must be a member of the department in which the student is registered;
- Two members of the advisory committee.

## Note

The chair serves to administer and ensure the proper conduct of the examination. The Chair is expected to exercise full control over the proceedings and does not participate directly in questioning the candidate during the examination. In unforeseen circumstances where an examiner is unable to attend due to, eg., sudden illness, accident, etc., the chair will attempt to receive questions to ask on behalf of the absent member, to be answered by the student to the satisfaction of the examiners.

The qualifying examination will primarily assess the student's knowledge of the area of specialization, the basic sciences supporting this area, and to a lesser extent, the student's area of research. The student's general ability to integrate and apply this knowledge is also assessed. In addition, the examination committee will take into account a written submission from the student's advisory committee evaluating the quality of the student's applied skills and performance to date in the program.

The student is deemed to have passed the qualifying examination if not more than one of the examiners votes negatively. An abstention is regarded as a negative vote. The results of the qualifying examination will be reported to the Assistant Vice-President (Graduate Studies) through the chair of the program committee. The report to the Assistant VP will record the decision as unsatisfactory or satisfactory. If unsatisfactory, the student may be given a second attempt at the examination. A student who fails the qualifying examination and who is being given a second opportunity to pass the examination will be required to repeat it no later than six months after the failed attempt. Academic units may impose a shorter time limit. A second unsatisfactory constitutes a recommendation to the Board of Graduate Studies that the student be required to withdraw (see Unsatisfactory Progress and Appeals of Decision).

## Thesis

Each candidate shall prepare a thesis on the approved research project. The thesis is expected to be a significant contribution to knowledge in its field and the candidate must indicate in what ways it is a contribution. The thesis must demonstrate mature scholarship and critical judgement on the part of the candidate and it must indicate an ability to communicate in writing in a satisfactory style.

The thesis will be based on the research project carried out in the DVSc program. Like all theses, it will contain a detailed critical review of the pertinent theoretical and empirical literature and place the work in the context of existing knowledge in the field. The hypotheses, research design, results, and discussion of the results will be presented in normal thesis format as approved by the Faculty of Graduate Studies.

## External Examiner

For each doctoral thesis an external examiner from outside the university is appointed on behalf of the Assistant Vice-President (Graduate Studies) by the department chair, in consultation with the advisor. The external examiner must not have served as advisor to the student's advisor or have been a trainee of the advisor in the last six years, must not have directly collaborated in joint projects or co-authored publications with the advisor or the student in the last six years, and must not have an existing plan to collaborate with the advisor or the student. In addition, the external examiner must not have been a student or member of the graduate faculty at the University in the last five years. The nomination will be made when the candidate's advisor declares that the thesis is about to be prepared, normally no later than the beginning of the student's last semester. The external examiner will submit a written appraisal of the thesis (at least seven days prior to the examination) to the chair of the department who will then provide these comments to the candidate and the Advisory Committee. The external examiner is expected to participate in the final oral examination and to assist in evaluating all aspects of the candidate's performance. Any individual who serves as an External Examiner may not serve again until a period of 3 years has passed.

## Procedures

The thesis may be submitted at any time of the year, but candidates are advised to allow ample time for revision and examination. A copy of the schedule of deadlines should be obtained from the Office of Graduate Studies by the candidate no later than the beginning of the semester in which the candidate intends to graduate.

It is understood that, as the thesis is being written, the candidate will be in regular communication with the advisory committee. When a draft is completed which the advisory committee recommends for examination, the candidate, with the endorsement of the departmental chair, formally requests an examination. A copy of the final draft is then sent to the external examiner as fair copy of the thesis. Arrangements for the final oral examinations are made. It is understood that as a result of the final oral examination corrections may be necessary to produce a revised final draft of the thesis.

## Final Oral Examination

The final examination is devoted chiefly, but not necessarily entirely, to the defence of the thesis. It is a faculty (as distinct from a departmental) examination, for which the arrangements are made by the department and the college on behalf of the faculty in consultation with the Office of Graduate Studies.

The examination is conducted by a committee consisting of five members, as follows:

- The departmental Graduate Program Coordinator, who acts as chair of the examination committee;
- The external examiner;
- A member of the regular graduate faculty who is not a member of the advisory committee, selected by the department chair;
- Two members of the student's advisory committee, selected by the advisory committee.

## Note

The chair serves to administer and ensure the proper conduct of the examination. The Chair is expected to exercise full control over the proceedings and does not participate directly in questioning the candidate during the examination. In unforeseen circumstances where an examiner is unable to attend due to, eg., sudden illness, accident, etc., the chair will attempt to receive questions to ask on behalf of the absent member, to be answered by the student to the satisfaction of the examiners.

30 IV. Degree Regulations, Master of Arts, Master of Arts (Leadership), Master of Applied Science, Master of Bioinformatics, Master of Biotechnology, Master of Engineering, Master of Environmental Sciences, Master of Food, Agricultural and Resource Economics, Master of Science, Master of Planning, Master of Science (Planning)

The Assistant Vice-President of Graduate Studies, or a designate, may attend a part or all of the examination. The examination is open to the public and members of the audience may question the candidate only upon invitation of the chair of the committee.

The members of the examination committee, including the external examiner, report individually on the final examination and the thesis. The candidate is deemed to have passed if no more than one of the four examiners votes negatively. An abstention is regarded as a negative vote. Concurrently, the members sign the Certificate of Approval, which is submitted with the approved thesis in its final form to the Office of Graduate Studies (see Submission of Thesis). The report to the Assistant Vice-President (Graduate Studies) will record the decision as unsatisfactory or satisfactory. If unsatisfactory, the candidate may be given a second attempt. A second unsatisfactory result constitutes a recommendation to the Board of Graduate Studies that the student be required to withdraw (see Unsatisfactory Progress and Appeals of Decisions).

### Copies of Thesis

One electronic (.pdf) copy of the certified thesis must be submitted to [the Atrium](#) by the thesis submission deadline date shown in the Academic Schedule in the calendar. Also included in the electronic submission must be a copy of an abstract consisting of no more than 350 words. The Certificate of Approval signed by the external examiner and the members of the examination committee, a copy of the circulation waiver and the copying license must also be submitted to the Office of Graduate Studies. Departments may have a requirement to submit a bound copy of the thesis.

### Publication

The Certificate of Approval indicates that the thesis is suitable for publication. The university requires publication of the thesis in the following manner:

One electronic copy of the thesis is uploaded by the National Library of Canada, and the agreement form signed by the candidate authorizing the National Library to publish the thesis and to make copies available for sale on request. The National Library will upload the thesis exactly as it is and will list the thesis in [Theses Canada](#) as a publication of the National Library.

An abstract of not more than 350 words, prepared by the author and approved by the advisor and submitted as part of the electronic thesis submission, is also uploaded by the National Library.

The National Library's [Theses Non-Exclusive License](#) will be sent to the candidate prior to the final oral examination, to be signed and submitted to the Office of Graduate Studies immediately after the successful completion of the examination.

The candidate, in consultation with the advisor and the department chair, shall have the right to request that circulation and/or copying of the thesis in any form be withheld for up to one year.

Publication in the above manner does not preclude publication of all or part of the thesis in journals or in book form.

### Departmental Regulations

Individual departments may have specified regulations in addition to those described in this calendar. The student is responsible for consulting the department concerning any such regulations. University regulations, as specified herein, take precedence and may not be overruled by any department regulations.

## Master of Arts, Master of Arts (Leadership), Master of Applied Science, Master of Bioinformatics, Master of Biotechnology, Master of Engineering, Master of Environmental Sciences, Master of Food, Agricultural and Resource Economics, Master of Science, Master of Planning, Master of Science (Planning)

### Admission

Admission to a master's degree program as a regular student is granted, on the recommendation of the department concerned, to:

- the holder of an honours baccalaureate or its equivalent, as set out in the Admission Requirements; or
- a student who has satisfied the requirements for transfer from the provisional student category.
- Note: the MA (Leadership) has an additional requirement of five completed years of relevant work experience.

### Minimum Duration

At least two semesters of full-time study must be devoted to the master's program if the student is admitted as a regular student. A student admitted as a provisional student requiring two semesters in that category, must spend at least one additional semester as a regular full-time student. For a student registered part-time, the minimum duration period is four part-time semesters.

### Completion

Normally, a thesis must be formally submitted (see Submission of Thesis) or the program otherwise completed, within six semesters see. Candidates must understand, however, that announced departmental policy may require completion of the degree requirements within a briefer time period.

### Advising

The student's program is established and progress kept under review by the academic unit in which the student is enrolled (see Enrolment and Registration). The day-to-day responsibility will rest with the advisor. There will be an advisory committee of at least two graduate faculty members, the chair of which committee is normally the advisor of the student's program. Departments and schools are encouraged to involve graduate faculty from other academic units as members of advisory committees. The advisory committee must be established and the Advisory Committee Appointment form submitted to the Office of Graduate Studies not later than the mid-point of the student's second registered semester.

### Courses

The MA, MA (Lead), MASc, MBINF, MBIOT, MEng, MES, MFARE, MSc, MPlan and MSc (Plan) degrees of the University of Guelph require the demonstration of a reasonable mastery of a concentrated field of study. This may be attested by the achievement of satisfactory standings in courses, as determined by the department. In most cases a thesis is also required.

### Prescribed Studies

The proportion of weight attached to the research and thesis may vary, even within a department. Accordingly, the number of prescribed courses may correspondingly vary. Where the student's program requires a thesis, the number of course credits will not be fewer than 1.5, and must be made up entirely of graduate level courses. Any courses selected that exceed the 1.5 minimum credits must also be acceptable to the department and the Assistant Vice-President (Graduate Studies) for credit towards the graduate degree. The student must obtain an overall weighted average grade of at least 'B-' in the prescribed course (see Establishment of Program and Prescribed Studies).

### Additional Courses

In addition to the prescribed studies the candidate may take ancillary courses that support the specific discipline. These courses may be at either the undergraduate or the graduate level.

### Degree by Coursework

In some disciplines, the interests of a master's student may be better served through greater concentration on course work than independent research. In such circumstances the prescribed *studies* will consist of coursework that has research components, such as research papers, to develop the student's analytic, interpretive and communication skills. Where the student's program does not require a thesis, the number of course credits will not be fewer than 3.5. In some departments a major essay or research paper takes the place of 0.5 or 1.0 of the total credits required. OCGS by-laws permit a maximum of 1/3 of the credits to be taken from senior undergraduate courses; however individual programs may require a higher proportion of graduate courses.

### Research

In most disciplines, students may pursue their degree through course work and independent research towards the completion of a thesis. In the total program of a degree by thesis, the equivalent of at least one full-time semester must be devoted to thesis research. To avoid undue prolongation of the student's program, the research topic should be identified early and approved by the advisory committee.

### Thesis

For the master's degree by thesis each candidate shall submit a thesis, expressed in satisfactory literary form, based upon research in some topic connected with the candidate's special discipline. The thesis must demonstrate the candidate's capacity for original and independent work, and should include a critical evaluation of work which has previously been done in the candidate's field of research. The thesis should emphasize any new conclusions which may be drawn from the candidate's own research.

For purposes of equivalency calculations, a master's thesis is generally considered to be the equivalent of 2.0 credits.

### Procedures

The thesis may be submitted at any time of the year, but candidates are encouraged to have the final examination well in advance of the deadline date for thesis submission. Candidates should be aware of the deadlines schedule, a copy of which may be obtained in the Office of Graduate Studies. Candidates should discuss their thesis write-up with their advisors early in their final semester.

As the thesis is being written, the candidate is expected to be in regular communication with the advisory committee. The draft thesis is sent to the members of the advisory committee. When a draft is completed which the advisory committee recommends for examination, the final draft is sent to the members of the master's examination committee and the final oral examination is held.

Following the master's examination the candidate, if successful, arranges for the preparation of the thesis in final form, and for its submission to the Assistant VP (see below). The thesis in final form must include any minor corrections or revisions resulting from the examination. Approval of the thesis takes the form of a Certificate of Approval, signed by the examination committee.

### Master's Examination

The final oral examination, devoted chiefly to the defence of the thesis, is a departmental examination identified as the master's examination. The master's examination committee normally consists of four members appointed by the department chair, as follows:

- A member of the regular graduate faculty or retired faculty with Associated Graduate Faculty status of the department, who is not a member of the advisory committee, to act as chair of the master's examination committee and to make arrangements therefor;
- A member of the candidate's advisory committee (normally, the advisor);
- A member of the graduate faculty who may be a member of the advisory committee;
- A fourth member appointed from among graduate faculty from another department, from the department or from the advisory committee, according to departmental and/or examination requirements.

If possible, a member of another department should be included on the committee.

### Note

The chair serves to administer and ensure the proper conduct of the examination. The Chair is expected to exercise full control over the proceedings and does not participate directly in questioning the candidate during the examination. In unforeseen circumstances where an examiner is unable to attend due to, eg., sudden illness, accident, etc., the chair will attempt to receive questions to ask on behalf of the absent member, to be answered by the student to the satisfaction of the examiners.

The examination is open to the public; members of the audience may question the candidate only upon invitation of the chair of the committee.

The examination is passed and the thesis approved if there is no more than one negative vote. An abstention is regarded as a negative vote. The report to the Assistant Vice-President (Graduate Studies) will record the decision as unsatisfactory or satisfactory. If unsatisfactory, the candidate may be given a second attempt. A second unsatisfactory result constitutes a recommendation to the Board of Graduate Studies that the student be required to withdraw (see Unsatisfactory Progress and Appeals of Decisions).

### Copies of Thesis

One electronic (.pdf) copy of the certified thesis must be submitted to [the Atrium](#) by the thesis submission deadline date shown in the Academic Schedule in the calendar. Also included in the electronic submission must be a brief abstract consisting of no more than 150 words. The Certificate of Approval signed by the examination committee, a copy of the circulation waiver, and the copying license must also be submitted to the Office of Graduate Studies. Departments may have a requirement to submit a bound copy of the thesis.

### Publication

The university requires publication of the thesis in the following manner:

One electronic copy of the thesis is uploaded by the National Library of Canada, and the agreement form signed by the candidate authorizing the National Library to publish the thesis and to make copies available for sale on request. The National Library will upload the thesis exactly as it is and will list the thesis in [Theses Canada](#) as a publication of the National Library.

An abstract of not more than 150 words, prepared by the author and approved by the advisor, and submitted as part of the electronic thesis submission, is also uploaded by the National Library.

The National Library's [Theses Non-Exclusive License](#) will be sent to the candidate prior to the master's examination, to be signed and submitted to the Office of Graduate Studies immediately after the successful completion of the examination.

The candidate, in consultation with the advisor and the department chair, shall have the right to request that circulation and/or copying of the thesis in any form be withheld for up to one year.

### Department Regulations

Individual departments may have specified regulations in addition to those described in this calendar. The student is responsible for consulting the department concerning any such regulation. University regulations, as specified herein, take precedence, and may not be overruled by any department regulation.

## Master of Applied Nutrition

### Admission

Admission to the Master of Applied Nutrition (MAN) program as a regular student is granted, on the recommendation of the Department of Family Relations and Applied Nutrition, to:

- the holder of an honours baccalaureate degree from a dietetic program accredited by Dietitians of Canada, or with equivalent academic content as judged by the Applied Human Nutrition faculty, with academic standing as set out in Admission Requirements, or
- a student who has satisfied the requirements for transfer from the provisional student category.

### Minimum Duration

At least three semesters of full-time study must be devoted to the master's program if the student is admitted as a regular student.

### Completion

Normally, a thesis must be formally submitted (see Submission of Thesis) or the program otherwise completed, within three semesters see. Candidates must understand, however, that announced departmental policy may require completion of the degree requirements within a briefer time period.

### Advising

The student's program is established and progress is kept under review by the Department of Family Relations and Applied Nutrition. The day-to-day responsibility will rest with the MAN Program Coordinator. There will be a MAN Advisory Committee of at least three graduate Applied Human Nutrition faculty, the chair of which is the MAN Program Coordinator. The advisory committee must be established and the Advisory Committee Appointment form submitted to the Office of Graduate Studies not later than the mid-point of the student's second registered semester.

### Courses

The MAN degree of the University of Guelph requires the demonstration of a reasonable mastery of a concentrated field of study. This may be attested by the achievement of satisfactory standings in a number of courses, as determined by the department. A thesis is not required.

### Prescribed Studies

The courses selected must be acceptable to the school and to the Assistant Vice-President (Graduate Studies) for graduate credit. The candidate must obtain an overall weighted average grade of at least 'B-' in order to qualify for the degree.

A total of seven courses (6.5 credits) are required for the completion of this program, made up of three regular courses, three practicum courses and a major project.

### Additional Courses

In addition to the prescribed studies, the student may take ancillary courses supportive of the special discipline. These courses may be at either the undergraduate or the graduate level.

### Professional Competence

Throughout the MAN program, students will document completion of the Dietitians of Canada Entry-Level Competencies. Graduates who have completed all required competencies successfully, as assessed by the MAN Advisory Committee, can apply to write the examination and qualify as a member of the College of Dietitians of Ontario (CDO), or other provincial dietetics regulatory body.

### Departmental Regulations

The department may have specified regulations in addition to those described in this calendar. The student is responsible for consulting the department concerning any such regulation. University regulations, as specified herein, take precedence and may not be overruled by any department regulation.

## Master of Business Administration (Food and Agribusiness Management), (Hospitality and Tourism Management) or (Sustainable Commerce)

### Admission

Admission as a regular student is granted, on recommendation of the department concerned, to:

- the holder of an honours baccalaureate or its equivalent (from a recognized university or college) with an average standing of at least a 'B' in the last four semesters or the last two undergraduate years. At least two years of managerial experience is also required. Or,
- a student who has satisfied the requirements for transfer from provisional student category.

Applicants are required to submit results of the Graduate Management Admission Test (GMAT) in addition to the normal documentation required for evaluation.

## Delivery Method

The MBA Program is offered electronically over a two year period to accommodate working professionals. For the electronic program, participants are linked from home or their workplace with a network of learners and professors. Tuition and related costs for the electronic program are managed by the College of Business and Economics Executive Program office; contact that office for details.

## Minimum Duration

At least three semesters of full-time study must be devoted to the master's program if the student is admitted as a regular student.

## Completion

Normally, a thesis must be formally submitted (see Submission of Thesis) or the program otherwise completed, within six semesters see. Candidates must understand, however, that announced departmental policy may require completion of the degree requirements within a briefer time period.

## Advising

The student's program is established and progress kept under review by the department concerned (see Enrolment and Registration). The day-to-day responsibility will rest with an advisory committee, consisting of at least two graduate faculty members, one of whom may be from outside the department. The student's advisor is chair of the advisory committee. The advisory committee must be established and the Advisory Committee Appointment form submitted to the Office of Graduate Studies not later than the mid-point of the student's second registered semester.

## Courses

The MBA degree of the University of Guelph requires the demonstration of a reasonable mastery of a concentrated field of study. This is attested by achieving satisfactory standings in a number of courses.

## Prescribed Studies

Students in the course-work option complete nine core courses, three field courses, plus two additional electives (7.0 credits). Students in the major paper option complete nine core courses, three field courses, plus a major paper (7.0 credits). The courses selected must be acceptable to the school and the Assistant Vice-President (Graduate Studies) for graduate credit. These substantive courses comprise the candidate's prescribed studies, in which the student must obtain an overall average grade of at least 'B-' (see Establishment of Program and Prescribed Studies).

## Additional Courses

In addition to these prescribed studies the candidate may take ancillary courses supportive of the special discipline. These courses may be at either the undergraduate or the graduate level.

## Department Regulations

Individual departments may have specified regulations in addition to those described in this calendar. The student is responsible for consulting the department concerning any such regulation. University regulations, as specified herein, take precedence and may not be overruled by any department regulation.

## Master of Fine Art (Studio Art)

### Admission

Admission as a regular student may be granted, on recommendation of the School of Fine Art and Music, to:

- the holder of a BFA degree (honours equivalent), or an honours BA or its equivalent in fine or visual arts, as set out in the Admission Requirements; or
- in exceptional cases, the holder of a degree in another field who has completed a minimum of six one-semester courses in fine or visual art; or
- a student who has satisfied the requirements for transfer from provisional student category.

Each applicant must also submit a portfolio or other appropriate documentation of artwork.

### Minimum Duration

At least four semesters of full-time study must be devoted to the master's program if the student is admitted as a regular student.

### Completion

Normally, a thesis must be formally submitted (see Submission of Thesis) or the program otherwise completed, within six semesters see. Candidates must understand, however, that announced departmental policy may require completion of the degree requirements within a briefer time period.

## Advising

The student's program is established and progress kept under review by the school (see Enrolment and Registration). The day-to-day responsibility will rest with an advisor. There will be an advisory committee of at least three graduate faculty members. The chair of the committee is normally the student's advisor. The school is encouraged to involve graduate faculty from other academic units as members of advisory committees. The advisory committee must be established and the Advisory Committee Appointment form submitted to the Office of Graduate Studies not later than the mid-point of the student's second registered semester.

## Courses

The MFA degree at the University of Guelph requires the attainment of a professional level of studio practice and a detailed knowledge of the selected field of specialization.

## Prescribed Studies

A total of twelve graduate courses (10.0 credits) are required for the completion of this program. In addition to individually oriented studio courses, students are required to complete four MFA seminars, two teaching practicum courses, and two graduate art history, theory or criticism courses. These substantive courses comprise the candidate's prescribed studies, in which the student must obtain an overall weighted average grade of at least 'B-' (see Establishment of Program and Prescribed Studies).

## Additional Courses

In addition to the prescribed studies, the student may take ancillary courses supportive of the special discipline. These courses may be at either the undergraduate or the graduate level.

## Exhibition/Paper

Each degree candidate will complete a thesis. The MFA thesis consists of an exhibition, a brief supporting paper and an oral examination. Each degree candidate must present an exhibition, performance, or showing of the studio work, as well as a brief critical paper of approximately 4,000-5,000 words that articulates the aesthetic, historical and technical issues pertinent to the artwork. The submitted studio work must demonstrate a professional level of competence and a significant aesthetic investigation, as approved by the candidate's master's examination committee.

## External Examiner:

To advise on the exhibition/paper and to attend the master's examination, an external examiner from outside the university may be appointed by the school director, in consultation with the advisor and the Graduate Program Coordinator. The external examiner will submit a written appraisal of the exhibition/paper to the school director. The external examiner is expected to attend the master's examination and to assist in evaluating all aspects of the candidate's performance

## Procedures

The exhibition/paper may be completed at any time of the year, but candidates must bear in mind the desirability of having the final examination as much in advance of the deadline date as possible. Candidates should be aware of the deadlines posted in the Schedule of Dates in the graduate calendar. Candidates should discuss their thesis write-up with their advisors early in the final semester.

Following the master's examination, the candidate, if successful, will submit the paper and the photographic record of the exhibition to the school where they will be retained permanently.

## Master's Examination

At the time of the exhibition, the MFA candidate will be expected to successfully complete a final oral examination devoted chiefly to the MFA exhibition with reference to the supporting critical paper. This is a school examination identified as the master's examination. The master's examination committee normally consists of four members appointed by the school director, as follows:

- A member of the regular graduate faculty of the school or retired faculty with Associated Graduate Faculty status, who is not a member of the advisory committee, to act as chair of the master's examination committee and to make arrangements therefor;
- A member of the candidate's advisory committee (normally, the advisor);
- A member of the graduate faculty who may be a member of the advisory committee;
- A fourth member appointed from among graduate faculty from another department, from the school or from the advisory committee, according to school and/or examination requirements. The fourth member may be an external examiner.

If possible, a member of another department should be included on the committee.

## Note

The chair serves to administer and ensure the proper conduct of the examination. The Chair is expected to exercise full control over the proceedings and does not participate directly in questioning the candidate during the examination. In unforeseen circumstances where an examiner is unable to attend due to, eg., sudden illness, accident, etc., the chair will attempt to receive questions to ask on behalf of the absent member, to be answered by the student to the satisfaction of the examiners.

The school director is responsible for notifying the Assistant Vice-President (Graduate Studies) of the composition of the committee, and for reporting to the Assistant Vice-President (Graduate Studies) the outcome of the examination.

The examination committee is expected to review the exhibition and the critical paper. The student is examined orally on the contents of the exhibition and the paper. Viewing the exhibition may take place over several days; the oral examination should take place following the viewing and must involve all members of the examination committee, including the external examiner (if applicable), as well as the candidate. Both of these components constitute the master's examination. The examination is open to the public; members of the audience may question the candidate only upon invitation of the chair of the examination committee.

The examination is passed and the exhibition/paper approved if there is no more than one negative vote. An abstention is regarded as a negative vote. The report to the Assistant Vice-President (Graduate Studies) will record the decision as unsatisfactory or satisfactory. If unsatisfactory, the candidate may be given the opportunity of a second attempt. A second unsatisfactory result constitutes a recommendation to the Board of Graduate Studies that the student be required to withdraw (see Unsatisfactory Progress and Appeals of Decisions).

### Copies of the Paper

A photographic record of the exhibition and a copy of the critical paper is retained in the school.

### School Regulations

In addition to meeting the university MFA regulations regarding the thesis format, the candidate must submit appropriate visual documentation of the MFA exhibition as well as the supporting critical paper to the director of the school for inclusion in the school archives.

The school may have specified regulations in addition to those described in this calendar. The student is responsible for consulting the school concerning any such regulation. University regulations, as specified herein, take precedence and may not be overruled by any school regulation.

## Master of Fine Art (Creative Writing)

### Admission

Admission as a regular student may be granted, on recommendation of the School of English and Theatre Studies, to:

- the holder of a baccalaureate degree, in an honours program or the equivalent, from a recognized degree-granting institution. There are no requirements as to the discipline in which the degree was earned. Successful applicants will be expected to have achieved an average standing of at least a 'B-' in their last four semesters of study;
- a limited number of students may be admitted to the Creative Writing MFA program without having satisfied the degree requirement and/or academic standing requirements set out above if they are assessed as qualified to undertake graduate studies in creative writing on the basis of other experience and/or practice
- a student who has satisfied the requirements for transfer from the provisional student category.

On-line applications, required documents and instructions can be found in the Application for Admission section of the calendar. Please also see the Admissions Portfolio.

Creative Writing applicants who believe that their experiential learning may compensate for academic standing which does not meet the university minimum requirements are directed to contact the program (jainm@uoguelph.ca) regarding availability of alternative admissions criteria.

Admission, whether as a regular, a provisional, or a special student is, in all cases, based upon the recommendation of the department concerned and is subject to the approval of the Assistant Vice-President (Graduate Studies) on behalf of the Board of Graduate Studies. For more information, please see Admission Requirements.

### Minimum Duration

Students must complete at least two semesters of full-time study in the Creative Writing MFA program.

### Completion

Normally, a thesis must be formally submitted (see Submission of Thesis) or the program otherwise completed, within six semesters Program Duration.

### Advising

The student's program is established and progress kept under review by the school (see Enrolment and Registration). The day-to-day responsibility will rest with an advisor, under the direction of the program's director. The thesis advisor will work with the student to shape and revise the manuscript, offering substantive editorial suggestions to writing upon which the student has already done significant work. It is the advisor who will decide when the thesis meets the requirement of acceptable to proceed to examination. The advisory committee must be established and the Advisory Committee Appointment form submitted to the Office of Graduate Studies not later than the mid-point of the student's second registered semester.

### Courses

The MFA degree in Creative Writing at the University of Guelph requires the attainment of a professional level of writing practice and a detailed knowledge of the selected genre of specialization. In all cases a creative thesis is also required.

### Prescribed Studies

Students will take one workshop and one plenary course in the first (Fall) semester of study; one workshop in the second (Winter) semester; the individual study course in the third (Summer) semester; and one workshop and a second plenary course in the fourth (Fall) semester. The remaining two semesters of the two-year (full-time) program will be devoted to the thesis. With permission from the Assistant Vice-President (Graduate Studies) and the program director, MFA students may choose to take one or two courses at the University of Guelph - e.g., MA courses in the School of English and Theatre Studies. Throughout the course of study, the student must obtain an overall weighted average grade of at least 'B-' (see Establishment of Program and Prescribed Studies).

### Creative Thesis/Manuscript and Oral Examination/Defence

Each degree candidate will complete a creative thesis. The MFA in Creative Writing thesis consists of a book-length manuscript of poems, a novel, a collection of short stories, a full-length play or screenplay, or a work of creative non-fiction and, as well, an oral examination. The submitted manuscript must demonstrate a professional level of merit, as approved by the candidate's master's examination committee.

### Procedures

Candidates should be aware of the deadlines schedule, a copy of which may be obtained in the Office of Graduate Studies. Please note, the Creative Writing MFA program has also implemented internal expectations/deadlines that must be adhered to by the candidate; these internal expectations/deadlines are distributed by the program director.

Following the master's examination, the candidate, if successful, will submit the creative thesis to the Office of Graduate Studies; it be retained permanently by the university.

### Master's Examination

The Creative Writing MFA examination committee normally consists of three members appointed by the department Chair:

- A member of the regular graduate faculty of the school or retired faculty with Associated Graduate Faculty status who is not a member of the advisory committee, and who acts as chair of the master's examination committee and makes arrangements for the oral examination (normally, the SETS director or SETS Graduate Program Coordinator);
- a member of the candidate's advisory committee (normally, the advisor);
- a member of the graduate faculty who may be a member of the advisory committee (normally, the second reader).

### Note

The chair serves to administer and ensure the proper conduct of the examination. The Chair is expected to exercise full control over the proceedings and does not participate directly in questioning the candidate during the examination. In unforeseen circumstances where an examiner is unable to attend due to, eg., sudden illness, accident, etc., the chair will attempt to receive questions to ask on behalf of the absent member, to be answered by the student to the satisfaction of the examiners.

At the time of the defence, the Creative Writing MFA candidate will be expected successfully to complete a final oral examination devoted chiefly to the creative thesis: the candidate should display a sophisticated critical awareness of his or her own creative practice.

The examination is open to the public; members of the audience may question the candidate only upon invitation of the chair (program director) of the committee.

The program director is responsible for notifying the Assistant Vice-President (Graduate Studies) of the composition of the committee, and for reporting to the Assistant Vice-President (Graduate Studies) the outcome of the examination.

The examination is passed and the creative thesis approved if there is no more than one negative vote. An abstention is regarded as a negative vote. The report to the Assistant Vice-President (Graduate Studies) will record the decision as unsatisfactory or satisfactory. If unsatisfactory, the candidate may be given the opportunity of a second attempt. A second unsatisfactory result constitutes a recommendation to the Board of Graduate Studies that the student be required to withdraw (see Unsatisfactory Progress and Appeals of Decisions).

### Copies of the Creative Thesis

One electronic (.pdf) copy of the certified creative thesis must be submitted to the Atrium by the thesis submission deadline date shown in the Academic Schedule in the calendar. Also included in the electronic submission must be a brief abstract consisting of no more than 150 words. The Certificate of Approval signed by the examination committee, a copy of the circulation waiver, and the copying license must also be submitted to the Office of Graduate Studies. Departments may have a requirement to submit a bound copy of the thesis.

### School Regulations

The school may have specified regulations in addition to those described in this calendar. The student is responsible for consulting the school concerning any such regulation. University regulations, as specified herein, take precedence and may not be overruled by any school regulation.

## Master of Landscape Architecture

### Admission

Admission as a regular student is granted, on the recommendation of the Landscape Architecture program, to:

- the holder of a BLA degree, or of an honours baccalaureate or its equivalent, as set out in the Admission Requirements, or
- a student who has satisfied the requirements for transfer from provisional student category.

### Minimum Duration

At least four semesters of full-time study must normally be devoted to the master's program if the student holds a BLA and is admitted as a regular student. Holders of other degrees may require two additional semesters. For a student registered part-time, the minimum duration is based on the equivalence of seven part-time semesters if the student holds a BLA. Holders of other degrees may require four additional part-time semesters.

### Completion

Normally, a thesis must be formally submitted (see Submission of Thesis) or the program otherwise completed, within six semesters see. Candidates must understand, however, that announced departmental policy may require completion of the degree requirements within a briefer time period.

### Advising

The student's program is established, and progress kept under review, through the Landscape Architecture program (see Enrolment and Registration). The day-to-day responsibility will rest in an advisory committee of at least two members, one of whom may be from outside the school. The student's research advisor is chair of the advisory committee. The advisory committee must be established and the Advisory Committee Appointment form submitted to the Office of Graduate Studies not later than the mid-point of the student's second registered semester.

### Courses

The MLA degree of the University of Guelph requires the demonstration of a general mastery of the field of landscape architecture.

### Prescribed Studies

The courses selected must be acceptable to the school and to the Assistant Vice-President (Graduate Studies) for graduate credit. The candidate must obtain an overall weighted average grade of at least 'B-' in order to qualify for the degree.

The number of courses prescribed will depend upon the student's background.

- For the holder of a BLA with several subsequent years of significant professional experience (as defined by the school), the prescribed studies will consist of at least five graduate courses (2.25 credits), plus a thesis;
- For the holder of a BLA without several subsequent years of significant professional experience (as defined by the school), the prescribed studies will consist of at least seven graduate courses (3.25 credits), plus a thesis;
- for the holder of degrees other than the BLA, the prescribed studies will consist of at least fourteen graduate courses (6.25 credits), plus a thesis, unless permission is granted to waive courses.

### Additional Courses

In addition to the prescribed studies, a student may take courses outside the discipline. These courses may be at either the undergraduate or the graduate level.

### Research

Students may expect to devote at least the equivalent of two full-time semesters to their research. To avoid undue prolongation of their program, students are expected to have their thesis proposal prepared and approved at least two full semesters in advance of their anticipated degree completion date.

### Thesis

For the Master of Landscape Architecture degree students are encouraged to undertake scholarship of discovery, integration, application, and/or communication. This work typically includes identification of clear goals, adequate preparation, selection and application of appropriate methods, identification and discussion of results, effective written and graphic communication, and reflective critique.

For the Master of Landscape Architecture degree each candidate shall submit a thesis, communicated in an appropriate form, based upon scholarship on a topic related to landscape architecture. The thesis must demonstrate the candidate's capacity for original and independent work, and should include a critical evaluation of work that has previously been done in the candidate's area of investigation. The thesis should emphasize any new conclusions resulting from the candidate's scholarly investigation. Special emphasis should be placed on the communication of how the results inform design.

### Procedures

The thesis may be submitted at any time of the year, but candidates are encouraged to have the final examination well in advance of the deadline date for thesis submission. Candidates should be aware of the deadlines schedule, a copy of which may be obtained in the Office of Graduate Studies. Candidates should discuss their thesis write-up with their advisors early in their final semester.

As the thesis is being written, the candidate is expected to be in regular communication with the advisory committee. The draft thesis is sent to the members of the advisory committee. When a draft is completed which the advisory committee recommends for examination, the final draft is sent to the members of the master's examination committee and the final oral examination is held.

Following the master's examination the candidate, if successful, arranges for the preparation of the thesis in final form, and for its submission to the Assistant VP (see below). The thesis in final form must include any minor corrections or revisions resulting from the examination. Approval of the thesis takes the form of a Certificate of Approval, signed by the examination committee.

### Master's Examination

The final oral examination, devoted chiefly to the defence of the thesis, is a departmental examination identified as the master's examination. The master's examination committee normally consists of four members appointed by the department chair or Graduate Program Coordinator, as follows:

- A member of the regular graduate faculty of the department or retired faculty with Associated Graduate Faculty status, who is not a member of the advisory committee, to act as chair of the master's examination committee and to make arrangements therefor;
- A member of the candidate's advisory committee (normally, the advisor);
- A member of the graduate faculty who may be a member of the advisory committee;
- A fourth member from among graduate faculty from another department, from the department or from the advisory committee, according to departmental and/or examination requirements.

If possible, a member of another department should be included on the committee.

### Note

The chair serves to administer and ensure the proper conduct of the examination. The Chair is expected to exercise full control over the proceedings and does not participate directly in questioning the candidate during the examination. In unforeseen circumstances where an examiner is unable to attend due to, eg, sudden illness, accident, etc., the chair will attempt to receive questions to ask on behalf of the absent member, to be answered by the student to the satisfaction of the examiners.

The examination is open to the public; members of the audience may question the candidate only upon invitation of the chair of the committee.

The examination is passed and the thesis approved if there is no more than one negative vote. An abstention is regarded as a negative vote. The report to the Assistant Vice-President (Graduate Studies) will record the decision as unsatisfactory or satisfactory. If unsatisfactory, the candidate may be given a second attempt. A second unsatisfactory result constitutes a recommendation to the Board of Graduate Studies that the student be required to withdraw (see Unsatisfactory Progress and Appeals of Decisions).

### Copies of Thesis



One electronic (.pdf) copy of the certified thesis must be submitted to the Atrium by the thesis submission deadline date shown in the Academic Schedule in the calendar. Also included in the electronic submission must be a brief abstract consisting of no more than 150 words. The Certificate of Approval signed by the examination committee, a copy of the circulation waiver, and the copying license must also be submitted to the Office of Graduate Studies. Departments may have a requirement to submit a bound copy of the thesis.

#### Publication

The university requires publication of the thesis in the following manner:

One electronic copy of the thesis is uploaded by the National Library of Canada, and the agreement form signed by the candidate authorizing the National Library to publish the thesis and to make copies available for sale on request. The National Library will upload the thesis exactly as it is and will list the thesis in Thesis Canada as a publication of the National Library.

An abstract of not more than 150 words, prepared by the author and approved by the advisor, and submitted as part of the electronic thesis submission, is also uploaded by the National Library.

The National Library's Theses Non-Exclusive License will be sent to the candidate prior to the master's examination, to be signed and submitted to the Office of Graduate Studies immediately after the successful completion of the examination.

The candidate, in consultation with the advisor and the department chair, shall have the right to request that circulation and/or copying of the thesis in any form be withheld for up to one year.

#### Program Regulations

The Master of Landscape Architecture program has specified regulations in addition to those described in this calendar. The student is responsible for consulting the department concerning these regulations. University regulations, as specified herein, take precedence, and may not be overruled by any department regulation.

### Master of Public Health

#### Admission

Admission as a regular student is granted, on the recommendations of the department concerned to:

- The holder of an honours baccalaureate or its equivalent from a program in Biomedical Sciences, Biological Sciences, Occupational and Public Health or alternatively a Doctor of Veterinary Medicine, RN or MD professional degree, with academic standing as set out in the Admission Requirements.
- A student who has satisfied the requirements for transfer from the provisional student category

#### Minimum Duration

At least four semesters of full-time study must be devoted to the master's program if the student is admitted as a regular student. For a student registered part-time, the minimum duration period is seven part-time semesters.

#### Completion

Normally, a thesis must be formally submitted (see Submission of Thesis) or the program otherwise completed, within five semesters see.

#### Advising

The student's program is established and progress kept under review by the Department of Population Medicine. The day-to-day responsibility will rest with the Graduate Program Coordinator, Department of Population Medicine. There will be an advisory committee of at least two graduate faculty members, the chair of which will be the Graduate Program Coordinator, Department of Population Medicine. The advisory committee must be established and the Advisory Committee Appointment form submitted to the Office of Graduate Studies not later than the mid-point of the student's second registered semester.

#### Courses

The MPH degree of the University of Guelph requires the demonstration of a reasonable mastery of a concentrated field of study. This may be attested by the achievement of satisfactory standings in a number of courses, as determined by the department. A thesis is not required.

#### Prescribed Studies

The courses selected must be acceptable to the school and to the Assistant Vice-President (Graduate Studies) for graduate credit. The candidate must obtain an overall weighted average grade of at least 'B-' in order to qualify for the degree.

A total of twelve courses (6 credits) and a Practicum (1.0 credit) are required for the completion of this program.

#### Additional Courses

In addition to the prescribed studies the candidate may take ancillary courses supportive of the special discipline. These courses may be at either the undergraduate or the graduate level.

### Department Regulations

Individual departments may have specified regulations in addition to those described in this calendar. The student is responsible for consulting the department concerning any such regulation. University regulations, as specified herein, take precedence, and may not be overruled by any department regulation.

### Graduate Diplomas

#### Admission

Admission to a postgraduate diploma program as a regular student may be granted on recommendation of the department as set out in the Admission Requirements, with at least a 'B-' in the work of the final two years.

#### Minimum Duration

The typical duration is one to four semesters (dependant on the program) of full-time study must be devoted to the diploma program. For a student registered part-time, the minimum duration period is seven part-time semesters.

#### Advising

The student's program is planned and the student's progress is kept under review by the department. The advisory committee must be established and the Advisory Committee Appointment form submitted to the Office of Graduate Studies not later than the mid-point of the student's second registered semester.

#### Courses

The postgraduate diploma program requires the completion of regular graduate courses together and may require special professional or applied courses and project. The curriculum for the graduate diploma is laid down by the department. In order to qualify for graduation, the student must obtain an overall weighted average grade of at least 'B-' in the required courses (see Prescribed Studies). Details may be obtained from the chair of the department. A thesis is not required.

## V. Other Study Options

This section describes other study options that exist for graduate students outside of their own program of study. It includes information on the International Study Option, the University Teaching course, Animal Care Short course and other University courses.

### Animal Care Short Course

All graduate students utilizing animals at the University of Guelph must demonstrate that they are familiar with animal welfare issues and adequately trained in animal care and use. The overall objective is to introduce aspects of laboratory animal science, animal welfare and animal care, not to provide definitive answers. Specific objectives of the course are as follows: (1) to familiarize course participants with existing regulations and guidelines to explain the need for them; (2) to demonstrate the need for understanding animal care and welfare both for protecting the user and the animal from potentially harmful zoonoses and to help improve the quality of research and teaching; and (3) to put into perspective the moral and ethical obligations to the animal so the user can weigh objectively the costs to animals against benefits gained from their use.

Formal recognition on the graduate transcript is accorded to graduate students who successfully complete the UNIV 6600 – Animal Care Short Course. This course is offered by the [Animal Care Services](#) through the [Animal User Training Program](#) of the University of Guelph.

### Admission

The Animal Care Short Course is mandatory for all graduate students who will utilize vertebrate animals in their research and/or who will be teaching assistants in any course involving vertebrate animals. Students must take this course as early as possible in their program and prior to the commencement of work with live animals. In some circumstances, equivalency may be accepted. Students wishing to apply for equivalency should contact the Assistant Director, Animal Care Services.

### Format

The course is offered as computer-based online self-study modules covering topics relevant to animal care.

### Credit

Following completion of a short online quiz for each training module, Animal Care Services will forward a list of the successful participants to the Office of Graduate Studies. The course will be entered on the students' official record, with a grade notation of SAT (satisfactory).

#### UNIV\*6600 Animal Care Short Course S,F,W [0.00]

The course includes on-line training modules covering the following topics: Legislation, Regulation & Guidelines, Ethological Considerations in Animal Management, Ethics in Animal Experimentation, Research Issues, The Three Rs of Humane Animal Experimentation, Occupational Health and Safety when Working with Animals, Euthanasia, Recognition and Alleviation of Pain and Distress in Animals. Graduate students using or caring for live animals or assisting in teaching courses involving live vertebrate animals also must attend the Animal Care Services species-specific Workshops as part of the Animal User Training Program.

*Department(s):* Office of Graduate Studies

### Registration

Please register online through Animal Care Services training program webpage at <http://www.uoguelph.ca/research/for-researchers/ethics-and-regulatory-compliance/animals/animal-user-training>. Choose option Core online modules. For inquiries about the course, please contact Dr. Anna Bolinder, Animal Care Services ([abolinde@uoguelph.ca](mailto:abolinde@uoguelph.ca) or x53110).

### Formal International Exchange

Graduate students wishing to participate in a formal international exchange program on the recommendation of their graduate unit must be nominated and formally approved for the exchange by the Centre for International Programs (CIP). For more information, please see the [Centre for International Programs](#) website.

### Canadian Association for Graduate Studies (CAGS) - Canadian Graduate Student Research Mobility Agreement (CGSRMA)

The Canadian Graduate Student Research Mobility Agreement gives graduate students the opportunity to spend time at another Canadian university in order to complete or enhance their research. The intention is to promote graduate mobility within Canada in order to foster the exchange of ideas, specialized training, research collaboration, and interdisciplinarity. More information and a complete listing of participating universities may be obtained on the CAGS website ([Agreements](#)).

### Canadian Association for Graduate Studies (CAGS) - Canadian University Graduate Transfer Agreement

The Canadian Universities Graduate Transfer Agreement (CUGTA) is to provide students in good standing enrolled in a graduate degree or diploma program at a CAGS member university the opportunity to avail themselves of courses offered at another member institution (host) for transfer credit to the program at the program at the University of Guelph. More information and a complete listing of participating universities may be obtained on the CAGS website ([Agreements](#)).

### International Study Option

Formal recognition on the graduate transcript is accorded graduate students who successfully complete a period of study in another country as part of their program at Guelph. The study must be an integral part of the student's approved graduate studies. Credit will not be granted for international study commenced or completed prior to approval of the student's study plan by the Assistant Vice-President (Graduate Studies).

### Admission

Admission to the international study option may be granted to any registered graduate student on the recommendation of the department. Application forms are available in the Office of Graduate Studies.

### Minimum and Maximum Durations

The minimum duration of study is six weeks abroad and the maximum duration is one year.

### Advising

The student's international study is planned and progress kept under review by the department and the student's advisory committee.

### Activities

Credit for the international study option is dependent on the completion of a study approved by the department. Details may be obtained from the Office of Graduate Studies. A written report on the study is required, a copy of which must be submitted to the Assistant Vice-President (Graduate Studies). Upon approval of the written report in the Office of Graduate Studies, the following course is added to the student's academic record with a grade notation of SAT (satisfactory).

#### UNIV\*6500 International Study Option U [0.00]

A period of study in another country as part of a graduate program at the University of Guelph. Details may be obtained from the Office of Graduate and Postdoctoral Studies.

*Department(s):* Office of Graduate Studies

### Cotutelle

#### Cotutelle Agreements at the University of Guelph

A cotutelle agreement entails a customized program of doctoral study developed jointly by two institutions for an individual student in which the requirements of each university's doctoral programs are upheld such that the student is awarded two degree documents. The objective of a cotutelle is to enrich the experience of doctoral students through research collaborations and exposure to a different culture.

Below are the principles that enable cotutelle agreements to be established at the University of Guelph.

1. The Office of Graduate and Postdoctoral Studies (OGPS) may enter into cotutelle agreements with international universities, on behalf of individual PhD students registered in an existing PhD program at the University of Guelph, in accordance with the provisions of this framework. OGPS is responsible for ensuring that individual cotutelle agreements conform to the University of Guelph's internal doctoral degree requirements. Each cotutelle agreement must be approved by the Assistant Vice-President, Graduate Studies.
2. Cotutelle agreements are binding on the respective institutions on a reciprocal basis. Agreements must establish the manner in which the degrees are recognized in their respective countries.
3. PhD students carry out their research in both countries, under the direction of co-advisors who commit to act collaboratively and to their fullest capacity. The co-advisors must sign the agreement.
4. PhD students carry out their studies in alternating periods at the institutions involved, in a manner established in the agreement.
5. Details regarding the preparation for, and completion of, qualifying examination(s) are established in the agreement.
6. The language in which the thesis is to be written is established in the agreement. Where this language is not English, a substantive summary of the thesis in English must be included when the thesis is submitted for examination.

7. Composition of the thesis examination committee and naming of the committee's chair is established in the agreement. Where appropriate, examination committees are formed on a balanced basis, with equal membership from each of the institutions involved as well as a member (or members) external to both institutions. The membership of an examination committee shall not exceed eight persons.
8. The thesis is examined at a single thesis defense. Cost sharing responsibilities related to the defense are established in the agreement.
9. After a successful thesis defense, each institution awards the candidate a doctoral degree in accordance with its own regulations for conferral of degrees. The official record of the degree(s) shall indicate the candidate's specialization or discipline, the title of the thesis, and mention of the cotutelle.
10. The manner in which PhD students are to be registered and how they are to pay tuition fees is established in the agreement. The agreement also sets out the manner in which other applicable fees, including health insurance, are paid in each country.
11. Issues with respect to official deposits, listing, and distribution of theses, the management of joint research results from laboratories or research teams involved, as well as the publication and the derived uses of such results, are governed by specific rules and legislation in force in each of the respective universities and as established in the agreement.

## Letter of Permission

Graduate students who wish to study at another institution outside of Ontario and have credits transferred to the University of Guelph must receive permission in advance by completing the Letter of Permission request form. Students are required to maintain their University of Guelph registration while taking a course on Letter of Permission. Students are responsible for making the necessary arrangements for admission to the host university and for any fees payable. For more information, please see the Office of Graduate Studies website.

## Ontario Visiting Graduate Students

The Ontario Visiting Graduate Student (OVGS) program allows a graduate student of an Ontario university (Home University) to take graduate courses at another Ontario University (Host University) while remaining enrolled at his/her own university. The plan allows the student to bypass the usual application for admission procedures and resultant transfer of credit difficulties. The student enrolls and pays fees to his/her Home University and is classed as an "Ontario Visiting Graduate Student" at the Host University where he/she pays no fees. For more information, please see the Office of Graduate Studies website.

## University Teaching: Theory and Practice

Formal recognition on the graduate transcript is accorded to graduate students who successfully complete the course University Teaching: Theory and Practice. This program provides an opportunity to examine teaching and learning issues and to develop teaching skills appropriate to higher education. During the program, participants address the following topics: life as an academic, the characteristics of effective university teaching, students' learning styles, teaching options in class/laboratory/seminar settings, planning a class/course/curriculum, and helping students become effective problem-solvers.

### Admission

All registered graduate students are eligible for admission. Priority may be given to students nearing the end of their degree programs if restricted enrolment is necessary. Interested students should contact Teaching Support Services, which administers the program.

### Format

The program normally consists of twelve three-hour sessions weekly during the Fall semester. Students wishing credit for the program register in the Fall for the course below. Students who do not wish to complete the course must formally drop the course by the 5th class day.

#### UNIV\*6800 University Teaching: Theory and Practice F [0.50]

Participants will critically examine aspects of teaching in higher education and develop teaching skills such as lecturing, demonstrating, leading discussions, and problem solving. Satisfactory (SAT) or unsatisfactory (UNS) will be used to evaluate the student's performance in this course.

*Department(s):* Office of Graduate Studies

### Credit

A grade of SAT is based on completion of the following:

1. Teaching Philosophy Statements and Reflective Report
2. Reflective Learning Journal and Reflective Report
3. 2nd Semester Session Planning/Implementation and Report
4. Self-Directed Assignment

## VI. Procedures

Includes university-wide procedures on the scheduling of graduate courses.

### Scheduling

#### Graduate Course Timetable

The scheduling of all graduate courses is the responsibility of the ORS Scheduling Services.

The scheduling cycle for each Fall and Winter semester commences approximately one year in advance. Since returning students select Summer courses in March, at the same time they select Fall courses, the Summer scheduling cycle is contemporaneous with the Fall cycle. Course scheduling request data is due in Scheduling for Summer and Fall semesters at the end of the preceding September, for Winter semesters at the end of the preceding March; specific dates to be established in Scheduling each year. The official timetable for each semester is published on WebAdvisor two weeks prior to the commencement of the initial Course Selection period for that semester (for Summer and Fall in mid-February, for Winter in mid-September.)

All courses are scheduled according to the Senate approved slot system which allows for 3 x 1 hour slots meeting at the same time on Monday, Wednesday and Friday, 2 x 1.5 hour slots meeting at the same time on Tuesday and Thursday and 3-hour evening slots M-F. This basic grid is overlaid with 1x 3 hour slots and slots for other approved class formats (e.g. 1 x 4 hr) in such a way as to minimize course conflicts and maximize efficient use of teaching space. Courses may also be published with time "TBA". In these cases it is the responsibility of the department/school to communicate first meeting information to registered students prior to the commencement of classes. Prior to the commencement of classes, regular class meeting times may not be assigned to classes published as "TBA". If a department/school wishes to assign times for regular class meetings after the commencement of classes, registered and (within the Add period) interested students must be consulted. The times selected for regular class meetings must be unanimously supported by students in a secret ballot, and comply with all scheduling regulations.

The University scheduling day runs from 0830-1730 and 1900-2200; Senate has approved the 1730-1900 "University Time" as a period which shall be free of all regular class meetings, labs, and seminars.

#### Chair/Director's Responsibilities

The Chair/Director or the designated Department/School Timetable Coordinator is responsible for the following:

1. Submitting to Scheduling Services, no later than the established deadline, and as per Scheduling instructions, complete requests for courses to be offered in the subsequent academic year.
2. Acting as liaison between instructors and Scheduling on all aspects of scheduling, including collecting information relevant to course scheduling from instructors, submitting it appropriately.
3. Ensuring all courses are offered in the semester and format indicated in the Graduate Calendar, Section VIII.
4. Approving the department's course schedule before publication. This involves checking that no conflicts exist in instructor or program schedules.
5. Calculating projected enrollments for the subsequent academic year and monitoring enrollments through course selection periods, making adjustments to course capacities and the availability of sections as necessary.
6. Advising Scheduling immediately of changes to instructor assignments. Where late instructor assignments are necessary, assigning instructors in such a way as to avoid conflicts.

#### Instructor's Responsibilities

1. Instructors are responsible for communicating to the Chair/Director or Department Timetable Coordinator, prior to the deadlines established within their department/school, any information relevant to the scheduling of courses in the subsequent academic year.
2. Instructors are expected to familiarize themselves with rooms assigned to their courses in advance of the commencement of classes.

#### Registrar's Responsibilities

Scheduling Services, taking into account requests from academic units for preferred class times, creates the university timetable according to the following priorities:

- i. No instructor conflicts exist.
- ii. Classroom space is allocated to courses on the basis of projected enrollments provided by the offering departments, and in such a way as to maximize the effective and efficient use of teaching space.
- iii. Departmental requirements, requested by the Chair/Director or Department Timetable Coordinator, are met where possible.

## Changes to the Published Graduate Course Timetable

### Additional Hours/Sections

If it becomes necessary to schedule additional sections by adding lectures/labs/seminars based on course selection numbers, the request for scheduling is to be initiated by the Chair/Director or Department Timetable Coordinator and made to Scheduling Services.

### Cancellations and Time Changes

Once the course timetable has been published on WebAdvisor, requests for changes to class meeting times cannot be processed except in emergency circumstances and as approved by the Office of the Assistant Vice-President (Graduate Studies)/Designate. To obtain the approval of the Assistant Vice-President (Graduate Studies)/Designate in such circumstances, to change a class meeting time or to cancel a course, the Chair/Director should write via electronic mail, providing reasons for the request, to the Assistant Vice-President (Graduate Studies)/Designate, the College Dean, and the Assistant Registrar, Scheduling. After the commencement of Course Selection, the Chair/Director is responsible for ensuring that students are not disadvantaged by any changes. This involves choosing alternate times that are conflict-free for all registered students, and communicating via electronic mail to all students the details of any change affecting their schedules.

- Time changes after the publication of the timetable, prior to the commencement of classes. Changes in scheduled meeting times are approved only in emergency circumstances (see above).
- Time changes after the commencement of classes. After the commencement of classes, changes to scheduled meeting times are permitted. Changes may be initiated by the instructor with his/her class, but are normally not made until after the end of the Course Selection/Add period unless the change is to accommodate students who would otherwise be unable to register in the course. Time changes made after the commencement of classes must not create conflicts for any registered students and must have the unanimous written approval of all registered students as determined by a secret ballot. New times must comply with University scheduling regulations and the academic unit offering the course should keep a record of student approval on file. Once approval is obtained, a request for the time change and new room assignment should be submitted by the Chair/Director or Department Timetable Coordinator to Scheduling Services, O.R.S. so that the time and room can be updated on WebAdvisor. The instructor is responsible for ensuring that all registered students can attend during the new meeting times and for informing students of new times and room assignments.

### Classroom Assignments

Scheduling Services is responsible for the assignment of all central inventory classrooms and reassigns rooms as necessary. The assignment of classroom space to regularly scheduled Undergraduate, Graduate and Diploma courses takes priority over all other classroom uses. Until the main Course Selection periods have concluded and space has been allocated to regularly scheduled classes, classroom space is not assigned within the semester for any other purpose.

### Classroom Assignments for Regularly Scheduled Courses

Scheduling Services assigns classrooms for regularly scheduled classes in such a way as to maximize the accommodation of enrollment numbers, access to presentation technology and other classroom attributes as requested by the offering department, accommodation of instructor or student disability, and the effective and efficient use of the central classroom inventory.

The Chair/Director or Department Timetable Coordinator should send requests for the assignment of alternate teaching space to Scheduling as required by changing enrollment numbers. Scheduling reassigns classroom space as necessary and as availability permits. Course enrollment must not exceed the capacity of rooms assigned to courses. Until additional classroom space can be assigned, additional students are not registered. (In special circumstances, approval may be granted by the Assistant Registrar, Scheduling for small classroom overloads as part of an overall enrollment management strategy.)

Instructors requesting classroom changes for other reasons should forward their request through their Chair/Director or Department Timetable Coordinator to Scheduling Services via electronic mail. Note that to ensure that highest priority needs are met first, and to reduce confusion on campus at the beginning of the semester, Scheduling cannot accommodate requests for classroom changes in the week preceding the commencement of classes or the first two weeks of classes. Exceptions are made for 1) enrollment changes 2) student/instructor disability 3) exceptional circumstances as approved by the Assistant Registrar, Scheduling. Requests made for other reasons will be neither accepted nor accommodated during this three-week period.

If classroom space assigned to a course is not required, instructors should inform their Chair/Director or Department Timetable Coordinator, as soon as possible so that Scheduling can be advised to free the space for other uses.

If rooms are required only occasionally for classes, they should not be held for full semesters, rather one-time or temporary bookings should be made through the Scheduling Reservations Clerk, as below.

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**Other Classroom Bookings**

For non-regularly scheduled classes, meetings, academic conferences, tests, etc. classroom bookings may be made through the Scheduling Reservations Clerk by University of Guelph faculty, staff and students. Please send requests by electronic mail to [classroomreservations@registrar.uoguelph.ca](mailto:classroomreservations@registrar.uoguelph.ca).

## VII. University Courses

### Courses

University courses are designed for students from different fields and disciplines to engage in course work that is not discipline based.

#### UNIV\*6000 The Structure and Function of Muscle U [0.50]

An interdisciplinary course covering basic aspects of muscle from a range of viewpoints: structure, metabolism, protein content, energetics, mechanics, biological adaptations, growth and development. The course is designed for graduate students from a wide range of specific disciplines and will provide a broad background to muscle biology as well as more detailed insights into specific aspects of each area covered.

*Department(s):* Office of Graduate Studies

#### UNIV\*6010 Regulation in Muscle Metabolism U [0.50]

An interdisciplinary course emphasizing the regulation of muscle metabolism in vivo. The course focuses on the integration of metabolic fuel utilization to meet cellular energy demands under a variety of conditions in the whole animal. Topics include: sources of energy demand, integration of energy supply to meet energy demands, and regulation of cell growth, maintenance and adaptation.

*Department(s):* Office of Graduate Studies

#### UNIV\*6030 Seminars and Analysis in Animal Behaviour and Welfare F-W [0.50]

This seminar-based course offers an interdisciplinary forum for the discussion of broad topics in animal welfare and human-animal relationships. Students analyze topics presented by visiting guest lecturers using perspectives from various disciplines such as animal science, philosophy, history, psychology, ethics, and biology.

*Department(s):* Office of Graduate Studies

#### UNIV\*6040 Selected Topics in Critical Studies in Improvisation S [0.50]

Intended for students who have an interest in musical improvisation, this interdisciplinary course provides a forum to investigate the possibility of improvised artistic practices to inform community-building models and to shape public debate and policy decisions regarding the role of the arts in society.

*Department(s):* Office of Graduate Studies

#### UNIV\*6050 The Integration of Science and Business in Agrifood Systems F-W [1.00]

Designed specifically for students enrolled in OMAFRA/UoG HQP Scholarship program but open to all students. To provide market-readiness for students as they enter business, government or academia. Teaching modules will cover business developments, intellectual property, patent and licence protection as well as societal issues impacting agriculture.

*Restriction(s):* Limited of 36 students. Priority to HQP Scholarship Program students

*Department(s):* Office of Graduate Studies

#### UNIV\*6060 Mechanisms of Tissue and Cellular Mechanotransduction in Health and Disease F [0.50]

This course explores fundamental mechanisms and signalling pathways that dynamically regulate cell and tissues responses to physical forces in health and disease. It is relevant to a wide range of areas of study, from biomechanics and tissue engineering to gastro-intestinal health, food and nutrition.

*Restriction(s):* Instructor consent required.

*Department(s):* Office of Graduate Studies

#### UNIV\*6500 International Study Option U [0.00]

A period of study in another country as part of a graduate program at the University of Guelph. Details may be obtained from the Office of Graduate and Postdoctoral Studies.

*Department(s):* Office of Graduate Studies

#### UNIV\*6600 Animal Care Short Course S,F,W [0.00]

The course includes on-line training modules covering the following topics: Legislation, Regulation & Guidelines, Ethological Considerations in Animal Management, Ethics in Animal Experimentation, Research Issues, The Three Rs of Humane Animal Experimentation, Occupational Health and Safety when Working with Animals, Euthanasia, Recognition and Alleviation of Pain and Distress in Animals. Graduate students using or caring for live animals or assisting in teaching courses involving live vertebrate animals also must attend the Animal Care Services species-specific Workshops as part of the Animal User Training Program.

*Department(s):* Office of Graduate Studies

#### UNIV\*6710 Commercialization of Innovation F [0.50]

This course is designed to help participants better understand the process, the analytical tools that can assist the process and how best to prepare technologies to survive commercialization. The course includes elements of entrepreneurship, relationship building, organizational change, as well as project and personnel management.

*Department(s):* Department of Management

#### UNIV\*6800 University Teaching: Theory and Practice F [0.50]

Participants will critically examine aspects of teaching in higher education and develop teaching skills such as lecturing, demonstrating, leading discussions, and problem solving. Satisfactory (SAT) or unsatisfactory (UNS) will be used to evaluate the student's performance in this course.

*Department(s):* Office of Graduate Studies

#### UNIV\*7100 Academic Integrity for Graduate Students S,F,W [0.00]

Academic integrity is a code of ethics for teachers, students, researchers, and writers. It is fundamental to the University of Guelph's educational mission and to ensuring the value of the scholarly work conducted here. This course provides definitions, examples, and exercises to help graduate students understand the importance of academic integrity and learn how to avoid academic misconduct in their own work. This course required of all graduate students has to be completed within 20 days of commencing their graduate program.

*Department(s):* Office of Graduate Studies

## VIII. Fees

### University Academic Fees

#### Tuition Fees

Tuition fees for full-time part-time or special (non-degree) students may be found at the Student Financial Services website at <http://www.uoguelph.ca/registrar/studentfinance/index.cfm?fees/index>

#### Changes to Fee Assessment

International students who are studying on study permits and whose immigration status changes, or those who may be eligible for the regular tuition fees but are charged the international student tuition rates, must present acceptable official documentation to the Office of Graduate Studies. To effect a change of fees in a particular semester, the documentation must be presented not later than the last working day prior to June 30 (Summer semester), November 1 (Fall semester), or February 1 (Winter semester).

#### Senior Citizens

Senior citizens, who are Canadian Citizens or Permanent Residents, are aged 65 years and over as of the first day of the month in which a semester commences, and who are admitted for registration, will be exempt from paying domestic tuition, student organization and other fees. Course material fees may apply for some courses

#### Other Academic Fees

A complete listing of these fees may be found under Miscellaneous Fees at the Student Financial Services website at <http://www.uoguelph.ca/registrar/studentfinance/index.cfm?gr/index>

### University Non-Academic Fees

Required only of full-time graduate students, unless otherwise indicated. Full-time students living more than 200 km. from Guelph who apply for "full-time distant" status may be exempted from some of these fees. See the Office of Graduate Studies for details. A complete listing of university non-academic fees may be found at the Student Financial Services website at <http://www.uoguelph.ca/registrar/studentfinance/index.cfm?fees/index>

### Student Organization Fees

The Constitution of the University of Guelph Graduate Students' Association provides (Art. III, Sec. 1.) for all graduate students of the University of Guelph to be Members of the Association. These fees are collected as a service to the Association and may be found at the Student Financial Services website at <http://www.uoguelph.ca/registrar/studentfinance/index.cfm?fees/index>

### Payment of Fees

The fees for a semester are due and payable as indicated on the financial statement issued/posted by Student Financial Services for that semester.

Tentative registration may be granted to students who make arrangements with Student Financial Services for the deferred payment of their university accounts. Students who are expecting to use OSAP funds to pay their semester account are advised to apply for this assistance at least eight weeks in advance of the first day of semester so that the funds will be here by the beginning of the semester. Students wishing a deferral of fees based on anticipated OSAP must receive approval from Student Financial Services.

Please note that Student Financial Services will apply all internal awards against outstanding balances on student's accounts unless prior arrangements have been made.

#### Cohort Year

Cohort year refers to the academic calendar year for your first admission to the university OR the calendar year for subsequent readmission to the same program or a new program. Tuition fees are assessed based on this assigned year.

#### Account Deferment Fee

If a deferral of fees is granted, the student will be assessed an account deferment fee of \$60.00

#### Academic Sanction

An academic sanction may be applied to students who have not made payment, or suitable arrangements for payment, of their university accounts. Such sanction may involve one or more of:

1. withholding of semester course standings and reports,
2. withholding of transcripts,
3. withholding of degree or diploma,
4. denial or cancellation of registration for a subsequent semester.

### Refund of Fees

Upon the authorization of the Assistant Vice-President (Graduate Studies) a graduate student who withdraws from the university may be eligible for a refund of part of the fees, to be effective as of the date upon which the withdrawal notice is received in the Office of Graduate Studies. Outstanding Library fines and charges are deducted from the calculated refund.

If the withdrawal results in a credit balance in your fees account, i.e. payments are greater than charges, a refund cheque is produced. Allow approximately four weeks before refunds are available from Student Financial Services. **The University has been directed by the Ministry of Advanced Education and Skills Development to return refunds to the National Student Loan Centre in instances where assistance was received through a Government Student Loan.**

Refunds of tuition fees

Class days	Rate
1 - 5 inclusive	100%
6 - 10 inclusive	75%
11 - 15 inclusive	65%
16 - 20 inclusive	50%
21 - 25 inclusive	35%
26 - 30 inclusive	20%
31 and beyond	nil

Refunds of University Non-Academic fees and Student Organization fees (except Bus Pass, medical insurance premium and dental insurance premium) will be made in full up to and including the 15th class day of a semester. No refund of University Non-Academic fees and Student Organization fees will be made after the 15th class day. Room charges will be refunded on a pro rata basis for the period in residence, but cancellation of the residence contract will also result in forfeiture of all or part of the residence deposit. Refer to the Residence Contract Terms and Conditions for further information.

### Early Completion Rebate

In certain circumstances, those students who complete the requirements for their degree programs early in a given semester may apply for a partial rebate of tuition fees paid for that semester. The rebate is pro-rated according to the date of final completion (see refund schedule, above). For more information regarding this option, contact the Office of Graduate Studies. In order to qualify for the rebate, the student must have been registered in the immediate preceding semester.

## IX. Graduate Programs

This is where you'll find academic information on our graduate programs, including program-specific admission and degree regulations, course offerings and a listing of the faculty.

### Degree Programs listed by College

#### College of Arts

- Art History and Visual Culture
- Creative Writing
- English
- European Studies
- French
- History - Tri-University Program
- Latin American and Caribbean Studies
- Philosophy
- Literary Studies/Theatre Studies in English
- Studio Art
- Theatre Studies

#### College of Biological Science

- Human Health and Nutritional Sciences
- Integrative Biology
- Molecular and Cellular Biology

#### College of Business and Economics

- Business Administration
  - Food and Agribusiness Management
  - Hospitality and Tourism
  - Sustainable Commerce
- Economics
- Leadership
- Management
- Marketing and Consumer Studies
- Tourism and Hospitality

#### College of Engineering and Physical Science

- Chemistry
- Computational Sciences
- Computer Science
- Engineering
- Mathematics and Statistics
- Physics

#### College of Social and Applied Human Sciences

- Criminology and Criminal Justice Policy
- Family Relations and Applied Nutrition
- Geography
- Political Science
- Psychology
- Public Issues Anthropology
- Sociology

#### Ontario Agricultural College

- Animal Biosciences
- Capacity Development and Extension
- Environmental Sciences
- Food, Agricultural and Resource Economics
- Food Science
- Landscape Architecture
- Plant Agriculture
- Rural Planning and Development
- Rural Studies

#### Ontario Veterinary College

- Biomedical Sciences
- Clinical Studies
- Pathobiology
- Population Medicine
- Public Health
- Veterinary Science

### Interdepartmental Programs

Interdepartmental programs involve faculty members across departments.

- Bioinformatics
- Biophysics
- Biotechnology
- Food Safety and Quality Assurance

### Degree Programs listed by Division

#### Human and Animal Sciences

- Animal Biosciences
- Biomedical Sciences
- Biophysics
- Clinical Studies
- Environmental Sciences
- Family Relations and Applied Nutrition
- Food Science
- Food Safety and Quality Assurance
- Human Health and Nutritional Sciences
- Molecular and Cellular Biology
- Pathobiology
- Population Medicine
- Psychology
- Public Health

#### Humanities

- Art History and Visual Culture
- Creative Writing
- English
- European Studies
- French
- History - Tri-University Program
- Latin American and Caribbean Studies
- Philosophy
- Literary Studies/Theatre Studies in English
- Studio Art
- Theatre Studies

#### Physical and Engineering Sciences

- Bioinformatics
- Biophysics
- Chemistry
- Computational Sciences
- Computer Science
- Engineering
- Environmental Sciences
- Geography
- Mathematics and Statistics
- Physics

#### Plant Sciences

- Environmental Sciences
- Integrative Biology
- Molecular and Cellular Biology
- Plant Agriculture

#### Social Sciences

- Business Administration
- Capacity Development and Extension
- Criminology and Criminal Justice Policy
- Economics
- Family Relations and Applied Nutrition
- Food, Agricultural and Resource Economics
- Geography
- Landscape Architecture
- Leadership



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Marketing and Consumer Studies  
Political Science  
Psychology  
Public Issues Anthropology  
Sociology  
Rural Planning and Development  
Rural Studies  
Tourism and Hospitality

## Animal Biosciences

In addition to a core group of faculty members the Department of Animal Biosciences works closely with professionals from the Ontario Ministry of Agriculture and Food (OMAF), Agriculture and Agri-Food Canada (AAFC), and other affiliated organizations. The graduate program encompasses MSc by course-work, MSc by thesis, and PhD options in four main fields:

- **Animal Breeding and Genetics** (quantitative or molecular)
- **Animal Nutrition** (monogastric or ruminant)
- **Animal Physiology** (environmental and reproductive)
- **Animal Behaviour and Welfare**

### Administrative Staff

#### Chair

James Squires (223 ANNU, Ext. 53928)  
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#### Graduate Program Coordinator

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#### Graduate Program Assistant

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### Graduate Faculty

\*Please see the Department's webpage at [www.aps.uoguelph.ca](http://www.aps.uoguelph.ca) for an updated listing of faculty.

#### Christine Baes

BSc Guelph, MSc Hohenheim, PhD Christina-Albrechts - Assistant Professor

#### Gregory Bedecarrats

Licence de Biochimie, MSc, Dipl. Rennes (France), PhD McGill - Associate Professor

#### Dominique P. Bureau

BSc (Agr), MSc Laval, PhD Guelph - Professor

#### Angela Canovas

BSc Lledia, MSc Valencia, PhD Lledia - Assistant Professor

#### John P. Cant

BSc (Agr) Nova Scotia, MS, PhD California - Professor

#### Abigail Carpenter

BS Michigan, MS Minnesota, PhD Kansas State - Assistant Professor

#### Trevor Devries

BSc, PhD British Columbia - Associate Professor

#### Ming Z. Fan

BS Xinjiang, MS Harbin, PhD Alberta - Professor

#### Alexandra Harlander

DVM, DVSC Vienna, Ph.D. Germany - Assistant Professor

#### Lee-Anne Huber

BSc, MSc, PhD Guelph - Assistant Professor

#### Niel A. Karrow

BSc Guelph, MSc, PhD Waterloo - Associate Professor

#### Elijah Kiarie

BSc, MSc Nairobi, PhD Manitoba - Assistant Professor

#### Julang Li

MSc Changchun Veterinary College (China), PhD Ottawa - Professor

#### Ira B. Mandell

BS, MS Ohio State, PhD Saskatchewan - Associate Professor

#### Georgia Mason

BA, PhD Cambridge - Professor

#### Katrina Merkies

BSc, PhD Guelph - Associate Professor

#### Richard D. Moccia

BSc, MSc Guelph - Professor

#### Vern R. Osborne

BSc, MSc, PhD Guelph - Associate Professor

#### Wendy Pearson

BSc, MSc, PhD Guelph - Assistant Professor

#### Eduardo Ribeiro

DVM Santa Catarina State, MSc, PhD Florida - Assistant Professor

#### J. Andrew B. Robinson

BSc (Agr), MSc Guelph, PhD Cornell - Associate Professor

#### Flavio S. Schenkel

BBA, BSc, and MSc Brazil, PhD Guelph - Professor

#### Anna Kate Shoveller

BSc Guelph, PhD Alberta - Assistant Professor

#### E. James Squires

BSc, MSc, PhD Memorial - Professor and Interim Chair

#### Michael Steele

BSc, MSc, PhD Guelph - Assistant Professor

#### Dan Tulpan

BSc Burcharest, PhD British Columbia - Assistant Professor

#### Tina M. Widowski

BS, MS, PhD Illinois - Professor

#### Katie Wood

BSc, MSc, PhD Guelph - Assistant Professor

### MSc Program

The MSc program involves advanced courses and the completion of a research project. These are means of developing the skills and intellectual curiosity that may further qualify the student for a leadership role within animal organizations and industries or serve as a prerequisite for doctoral studies. The MSc degree may be completed via two routes: by thesis or by coursework and major paper. The MSc by coursework and major paper is offered in four areas of specialization: 1) animal breeding and genetics, 2) animal nutrition, 3) animal behaviour and welfare and 4) animal physiology.

### Admission Requirements

An honours baccalaureate, with a minimum average grade of 'B' during the last 2 years of full-time equivalent study. For Canadian degrees, we interpret this as the last 20 semester courses, however we do not split a semester and we will not consider any fewer than 16 courses.

### Degree Requirements

Students enrol in one of two study options: 1) thesis, or 2) course work and major research paper.

#### Thesis

Candidates for the thesis-based MSc degree must successfully complete a prescribed series of courses, conduct a research project, prepare a thesis based on their results and defend this in a final examination. The number of course credits required in this option will be decided by the student's advisory committee in consultation with the student, and may exceed the minimum 1.5 credits required by the Faculty of Graduate Studies. Generally, 4 or 5 courses (1.5-2.0 credits) will be taken, including the mandatory Seminar course, ANSC\*6600 and ANSC\*6610 (0.25 credits each).

### Course Work and Major Research Paper (MRP)

Candidates for the MSc degree by course work and major paper option must complete a minimum of 4.0 credits (7 courses). Of these courses, one will be the Major Paper in Animal and Poultry Science, ANSC\*6900 (1.0 credit). The major paper will be a detailed, critical review of an area of study related to the specialization chosen by the student and should include analyses and interpretations of relevant data.

At the beginning of the program, the student and student's advisory committee will design the coursework program according to the program guidelines and the aspirations and background of the student. Students will normally choose a minimum of 4 courses in the area of specialization, and a minimum of two courses outside the area of specialization. These latter courses can be offered by departments other than Animal Biosciences.

A maximum of one approved senior-level undergraduate course can be included in the list of prescribed courses. Recommended graduate courses in the three areas of specialization are as follows:

#### Animal Breeding and Genetics

ANSC*6900	[1.00]	Major Paper in Animal and Poultry Science
ANSC*6210	[0.50]	Principles of Selection in Animal Breeding
ANSC*6370	[0.50]	Quantitative Genetics and Animal Models
ANSC*6390	[0.50]	QTL and Markers
ANSC*6450	[0.50]	Topics in Animal Biotechnology

#### Animal Nutrition and Metabolism

ANSC*6900	[1.00]	Major Paper in Animal and Poultry Science
ANSC*6010	[0.50]	Topics in Comparative Animal Nutrition
ANSC*6030	[0.50]	Modelling Metabolic Processes
ANSC*6360	[0.50]	Techniques in Animal Nutrition Research
ANSC*6450	[0.50]	Topics in Animal Biotechnology
ANSC*6460	[0.50]	Lactation Biology
ANSC*6470	[0.50]	Advanced Animal Nutrition and Metabolism I
ANSC*6480	[0.50]	Advanced Animal Nutrition and Metabolism II

#### Animal Behaviour and Welfare

ANSC*6900	[1.00]	Major Paper in Animal and Poultry Science
ANSC*6440	[0.50]	Advanced Critical Analysis in Applied Ethology
ANSC*6700	[0.50]	Animals in Society: Historical and Global Perspectives on Animal Welfare
ANSC*6710	[0.50]	Assessing Animal Welfare in Practice
ANSC*6720	[0.50]	Scientific Assessment of Affective States in Animals
ANSC*6730	[0.50]	Applied Environmental Physiology and Animal Housing
ANSC*6740	[0.50]	Special Topics in Applied Animal Welfare Science

UNIV\*6030 [0.50] Seminars and Analysis in Animal Behaviour and Welfare  
The MSc by course work and major paper degree will require a minimum of three semesters of full-time study (or the equivalent).

## PhD Program

The PhD program is research oriented and provides instruction and experiences that develop the student's ability to independently formulate hypotheses and design and execute experiments or conduct observational studies to reach definitive conclusions.

## Admission Requirements

Students entering a PhD program should show potential for independent, productive, and original research. A PhD program can be entered by three routes: following completion of an MSc program; following transfer prior to completion of an MSc program; and directly from a bachelor degree.

In general, a minimum average grade of 'B' for a completed MSc program plus strong letters of reference are required. Students wishing to be considered for transfer to a PhD program prior to completion of the MSc program must request the transfer before the end of the fourth semester and have an excellent academic record as well as a strong aptitude for research.

Direct admission to the PhD program may be permitted for applicants who hold a bachelor's degree and have an excellent academic history and strong indications of research potential.

## Degree Requirements

Satisfactory completion of a PhD program requires a comprehensive knowledge of the area of emphasis and the ability to conduct original research in this area, plus a sound general background in two related areas of study. This competence is demonstrated in a qualifying examination and through the design and execution of a substantial and original research project. Based on this research, a thesis is prepared and defended in a final examination.

The number of courses required for a PhD program will be decided by the student's advisory committee in consultation with the student. The minimum requirement is ANSC\*6620 and ANSC\*6630.

## Collaborative Specializations

### Neuroscience

The Department of Animal Biosciences participates in the MA/MSc/PhD collaborative specialization in neuroscience. Please consult the Neuroscience listing for a detailed description of the MA/MSc/PhD collaborative specialization.

### Toxicology

The Department of Animal Biosciences participates in the MSc/PhD collaborative specialization in toxicology. The research and teaching expertise of these faculty include aspects of toxicology; they may serve as advisors for MSc and PhD students in Toxicology. Students choosing this option must meet the requirements of the Toxicology collaborative specialization, as well as those of their home department. Please consult the Toxicology listing for a detailed description of the MSc/PhD collaborative specialization.

## Courses

Although the courses offered are listed by field, several are relevant to more than one field. Some courses are only offered when there is a certain minimum enrolment.

## Animal Breeding and Genetics

<b>ANSC*6210 Principles of Selection in Animal Breeding W [0.50]</b>
Definition of selection goals, prediction of genetic progress and breeding values, and the comparison of selection programs. <i>Department(s):</i> Department of Animal Biosciences
<b>ANSC*6240 Topics in Animal Genetics and Genomics U [0.50]</b>
Current literature and classical papers pertaining to quantitative genetics, animal breeding and animal genomics are reviewed in detail through presentation, discussion and critical analysis. <i>Department(s):</i> Department of Animal Biosciences
<b>ANSC*6370 Quantitative Genetics and Animal Models F [0.50]</b>
The course covers quantitative genetics theory associated with animal models; linear models applied to genetic evaluation of animals; estimation of genetic parameters for animal models; and computing algorithms for large datasets. <i>Department(s):</i> Department of Animal Biosciences
<b>ANSC*6390 QTL and Markers W [0.50]</b>
Advanced training in QTL mapping and selection assisted by genetic markers. <i>Department(s):</i> Department of Animal Biosciences

<b>ANSC*6450 Topics in Animal Biotechnology F [0.50]</b>
The course will explore current methods and recent advances of biotechnology, innovation, and emerging translational products of significance to animal production and human health. <i>Prerequisite(s):</i> MCB*2050 / MBG*2040 / ANSC*4050 or equivalent <i>Department(s):</i> Department of Animal Biosciences

## Animal Nutrition

<b>ANSC*6010 Topics in Comparative Animal Nutrition U [0.50]</b>
Current topics in the feeding and nutrition of agricultural, companion and captive animal species. Emphasis is placed on the influence of nutrients on metabolic integration at tissue, organ and whole-animal levels. A nutritional case study will be conducted to allow students to solve practical feeding problems by applying basic nutritional principles. The course is offered every other year on even years. <i>Department(s):</i> Department of Animal Biosciences
<b>ANSC*6030 Modelling Metabolic Processes F [0.50]</b>
Building and testing of mathematical models of metabolic processes using continuous simulation software to assist in weekly assignments. Choice of model based on students' research interests (e.g. protein synthesis, nutrient uptake, rumen fermentation). Term project to reproduce model from scientific knowledge. <i>Department(s):</i> Department of Animal Biosciences
<b>ANSC*6360 Techniques in Animal Nutrition Research W [0.50]</b>
Theory and/or practices of techniques to evaluate feedstuffs and determine nutrient utilization in poultry, swine and ruminants is covered through lectures, short laboratories and a major project. <i>Department(s):</i> Department of Animal Biosciences
<b>ANSC*6470 Advanced Animal Nutrition and Metabolism I F [0.50]</b>
A systematic review of key aspects of energy, protein, amino acid and carbohydrate utilization and metabolism in farm animals. <i>Department(s):</i> Department of Animal Biosciences
<b>ANSC*6480 Advanced Animal Nutrition and Metabolism II W [0.50]</b>
A systematic review of key aspects of lipid, vitamin and mineral utilization and metabolism in farm animals. <i>Department(s):</i> Department of Animal Biosciences

## Animal Physiology

<b>ANSC*6400 Mammalian Reproduction W [0.50]</b>
Discussions and applications of methodology for collection and examination of gametes and embryos and for measurements of hormones in biological fluids. <i>Offering(s):</i> Offered in odd-numbered years. <i>Department(s):</i> Department of Animal Biosciences
<b>ANSC*6460 Lactation Biology F [0.50]</b>
An in-depth systems analysis of lactation, comparing the cow, pig, rat, human and seal. Mammary development from conception through to lactogenesis, lactation and involution will be covered. Hypotheses of regulation of the biochemical pathways of milk synthesis will be tested in relation to experimental observations. <i>Department(s):</i> Department of Animal Biosciences
<b>ANSC*6250 Growth and Metabolism W [0.50]</b>
Animal growth and metabolism are considered at the cellular level in a manner that extends beyond the basic disciplines of biometrics and biochemistry with attention focused on the main carcass components — muscle, fat and bone. <i>Department(s):</i> Department of Animal Biosciences

## Animal Behaviour and Welfare

<b>ANSC*6440 Advanced Critical Analysis in Applied Ethology F [0.50]</b>
Students explore the process of scientific inquiry and experimental design within the context of applied ethology research. Discussions include the peer review process, critical analyses and applications of methods for applied animal behaviour research. <i>Department(s):</i> Department of Animal Biosciences
<b>ANSC*6700 Animals in Society: Historical and Global Perspectives on Animal Welfare F [0.50]</b>
A seminar course covering society's duties to animals. Students will learn about the major ethical theories that deal with society's duties towards animals, the main scientific approaches to animal welfare, and the relationship of science to ethics. A brief history of human-animal relationships will be covered and cultural differences described. Students will use this to analyze some current issues. <i>Department(s):</i> Department of Animal Biosciences

**ANSC\*6710 Assessing Animal Welfare in Practice W [0.50]**

A lecture/seminar course covering the principles of applied animal welfare assessment. Students will learn what influences an animal welfare assessment and will understand the components necessary to create an effective and targeted animal welfare program for industry or regulatory application.

*Offering(s):* Winter offering on-campus, Summer offering Distance Education.

*Prerequisite(s):* ANSC\*6700

*Department(s):* Department of Animal Biosciences

**ANSC\*6730 Applied Environmental Physiology and Animal Housing W [0.50]**

A lecture/seminar course covering the principles of applied environmental physiology including temperature regulation, space requirements, animal responses to light and other aspects of the physical environment. Students pursue a topic in depth to develop or update recommended codes of practice and resource-based standards.

*Department(s):* Department of Animal Biosciences

**ANSC\*6720 Scientific Assessment of Affective States in Animals W [0.50]**

Graduate students will explore the biology and validity of behavioural and physiological techniques used in animal welfare assessment such as: sympathetic activation, HPA functioning, stereotypic behaviour and preference responses. A combination of lecture, instructor-led discussion and student-led discussion will explore these methods of animal welfare assessment.

*Department(s):* Department of Animal Biosciences

**ANSC\*6740 Special Topics in Applied Animal Welfare Science S [0.50]**

A lecture/seminar course covering in depth topics in applied animal welfare science. The course will review the scientific research into the welfare of a specific animal species or a specific animal welfare problem common across species, focusing on the main threats to welfare, relevant indicators of welfare, and possible solutions to improve welfare.

*Department(s):* Department of Animal Biosciences

UNIV\*6030 [0.50] Seminars and Analysis in Animal Behaviour and Welfare

**General****ANSC\*6050 Biometry for Animal Sciences W [0.50]**

For students involved in animal research. The course will provide outlines of appropriate presentation and analysis of experimental data with emphasis on different analytical techniques.

*Department(s):* Department of Animal Biosciences

**ANSC\*6100 Special Project F,W,S [0.50]**

Supervised program of study in some aspect of animal and poultry science that can involve an experimental project and/or detailed analysis of the literature.

*Department(s):* Department of Animal Biosciences

**ANSC\*6490 Advanced Dairy Management W [0.50]**

A comprehensive systems science and integrative capstone course that encompasses the “closing of the loop” education of dairy production systems. Students will be exposed to real-time issues relating to dairy production from, environment, economics, nutrition, housing, health, welfare, society and agrology. This course will allow the student to practice their training from the courses they have been exposed to as undergraduates into many case study evaluations on farms provincially, nationally and internationally.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Animal Biosciences

**ANSC\*6600 Scientific Communication I F,W [0.25]**

This course is required for completion of a thesis-based MSc degree. Via, reading, guest lectures, online modules and in-class discussion, students will learn about the principles of effective communication, and with training and feedback create a departmental webpage and oral presentation outlining their research plans.

*Restriction(s):* Restricted to Animal Biosciences students.

*Department(s):* Department of Animal Biosciences

**ANSC\*6610 Thesis Proposal and Professional Development I F,W [0.25]**

This course is required for successful completion of an MSc thesis degree. With guidance and instruction, students complete a research proposal, or a literature review for their thesis. Students will also spend 8 hours on professional development (e.g. via mygradskills.ca, MITAC Step workshops).

*Restriction(s):* Restricted to Animal Biosciences students.

*Department(s):* Department of Animal Biosciences

**ANSC\*6620 Scientific Communication II F,W [0.00]**

This course is required for successful completion of a PhD degree. Via reading, guest lectures, online modules and in-class discussion, students will learn about the principles of effective communication, and with training and feedback, create a departmental webpage and oral presentation outlining their research plans.

*Prerequisite(s):* ANSC\*6600

*Restriction(s):* Restricted to Animal Biosciences PhD students.

*Department(s):* Department of Animal Biosciences

**ANSC\*6630 Thesis Proposal and Professional Development II F,W [0.00]**

This course is required for successful completion of a PhD degree. With guidance and instruction, students will complete a research proposal, or a literature review for their thesis. Students will also spend 8 hours on professional development (e.g. via mygradskills.ca, MITAC Step workshops).

*Prerequisite(s):* ANSC\*6610

*Restriction(s):* Restricted to Animal Biosciences PhD students.

*Department(s):* Department of Animal Biosciences

**ANSC\*6900 Major Paper in Animal and Poultry Science F,W,S [1.00]**

A detailed, critical review of an area of study related to the specialization of students in the MSc by course work and major paper option that includes analysis and interpretation of relevant data.

*Department(s):* Department of Animal Biosciences

## Art History and Visual Culture

The MA in Art History and Visual Culture examines the production and consumption of images, objects, and spaces from varied cultures. It challenges prevailing ideas about cognition and perception, and includes the study of the ocular. Because the visual is crucial to our understandings of cultural difference, Art History and Visual Culture Studies is vitally concerned with the manner in which the interdependent elements of race, ethnicity, gender, sexuality, and class construct identity. It demands that we think across cultures and national boundaries, and within a global context. Students will learn to discuss and critically write about objects and images in their material, critical, theoretical, and contextual totalities. Students will also explore the concept of identity, the power of visual rhetoric, and the shifting power dynamics inherent in art and its disciplines both in historical and contemporary contexts.

### Administrative Staff

#### Sally Hickson

Director of SOFAM (Zavitz Hall 203, Ext. 56930)  
shickson@uoguelph.ca

#### Christina Smylitopoulos

Graduate Program Coordinator (until August 31, 2018) (Johnston Hall 120, Ext. 53783)  
csmylito@uoguelph.ca

#### Susan Douglas (effective September 1, 2018)

Graduate Program Coordinator (Johnston Hall 111, Ext. 53024)  
sdouglas@uoguelph.ca

#### Barb Merrill

Graduate Program Assistant (Zavitz Hall 201, Ext. 54671)  
bmerrill@uoguelph.ca

### Graduate Faculty

#### Amanda Boetzkes

BA Victoria, MA, PhD McGill - Associate Professor

#### Susan J. Douglas

BA Western Ontario, MA Carleton, PhD Concordia - Assistant Professor

#### Sally Hickson

BA Carleton, MA, PhD Queen's - Associate Professor and Director

#### Dominic J. Marner

BA Regina, MA Victoria, PhD East Anglia (UK) - Associate Professor

#### Christina Smylitopoulos

BA Victoria, MA University of York, PhD McGill - Assistant Professor

### MA Program

The MA program is intended to provide students with core knowledge about Art History and Visual Culture within an interdisciplinary research context beneficial for transition to higher levels of Art History-related education and research and/or for careers in a variety of Art History-related fields, for instance in art publishing, museums and galleries, or government agencies.

The program aims to prepare students for future study and research at the doctoral level, either in the core discipline or a related disciplinary program. It will provide students intending to go on to a variety of other academic and non-academic professional programs with expertise in Visual Culture, proficiency in a language other than English and advanced skills in research and writing. Further, it offers education for students intending to pursue professions in which knowledge about Visual Material and solid training in research is critical for success.

Towards this end, the objectives of the MA program are:

1. To enable students to gain a command of visual literacy through global and critical understandings of art and its cultures and histories;
2. To combine art historical methodology and visual and material culture perspectives in the study of objects—both past and present;
3. To explore critically the assumptions underpinning writing about art history and visual culture.

### Admission Requirements

Admission to the MA program in Art History and Visual Culture may be granted on the recommendation of the School of Fine Art and Music to:

- the holder of a BA degree (honours equivalent), or an honours BA (or its equivalent in art history) with a minimum of a 75% average; or
- in exceptional cases, the holder of a degree in another field who has completed a minimum of six one-semester courses in art history; or
- a student who has satisfied the requirements for transfer from the provisional-student category.

It is highly recommended that applicants complete at least eight semesters of courses in art history, cultural studies, or related areas prior to applying. Serious interest in, and substantial familiarity with, historical and contemporary issues in Art History and Visual Culture is expected.

### Degree Requirements

Students enrol in one of two study options: 1) course work and major research paper, or 2) thesis.

#### Thesis

In the thesis option, students must complete three (3) core courses, one (1) elective and a thesis.

#### Core Courses:

AVC*6100	[0.50]	Proseminar: Critical Methods I
AVC*6200	[0.50]	Proseminar: Critical Methods II
AVC*6300	[0.50]	Special Topics in Art History and Visual Culture

#### Electives:

AVC*6310	[0.50]	Topics in Art & Visual Culture I
AVC*6320	[0.50]	Topics in Art & Visual Culture II
AVC*6330	[0.50]	Topics in Art & Visual Culture III
AVC*6340	[0.50]	Topics in Art & Visual Culture IV
AVC*6350	[0.50]	Topics in Art & Visual Culture V
AVC*6370	[0.50]	Practicum I: Art Institutions
AVC*6400	[0.50]	Practicum II: Art Institutions
AVC*6500	[0.50]	Directed Reading

One elective may be an approved course from another College of Arts program. The courses selected must be acceptable to the school and the Board of Graduate Studies for graduate credit. Students must obtain an overall average grade of at least 'B-' standing.

#### Thesis

Students will also complete a thesis, consisting of an extensive piece of research of 30,000-35,000 words, a public colloquium, and an oral examination. The thesis topic is subject to the approval of the MA Examination Committee, which includes an examiner from the profession. The thesis is a project of publishable quality. In essay form, it discusses the critical, historical, and theoretical aspects of the student's subject of research. Students are expected to present and defend their work orally in a manner appropriate to a professional art historian's public presentation.

### Course Work and Major Research Paper (MRP)

In the course work and major research paper option students must complete the three (3) core courses, three (3) electives and a course-based major research paper (MRP) of 10,000-15,000 words.

#### Core Courses:

AVC*6100	[0.50]	Proseminar: Critical Methods I
AVC*6200	[0.50]	Proseminar: Critical Methods II
AVC*6300	[0.50]	Special Topics in Art History and Visual Culture

Two (2) of the electives must be selected from the following list of courses. The third elective may also be from this list, or it may be an approved course from another College of Arts program. The courses selected must be acceptable to the school and the Board of Graduate Studies for graduate credit.

AVC*6310	[0.50]	Topics in Art & Visual Culture I
AVC*6320	[0.50]	Topics in Art & Visual Culture II
AVC*6330	[0.50]	Topics in Art & Visual Culture III
AVC*6340	[0.50]	Topics in Art & Visual Culture IV
AVC*6350	[0.50]	Topics in Art & Visual Culture V
AVC*6370	[0.50]	Practicum I: Art Institutions
AVC*6400	[0.50]	Practicum II: Art Institutions

Students must complete a Major Research Paper (MRP) of 10,000-15,000 words. Students register for the following:

AVC*6800	[1.00]	Art History and Visual Culture Major Research Paper
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Students must obtain an overall average grade of at least 'B-' standing.

### Courses

#### Core Courses

<b>AVC*6100 Proseminar: Critical Methods I F [0.50]</b>		
This proseminar explores the histories, theories, and methodologies of the fields of art history, visual culture, and material culture.		
<i>Department(s):</i> School of Fine Art and Music		
<b>AVC*6200 Proseminar: Critical Methods II W [0.50]</b>		
This seminar is a multi-disciplinary survey of critical theory. The aim is to consider which bodies of theory have been—and continue to be—lively options for the practice of critical thought in relation to visual culture, especially post-1968. The course explores issues which also possess cultural, social and political relevance, theories which affected all the humanities and social sciences, and themes that are also deeply relevant outside the academy. These include: the institutions and networks of knowledge, identity politics, race, sexuality, gender and class, amongst others.		
<i>Prerequisite(s):</i> AVC*6100		
<i>Department(s):</i> School of Fine Art and Music		

**AVC\*6300 Special Topics in Art History and Visual Culture F [0.50]**

This seminar explores issues of historical and critical method by focusing them through the lens of a particular area of concern within the fields of art history, visual culture, and/or material culture.

*Department(s):* School of Fine Art and Music

**Elective Courses****AVC\*6310 Topics in Art & Visual Culture I W [0.50]**

This seminar course is designed to explore one or more issues in Art and Visual Culture depending on the expertise of the instructor. Offered in conjunction with ARTH\*4310. Extra work is required of graduate students. Students should consult the department for specific offerings.

*Restriction(s):* Credit may be obtained for only one of AVC 6310 or ARTH 4310.

*Department(s):* School of Fine Art and Music

**AVC\*6320 Topics in Art & Visual Culture II F [0.50]**

This seminar course is designed to explore one or more issues in Art and Visual Culture depending on the expertise of the instructor. Offered in conjunction with ARTH\*4320. Extra work is required of graduate students. Students should consult the department for specific offerings.

*Restriction(s):* Credit may be obtained for only one of AVC 6320 or ARTH 4320.

*Department(s):* School of Fine Art and Music

**AVC\*6330 Topics in Art & Visual Culture III W [0.50]**

This seminar course is designed to explore one or more issues in Art and Visual Culture depending on the expertise of the instructor. Offered in conjunction with ARTH\*4330. Extra work is required of graduate students. Students should consult the department for specific offerings.

*Restriction(s):* Credit may be obtained for only one of AVC 6330 or ARTH 4330

*Department(s):* School of Fine Art and Music

**AVC\*6340 Topics in Art & Visual Culture IV F [0.50]**

This seminar course is designed to explore one or more issues in Art and Visual Culture depending on the expertise of the instructor. Offered in conjunction with ARTH\*4340. Extra work is required of graduate students. Students should consult the department for specific offerings.

*Restriction(s):* Credit may be obtained for only one of AVC 6340 or ARTH 4340.

*Department(s):* School of Fine Art and Music

**AVC\*6350 Topics in Art & Visual Culture V F [0.50]**

This seminar course is designed to explore one or more issues in Art and Visual Culture depending on the expertise of the instructor. Offered in conjunction with ARTH\*4350. Extra work is required of graduate students. Students should consult the department for specific offerings.

*Restriction(s):* Credit may be obtained for only one of AVC 6350 or ARTH 4350.

*Department(s):* School of Fine Art and Music

**AVC\*6370 Practicum I: Art Institutions F [0.50]**

The practicum provides students with an opportunity to gain practical experience through work with an artist, curator, or other museum or arts professional. This experience may be based in a museum department, gallery, artist's studio, or arts publication office. The course should result in a substantial piece of work - for example, preparatory work for an exhibition, an analysis of a segment of a permanent collection, or a survey or catalogue of an artist's archives. The student is required to submit a written report upon completion of the course.

*Restriction(s):* Admission to the Graduate Program in Art History and Visual Culture  
Instructor consent required.

*Department(s):* School of Fine Art and Music

**AVC\*6400 Practicum II: Art Institutions W [0.50]**

The practicum provides students with an opportunity to gain practical experience through work with an artist, curator, or other museum or arts professional. This experience may be based in a museum department, gallery, artist's studio, or arts publication office. The course should result in a substantial piece of work - for example, preparatory work for an exhibition, an analysis of a segment of a permanent collection, or a survey or catalogue of an artist's archives. The student is required to submit a written report upon completion of the course.

*Restriction(s):* Admission to the Graduate Program in Art History and Visual Culture  
Instructor consent required.

*Department(s):* School of Fine Art and Music

**AVC\*6500 Directed Reading U [0.50]**

Each student establishes, in consultation with the faculty member chosen, the content of this special study within the instructor's area of expertise. Faculty varies.

*Department(s):* School of Fine Art and Music

**Other Courses****AVC\*6800 Art History and Visual Culture Major Research Paper F,W,S [1.00]**

The Master's Research Project is a 10,000-15,000 word paper that requires original research and argumentation.

*Restriction(s):* Admission to the Graduate Program in Art History and Visual Culture,  
course-work students only

*Department(s):* School of Fine Art and Music

## Bioinformatics

Bioinformatics is the development and application of computational and statistical techniques for solving problems involving complex biological data. This emerging discipline is growing rapidly alongside technological developments for large-scale data generation in the life sciences, such as in genomics, proteomics, functional pathway analysis, health sciences, and biodiversity. Demand is accelerating for new approaches for data storage, retrieval, analysis, and applications. A new generation of professionals is required to meet this demand, having bioinformatics skills and the capacity to create new approaches.

### Administrative Staff

#### Director

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### Graduate Faculty

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#### Emma Allen-Vercoe

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Assistant Professor, Animal Biosciences

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Associate Professor, Computer Science

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Professor, Biomedical Sciences

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Associate Professor, Pathobiology

#### Lewis Lukens

Associate Professor, Plant Agriculture

#### John Lumsden

Professor, Pathobiology

#### David W.L. Ma

Associate Professor, Human Health and Nutritional Sciences

#### Janet I. MacInnes

Professor, Pathobiology

#### Baozhong Meng

Associate Professor, Molecular Cellular Biology

#### Rod Merrill

Professor, Molecular and Cellular Biology

#### Robert Mullen

Professor and University Research Chair, Molecular and Cellular Biology

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Associate Professor, Animal Biosciences

#### Steven Rothstein

Professor and University Research Chair, Molecular and Cellular Biology

#### Scott Ryan

Assistant Professor, Molecular and Cellular Biology

#### Flavio Schenkel

Professor, Animal Biosciences

#### M. Alexander Smith

Associate Professor, Integrative Biology

#### Graham Taylor

Associate Professor, Engineering

#### George van der Merwe

Associate Professor, Molecular and Cellular Biology

#### Terry Van Raay

Associate Professor, Molecular and Cellular Biology

#### Geoffrey Wood

Associate Professor, Pathobiology

### Associated Graduate Faculty

#### Sanjeena Dang

BSc, MSc, PhD Guelph - Assistant Professor, Bingham University

#### Brian Golding

BSc Dalhousie, PhD Alberta - Professor, Biology, McMaster University

#### Paul McNicholas

BA, MSc, PhD Trinity College, Dublin - Associate Professor, Mathematics and Statistics, McMaster University

#### John Nash

BSc, PhD Monash University, Melbourne, Australia - Senior Research Scientist, Division of Enteric Diseases, National Microbiology Laboratory, Public Health Agency of Canada

## MBINF Program

### Admission Requirements

Students will be admitted to the Master of Bioinformatics program from a range of undergraduate programs in the life sciences. Students from undergraduate programs in the physical or computational sciences will be considered for admission if they are considered to have sufficient biological background. Students must begin the Master of Bioinformatics program in a fall semester. To be considered for admission, applicants should meet the minimum requirements of a four-year degree from a recognized post-secondary institution with a minimum 75% average over the last two years of full-time equivalent study.

Space in the program is limited and prospective students are encouraged to apply as early as possible. Application details are posted on [the program website](#).

### Degree Requirements

A total of 4.0 credits are required, which must include:

BINF*6110	[0.50]	Genomic Methods for Bioinformatics
BINF*6210	[0.50]	Software Tools for Biological Data Analysis and Organization

BINF*6890	[0.50]	Topics in Bioinformatics
BINF*6970	[0.50]	Statistical Bioinformatics
BINF*6999	[1.00]	Bioinformatics Master's Project

The advisory committee and/or the Graduate Program Committee may require additional courses.

### Advisory Committee

Students taking the Master of Bioinformatics will have an advisor and a co-advisor. Both the advisor and the co-advisor must be members of the Bioinformatics Graduate Faculty such that one has expertise in the life sciences and the other has expertise in statistics or computing.

### Duration of the Program

Students normally take 3 courses per semester for two semesters (3.0 credits) and complete the Bioinformatics Master's Project (1.0 credit) in a third semester. Therefore, the program typically takes 12 months of full-time study. There is, however, the option to continue the Bioinformatics Master's Project into a second fall semester, in which case the program will take 16 months of full-time study.

## MSc Program

### Admission Requirements

Students may be admitted to the MSc in Bioinformatics program from a range of undergraduate programs in the life, physical, statistical, mathematical, and computational sciences. To be considered for admission, applicants should meet the minimum requirements of a four-year degree from a recognized post-secondary institution with a minimum 75% average over the last two years of full-time equivalent study.

Applicants should indicate their research interests and their preferred advisors. Prospective students are encouraged to speak with potential advisors before applying to the MSc program. Offers of admission will only be issued in cases where a member of Bioinformatics Graduate Faculty has agreed to be the advisor.

### Degree Requirements

A total of 2.0 credits are required, which must include:

BINF*6110	[0.50]	Genomic Methods for Bioinformatics
BINF*6210	[0.50]	Software Tools for Biological Data Analysis and Organization

The advisory committee and/or the Graduate Program Committee may require additional courses. When the course work is satisfactorily completed, the submission and successful defence of an appropriate thesis on an approved topic completes the requirements for the MSc in Bioinformatics.

### Advisory Committee

Students taking the MSc in Bioinformatics will have an advisory committee comprising at least two members of the Bioinformatics Graduate Faculty. The advisor must be a member of the Bioinformatics Graduate Faculty.

### Duration of the Program

The program typically takes 16-24 months of full-time study.

## PhD Program

### Admission Requirements

1. Applicants with a master's degree

Applicants holding either a Master of Bioinformatics, an MSc in Bioinformatics, or a masters in a related discipline with a GPA above 80 over the last two years equivalent of full time study will be considered for admission.

2. Applicants without a master's degree (i.e., direct entry)

Strong applicants (GPA>80) may be admitted without holding a master's degree provided that their undergraduate major is appropriate. In these cases, the program committee will assign necessary courses to ensure sufficient preparedness for research.

### 3. General Requirements

Before a recommendation of admission can be issued, applicants are encouraged to speak with potential advisors before applying to the PhD in Bioinformatics program.

### Degree Requirements

A minimum of 1.0 credit is required, which must include:

BINF*6500	[1.00]	PhD Research Writing in Bioinformatics
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The program committee and the advisory committee may, and usually will, require additional courses. After the prescribed course work is satisfactorily completed, a qualifying examination is taken. Finally, the submission and successful defence of an appropriate thesis on an approved topic completes the requirements for the PhD in Bioinformatics.

### Advisory Committee

Students taking the PhD in Bioinformatics will have an advisory committee comprising at least three members of the Graduate Faculty, two of whom should be Bioinformatics Graduate Faculty. The advisor must be a member of the Bioinformatics Graduate Faculty. Usually, if there is a co-advisor, (s)he will also be a member of the Bioinformatics Graduate Faculty; under special circumstances, the Director, after consultation with the Bioinformatics Program Committee, may approve a co-advisor who is not a member of the Bioinformatics Graduate Faculty.

### Duration of the Program

The completion period of the program is 12 semesters of full-time study.

## Collaborative Specializations

### Artificial Intelligence

The MSc in Bioinformatics program participates in the collaborative specialization in Artificial Intelligence. MSc students wishing to undertake thesis research with an emphasis on artificial intelligence are eligible to apply to register concurrently in Bioinformatics and the collaborative specialization. Students should consult the Artificial Intelligence listing for more information.

## Courses

### Bioinformatics Core Courses

<b>BINF*6110 Genomic Methods for Bioinformatics W [0.50]</b>	
This course provides an introduction to current and emerging methods used to generate genomic data analyzed in bioinformatics. This may include techniques for DNA sequencing as well as transcriptome, proteome and metabolome analysis. The objective is to develop an appreciation for the challenges of producing data.	
<i>Restriction(s):</i>	Restricted to students in Bioinformatics programs. Students in other programs may consult with course instructor.
<i>Department(s):</i>	Dean's Office, College of Biological Science
<b>BINF*6210 Software Tools for Biological Data Analysis and Organization F [0.50]</b>	
This course will familiarize students with tools for the computational acquisition and analysis of molecular biological data. Key software for gene expression analyses, biological sequence analysis, and data acquisition and management will be presented. Laboratory exercises will guide students through application of relevant tools.	
<i>Restriction(s):</i>	Restricted to students in Bioinformatics programs. Students in other programs may consult with course instructor.
<i>Department(s):</i>	Dean's Office, College of Biological Science
<b>BINF*6410 Bioinformatics Programming F [0.50]</b>	
This course will introduce bioinformatics students to programming languages. Languages such as C and Perl will be introduced with a focus on bioinformatics applications. The topics covered will serve to aid students when existing software does not satisfy their needs.	
<i>Restriction(s):</i>	Restricted to students in Bioinformatics programs. Students in other programs may consult with course instructor.
<i>Department(s):</i>	Dean's Office, College of Biological Science
<b>BINF*6420 Biosequence Pattern Analysis W [0.50]</b>	
This course is an overview course on different approaches to analyze biological sequences. Basic concepts are introduced, as well as related algorithms.	
<i>Restriction(s):</i>	Restricted to students in Bioinformatics programs. Students in other programs may consult with course instructor.
<i>Department(s):</i>	Dean's Office, College of Biological Science
<b>BINF*6500 PhD Research Writing in Bioinformatics F,W,S [1.00]</b>	
Background literature pertinent to the student's initial research direction will be studied. Starting with a reading list provided by the advisor and the instructor, the student will build on this list and construct a major literature review over two semesters. As the student begins to generate initial ideas for their own research direction, their ideas are written and explained. The emphasis will be on a sub-field or sub-fields of bioinformatics and the depth of study will be appropriate to the doctoral level.	
<i>Restriction(s):</i>	PhD students in Bioinformatics program
<i>Department(s):</i>	Dean's Office, College of Biological Science



**BINF\*6890 Topics in Bioinformatics F [0.50]**

Selected topics in bioinformatics will be covered. The course might focus on biological or informatics topics, or upon a mixture of both.

*Restriction(s):* Restricted to students in Bioinformatics programs. Students in other programs may consult with course instructor.

*Department(s):* Dean's Office, College of Biological Science

**BINF\*6970 Statistical Bioinformatics W [0.50]**

This course presents a selection of advanced approaches for the statistical analysis of data that arise in bioinformatics, especially genomic data. A central theme to this course is the modelling of complex, often high-dimensional, data structures.

*Prerequisite(s):* Introductory courses in statistics, mathematics and programming

*Restriction(s):* Restricted to students in Bioinformatics programs. Students in other programs may consult with course instructor.

*Department(s):* Dean's Office, College of Biological Science

**BINF\*6999 Bioinformatics Master's Project F,W,S [1.00]**

A major research paper is completed and presented by students in the Master of Bioinformatics program.

*Prerequisite(s):* BINF\*6110, BINF\*6210

*Restriction(s):* Restricted to MBNF students only

*Department(s):* Dean's Office, College of Biological Science

**Note**

Some courses may not be offered every year. Students planning to take a course from the above list should consult with the Graduate Program Assistant for availability and scheduling.

**Electives****Biological Sciences**

ANSC*6370	[0.50]	Quantitative Genetics and Animal Models
HHNS*6440	[0.50]	Nutrition, Gene Expression and Cell Signalling
MCB*6370	[0.50]	Protein Structural Biology and Bioinformatics
PLNT*6160	[0.50]	Advanced Plant Breeding II
PLNT*6500	[0.50]	Applied Bioinformatics

**Computer Science**

CIS*6080	[0.50]	Genetic Algorithms
CIS*6120	[0.50]	Uncertainty Reasoning in Knowledge Representation

**Mathematics and Statistics**

STAT*4340	0.50	Statistical Inference
STAT*6801	[0.50]	Statistical Learning
STAT*6802	[0.50]	Generalized Linear Models and Extensions
STAT*6950	[0.50]	Statistical Methods for the Life Sciences

**Note**

Some courses may not be offered in every semester. Students planning to take a course from the above list should consult with the department offering the course to check for availability and scheduling.

## Biomedical Sciences

The Department specializes in scientific disciplines which are basic to human and veterinary medicine. Within this context, the research activities of the faculty are focused under the general umbrella of biomedical science and biotechnology. The MBS, MSc and PhD programs provide emphasis in one of the department's four major fields:

- Reproductive Biology and Development
- Cellular and Molecular Basis of Disease
- Biomedical Toxicology and Pharmacology
- Neuroscience

The department also participates in the Doctor of Veterinary Science (DVSc) program.

### Administrative Staff

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#### Brenda L. Coomber

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#### Laura Favetta

BSc Milan, PhD Guelph - Assistant Professor

#### W.J. Brad Hanna

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#### Ronald Johnson

BSc, DVM Guelph, PhD Michigan State, ACVCP - Associate Professor

#### Bettina E. Kalisch

BSc, MSc, PhD Queen's - Associate Professor

#### W. Allan King

BSc, MSc Guelph, PhD Uppsala - Professor and Canada Research Chair, Tier 1

#### Gordon Kirby

DVM Guelph, MSc Surrey, PhD Guelph - Professor and Associate Dean, Research and Innovation

#### Thomas Koch

DVM Royal Vet & Agr Univ., PhD Guelph - Assistant Professor

#### Jonathan LaMarre

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#### Neil J. MacLusky

BSc Leeds, PhD London - Professor

#### Pavneesh Madan

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#### Tami Martino

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#### Roger A. Moorehead

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#### Jeffrey J. Thomason

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#### Matthew Vickaryous

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#### Alicia Viloria-Petit

BSc, MSc Venezuela, PhD Toronto - Assistant Professor

### Associated Graduate Faculty

#### Gabriela Mastromonaco

BSc, MSc Toronto, PhD Guelph - Curator, Reproductive Programs & Research, Toronto Zoo

### MBS program

Students may wish to focus their Master of Biomedical Sciences in a range of research areas and examples include: 1) reproductive biology and development; 2) cellular and molecular basis of disease; 3) biomedical toxicology and pharmacology; and 4) neuroscience. The research projects are varied in topic and scope and may involve: molecular, cellular or developmental aspects of tissue or animal differentiation and growth, physiological, morphological or biomechanical investigations of normal function or disease processes in a variety of organs and tissues, or pharmacological mechanisms related to therapy and drug toxicity. Projects may also involve pedagogical research related to teaching in the biomedical sciences.

### Admission Requirements

Applicants should have an Honours baccalaureate degree in the Biological Sciences or a Doctor of Veterinary Medicine degree (or the equivalent) with a minimum 'B+' standing in the final two years of study. Letters of reference from two individuals who can adequately evaluate the academic and research capabilities of the applicant must be provided with the application. In addition, a short statement of the applicant's research interests and career goals, is required to assist in the selection of faculty advisors. Students may be admitted into the Fall, Winter or Summer semester. Provisional acceptance may be granted to students who do not meet this 'B+' standard if there is additional evidence that the applicant is capable of successfully completing the graduate program (e.g., outstanding letters of recommendation, or evidence of prior relevant work or research experience). Transfer to regular status will normally be recommended when the student obtains a minimum grade of 'A-' in their first two graduate course and displays current research ability to his/her advisory committee. These courses will be credited to the degree program.

### Degree Requirements

Students must obtain at least an overall weighted average of 'B-' in prescribed courses. The number of course credits prescribed will not be fewer than 4.0 credits with BIOM\*6900 being a required course (the 1.0 credit for BIOM\*6900 is included in the total required credits of 4.0). The courses selected will depend on the student's prior experience and the nature of the research project. All students are required to present a poster seminar as a component of BIOM\*6900. The program is completed when all components of BIOM\*6900 have been submitted and the written research report for BIOM\*6900 is deemed appropriate by the Student's Supervisory Committee.

### MSc Program

Students may wish to focus their MSc degree in one of the three major fields: 1) reproductive biology and development; 2) cellular and molecular basis of disease; 3) biomedical toxicology and pharmacology and 4) neuroscience. The research project may involve: molecular, cellular or developmental aspects of tissue or animal differentiation and growth, physiological, morphological or biomechanical investigations of normal function or disease processes in a variety of organs and tissues, or pharmacological mechanisms related to therapy and drug toxicity.

### Admission Requirements

Applicants should have an Honours baccalaureate degree in the Biological Sciences or a Doctor of Veterinary Medicine degree (or the equivalent) with a minimum 'B+' standing in the final two years of study. Letters of reference from two individuals who can adequately evaluate the academic and research capabilities of the applicant must be provided with the application. In addition, a short statement of the applicant's research interests and career goals, is required to assist in the selection of faculty advisors. Students may be admitted into the Fall, Winter or Summer semester. Provisional acceptance may be granted to students who do not meet this 'B+' standard if there is additional evidence that the applicant is capable of successfully completing the graduate program (e.g., outstanding letters of recommendation, or evidence of prior relevant work or research experience). Transfer to regular status will normally be recommended when the student obtains a minimum grade of 'A-' in their first two graduate course and displays current research ability to his/her advisory committee. These courses will be credited to the degree program.

## Degree Requirements

Students must obtain at least an overall weighted average of 'B-' in prescribed courses. The number of graduate course credits prescribed will not be fewer than 1.5 credits. Prescribed and additional courses are selected by the student in consultation with the student's advisory committee. The courses selected will depend on the student's prior experience and the nature of the research project. The student must also prepare and defend an acceptable thesis and meet the Department's minimum scientific communication requirement. The minimum scientific communication requirement is one conference presentation (oral or poster) at a suitable Regional, National or International scientific conference. If this requirement has not been achieved, written justification must be provided to the Department of Biomedical Sciences Graduate Program Committee outlining the reasons why these requirements have not been achieved. The Chair of the Department of Biomedical Sciences Graduate Program Committee will provide a written response outlining the decision of the Graduate Program Committee to either grant or reject the request that the defence proceed even though the minimum scientific communication requirement has not been completed. All students are required to present two departmental seminars during their program. The thesis research proposal, developed by the student in consultation with the advisor, must receive approval from the supervisory committee no later than the end of the second semester of the program. The program is completed by the successful oral defence of a written thesis.

## PhD Program

Students may undertake a PhD degree in aspects of 1) reproductive biology and development; 2) cellular and molecular basis of disease; 3) biomedical toxicology and pharmacology; and 4) neuroscience. Wherever appropriate, students are encouraged to incorporate the methodologies of more than one of these fields into their research project. The PhD program is research based and provides instructional opportunities and experiences that are intended to develop the student's ability to formulate hypotheses and design and execute experiments or to conduct observational studies.

## Admission Requirements

Students entering the PhD program must show evidence of potential for independent, productive and original research. Admission to the PhD program generally requires completion of an MSc program with a research component, a minimum 'B+' average in the prescribed courses taken during the master's degree program, and strong recommendations from referees who have a sound knowledge of the student's strengths and weaknesses. In addition, a short statement of the applicant's research interests and career goals is required. In exceptional cases, where a candidate has demonstrated excellence in academic work and extraordinary ability to plan and initiate original research, transfer to the PhD program without completion of the MSc program may be recommended. This transfer must take place before the end of the fourth semester in accordance with university regulations. In all cases, students who do not hold an approved research-based MSc degree must register as MSc students regardless of their ultimate goals. Students may be admitted into the Fall, Winter or Summer semester. In those cases where the student is continuing her or his MSc research program into the PhD program, the student must clearly explain how the PhD research program represents a significant advance over that of the MSc.

## Degree Requirements

The PhD program offers opportunities for students to become investigators in veterinary and human-health-related sciences. Students will be expected to demonstrate the originality and skill needed to contribute to the knowledge base in a manner that transcends the mere acquisition of data. All students are required to present departmental seminars (one per annum). Students must also successfully complete a qualifying examination. Details of the qualifying examination which includes written and oral components can be found on the [Department's website](#). Successful completion of the qualifying examination is a prerequisite for continuation in the PhD program. The advisory committee is required to evaluate the student's research productivity periodically and to report on the student's progress to the Department Graduate Program Committee each semester in which the student is registered.

The PhD program culminates in the preparation, presentation and defence of the thesis, which contains a substantial component of original research. Preparation and defence of an acceptable thesis based on research data and hypotheses generated during the duration of the study are the main criteria used to assess the satisfactory completion of the PhD program. In addition the student must meet the Department's minimum scientific communication requirements. The minimum scientific communication requirements are two manuscripts which **must** at least have been submitted to a scientific journal prior to the student graduating with their PhD degree. One of these manuscripts **must** be based on the student's PhD research project and the student **must** be the first or senior author on this manuscript. The second manuscript may be either an original research manuscript or a review manuscript. The student is not required to be the first author on this manuscript but the manuscript must be generated during the student's tenure as a PhD candidate (i.e. the manuscript cannot be based on work performed while an undergraduate student or work presented in an MSc thesis). Students transferring from the MSc program to the PhD program can use any publications generated while enrolled in the graduate program of the Department of Biomedical Sciences. If these requirements have not been achieved, written justification must be provided to the Department of Biomedical Sciences Graduate Program Committee outlining the reasons why these requirements have not been achieved. The Chair of the Department of Biomedical Sciences Graduate Program Committee will provide a written response outlining the decision of the Graduate Program Committee to either grant or reject the request that the defence proceed even though the minimum scientific communication requirements have not been completed.

## DVSc Program

The Department of Biomedical Sciences participates in the DVSc program offering specialization in clinical science. This program provides a balance between advanced training in the discipline, in-service training and a thesis-research project.

## Interdepartmental Program

### Biophysics MSc/PhD

The Department of Biomedical Sciences participates in the MSc/PhD program in biophysics. Please consult the Biophysics listing for a detailed description of the MSc/PhD program.

## Collaborative Specializations

### Neuroscience

The Department of Biomedical Sciences participates in the MBS/MSc/PhD collaborative specialization in neuroscience. Please consult the Neuroscience listing for a detailed description of the MBS/MSc/PhD collaborative specialization.

### Toxicology

The Department of Biomedical Sciences participates in the masters/doctoral collaborative specialization in toxicology. The research and teaching expertise of these faculty include aspects of toxicology; they may serve as advisors for masters and doctoral students. Please consult the Toxicology listing for a detailed description of the masters/doctoral collaborative specialization.

## Courses

<b>BIOM*6070 Pregnancy, Birth and Perinatal Adaptations S [0.50]</b>
This course promotes understanding of the physiology of the placenta, and its role in fetal, perinatal and adult health. It is offered through videoconference involving University of Guelph, Queen's University and University of Waterloo. Parts are customized to student's interests within pregnancy physiology. <i>Department(s):</i> Department of Biomedical Sciences
<b>BIOM*6110 Research Methods in Biomedical Sciences F-W [0.50]</b>
To provide a theoretical and practical introduction to basic and advanced laboratory techniques for graduate students in Biomedical Sciences. Routine and specialized procedures for light microscopy and various lab techniques, including but not limited to qPCR, protein assays, HPLC, Histology, cell culture and flow cytometry, are examined. Each technique is extensively examined through lectures, discussions and practical exercises. (This is a two semester course that begins in the Fall semester.) <i>Department(s):</i> Department of Biomedical Sciences
<b>BIOM*6130 Vertebrate Developmental Biology U [0.50]</b>
The principles of vertebrate development are examined through lectures, discussions and practical exercises. Topics include aspects of gametogenesis, fertilization, implantation, embryonic and fetal development and experimental manipulation of embryos. Emphasis is on mammalian development and topics may vary depending on student needs and interests. <i>Department(s):</i> Department of Biomedical Sciences

**BIOM\*6160 Cellular Biology U [0.50]**

An integrative course that examines aspects of cell biology in the context of recent research advancements. Topics are chosen based on student interest and faculty expertise and are explored through a combination of lectures, student seminars and group discussions.

*Department(s):* Department of Biomedical Sciences

**BIOM\*6300 Cancer Biology W [0.50]**

Directed to students pursuing cancer research and based on two 1.5-hour lectures and a 2-hour tutorial per week, the general aim of this course is to familiarize students with general concepts in cancer biology and the most commonly used methodologies in cancer research. Apart from improving students' general understanding of cancer biology, the course seeks to enhance critical thinking, writing and oral presentation skills by means of a seminar presentation, weekly tutorial discussions and the preparation of two literature reviews. Offered in conjunction with BIOM\*4150. Extra work is required for graduate students.

*Restriction(s):* Credit may be obtained for only one of BIOM\*4150 or BIOM\*6300.

*Department(s):* Department of Biomedical Sciences

**BIOM\*6310 Advanced Cancer Biology F [0.50]**

This course explores advanced topics in cancer biology including cancer etiology, detection and screening and therapeutic strategies. Students will also critically evaluate the scientific literature as well as cancer related articles disseminated to the general public.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Biomedical Sciences

**BIOM\*6400 Critical Thinking in Medicinal Research F [0.50]**

This course will explore a variety of issues related to the scientific ideals and practical realities of research in the health sciences. Topics include critical thinking, critical appraisal of the medical literatures (with emphasis on clinical trials), the principles of evidence-based medicine, and selected issues related to scientific integrity.

*Prerequisite(s):* Undergraduate or graduate course in statistics.

*Department(s):* Department of Biomedical Sciences

**BIOM\*6490 Introduction to Drug Development W [0.50]**

Drug development is the process of integrating scientific data from several disciplines in order to demonstrate efficacy and safety of the new chemical entity for regulatory approval. This course will provide an overview of the drug development process including preclinical and clinical aspects of drug development.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Biomedical Sciences

**BIOM\*6570 Biochemical Regulation of Physiological Processes U [0.50]**

This course focuses on the regulation of vertebrate physiological processes, such as electrolyte and water balance, temperature regulation, growth and energy metabolism, by hormones and other biological regulators that act through cellular receptors and intracellular biochemical-control pathways.

*Department(s):* Department of Biomedical Sciences

**BIOM\*6601 Special Topics in Reproductive Biology and Biotechnology U [0.25]**

Permits in-depth exploration of interdisciplinary aspects of biomedical research. Topics such as inflammation, reproductive immunology and neoplasia have been offered.

*Department(s):* Department of Biomedical Sciences

**BIOM\*6602 Special Topics in Reproductive Biology and Biotechnology U [0.50]**

See BIOM\*6601 above.

*Department(s):* Department of Biomedical Sciences

**BIOM\*6610 Vascular Biology U [0.50]**

An interdisciplinary course in which the interrelationships between vascular proteins, cellular elements and the maintenance of vascular integrity are examined. Structural-functional relationships in vascular biology are explored through seminar presentations, group discussions and small group participation in problem based examples of vascular dysfunction.

*Department(s):* Department of Biomedical Sciences

**BIOM\*6701 Special Topics in Development, Cell and Tissue Morphology U [0.25]**

Permits further in depth study of developmental and morphological sciences.

*Department(s):* Department of Biomedical Sciences

**BIOM\*6702 Special Topics in Development, Cell and Tissue Morphology U [0.50]**

See BIOM\*6701

*Department(s):* Department of Biomedical Sciences

**BIOM\*6712 Special Topics in Physiology & Biochemistry U [0.50]**

This course involves an appropriate combination of an experimental procedure (or project), seminars, selected reading or a literature review outside the thesis subject, developed according to the student's requirements.

*Department(s):* Department of Biomedical Sciences

**BIOM\*6721 Special Topics in Pharmacology-Toxicology U [0.25]**

This course will comprise a combination of an experimental procedure (or project), seminars, selected reading or a literature review outside the thesis subject, developed based on the student's requirements. Topics could include clinical pharmacology/toxicology, pharmaco-epidemiology/economics, gerontological or perinatal pharmacology and toxicokinetics.

*Department(s):* Department of Biomedical Sciences

**BIOM\*6722 Special Topics in Biomedical Pharmacology-Toxicology U [0.50]**

See BIOM\*6721

*Department(s):* Department of Biomedical Sciences

**BIOM\*6800 Gene Expression in Health and Disease W [0.50]**

This course presents the molecular concepts of gene expression and the functional consequences of abnormal expression in pathological conditions. The conceptual, methodological and applied aspects of gene expression will be illustrated through student and faculty seminars, written reports, group discussions, and debates.

*Department(s):* Department of Biomedical Sciences

**BIOM\*6900 Research Project in Biomedical Sciences W,S,F [1.00]**

This course is a lab-based, one-semester research project course for students in the course-based Master of Biomedical Sciences (MBS). As part of this course, students will complete a research paper and grant proposal pertaining to the research topic as well as a poster presentation of the project.

*Restriction(s):* Course restricted to students registered in the course-based MBS.  
Instructor consent required.

*Department(s):* Department of Biomedical Sciences

## Biophysics

The organization and administration of the graduate program in biophysics are the responsibility of the Biophysics Interdepartmental Group (BIG). The group consists of those members of the graduate faculty whose research interests lie wholly or partly in biophysics. Biophysics spans all areas of the life sciences from molecular structure to human biology and uses the ideas and techniques of the physical sciences to solve biological problems. The specific sub-disciplines of BIG are molecular, cellular, structural, and computational biophysics.

### Administrative Staff

#### Director and Graduate Program Coordinator

Hermann Eberl (MacN 508, Ext. 62622)

heberl@uoguelph.ca

#### Graduate Program Assistant

Janice Ilic (207 MacNaughton, Ext. 58176)

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### Graduate Faculty

#### Josef Ackerman

Professor, Integrative Biology

#### Madhur Anand

Professor, Environmental Sciences

#### Daniel Ashlock

Professor, Mathematics and Statistics

#### France-Isabelle Auzanneau

Professor, Chemistry

#### Leah Bent

Associate Professor, Human Health and Nutritional Sciences

#### Manfred Brauer

Associate Professor, Molecular and Cellular Biology

#### Leonid Brown

Professor, Physics

#### Stephen Brown

Associate Professor, Human Health and Nutritional Sciences

#### David Chiu

Professor, Computer Science

#### John Dawson

Professor, Molecular and Cellular Biology

#### John R. Dutcher

Professor, Physics

#### Hermann Eberl

Professor, Mathematics and Statistics

#### Susan Glasauer

Associate Professor, Environmental Sciences

#### Todd Gillis

Associate Professor, Integrative Biology

#### Steffen Graether

Associate Professor, Molecular and Cellular Biology

#### Amy Greer

Assistant Professor, Population Medicine

#### Marc Habash

Associate Professor, Environmental Sciences

#### George Harauz

Professor, Molecular and Cellular Biology

#### Mark Hurtig

Professor, Clinical Studies

#### Lorraine Jadeski

Assistant Professor, Human Health and Nutritional Sciences

#### Matthew S. Kimber

Associate Professor, Molecular and Cellular Biology

#### Cezar Khursigara

Associate Professor, Molecular and Cellular Biology

#### Stefan W. Kycia

Associate Professor, Physics

#### Vladimir Ladizhansky

Professor, Physics

#### Anna T. Lawniczak

Professor, Mathematics and Statistics

#### Alejandro Marangoni

Professor, Food Science

#### Mario Martinez Martinez

Assistant Professor, Engineering

#### A. Rodney Merrill

Professor, Molecular and Cellular Biology

#### Suresh Neethirajan

Assistant Professor, Engineering

#### Genevieve Newton

Assistant Professor, Human Health and Nutritional Sciences

#### Michele Oliver

Professor, Engineering

#### Joanne O'Meara

Professor, Physics

#### K. Peter Pauls

Professor, Plant Agriculture

#### Glen Pyle

Associate Professor, Biomedical Sciences

#### Scott Ryan

Assistant Professor, Molecular and Cellular Biology

#### John Srbely

Assistant Professor, Human Health and Nutritional Sciences

#### Jeffrey J. Thomason

Professor, Biomedical Sciences

#### Lori A. Vallis

Associate Professor, Human Health and Nutritional Sciences

#### Robert Wickham

Associate Professor, Physics

#### Allan Willms

Associate Professor, Mathematics and Statistics

#### Janet M. Wood

Professor, Molecular and Cellular Biology

#### Simon Yang

Professor, Engineering

#### John Zettel

Assistant Professor, Human Health and Nutritional Sciences

### MSc Program

#### Admission Requirements

Students may be admitted to the MSc program in biophysics from a range of undergraduate programs, including physics, biology, biochemistry, microbiology, chemistry, mathematics, engineering, or computing science. To be considered for admission, applicants should meet the minimum requirements of a four-year honours degree with a 73% (B) average during the final two years of study. Applicants should briefly indicate their research interests and, if possible, their preferred advisors.

#### Degree Requirements

Students in the MSc program will be under the guidance of an interdepartmental advisory committee. A total of 1.5 credits are required, one of which is usually BIOP\*6000. In addition, all students are required to complete the seminar course BIOP\*6010. The advisory committee may require additional courses. An average of 70% (B-) or better must be obtained in the prescribed courses. Further information may be obtained from the chair of the group. When the course work is satisfactorily completed, the submission and successful defence of an appropriate thesis on an approved topic completes the requirements for the MSc in Biophysics.

### PhD Program

#### Admission Requirements

Applicants for the PhD program should have a recognized master's degree in an appropriate field, with a 77% (B+) average in their postgraduate studies. Applicants should briefly indicate their area of research interest and preferred advisor(s). It is often beneficial for applicants to talk with potential advisors before submitting an application.

Direct admission to the PhD program may be permitted for applicants holding a bachelor's degree with high academic standing. Students enrolled in the master's degree program who achieve a superior academic record and show a particular aptitude for research may be permitted to transfer to the PhD program. The application to transfer should be made to the chair of the biophysics program between the end of the second semester and the end of the fourth semester of work towards the master's degree.

## Degree Requirements

Students in the PhD program will be under the guidance of an interdepartmental advisory committee. For students who completed the MSc degree in a program other than Biophysics at the University of Guelph, a total of 1.0 graduate course credits are required, one of which is usually BIOP\*6000. For students who transfer directly into the PhD program from the MSc program in Biophysics, or who complete the MSc program in Biophysics at the University of Guelph, no additional course credits are required. In the case of students who enter the PhD program from the BSc degree, 1.5 graduate course credits are required, one of which is BIOP\*6000. In addition, all students are required to complete the non-credit seminar course, BIOP\*6010. The advisory committee may require additional courses for any student. An average of 70% (B-) or better must be obtained in the prescribed courses. As early as feasible, but no later than the final semester of the minimum duration, a PhD student is required to complete a qualifying examination to assess her or his knowledge of the subject. This examination should normally be taken within the first five semesters of registration as a PhD student. When the qualifying examination and the course work are satisfactorily completed, the submission and successful defense of an acceptable thesis on an approved topic completes the requirements for the PhD in Biophysics.

## Courses

<b>BIOP*6000 Concepts in Biophysics W [0.50]</b>
This course will emphasize basic concepts in molecular, cellular and structural biophysics arising from key journal publications and their impact on present day research trends.
<i>Department(s):</i> Dean's Office, College of Engineering and Physical Sciences
<b>BIOP*6010 Biophysics Seminar U [0.00]</b>
This public research seminar is based on presentations by all PhD students in the Biophysics program in yearly intervals after passing the qualifying exam and by all MSc students in their second year of studies. Students are required to attend all seminars presented during the semester in which they are registered for the course.
<i>Department(s):</i> Dean's Office, College of Engineering and Physical Sciences
<b>BIOP*6100 Scientific Communication and Research Methods in Biophysics U [0.50]</b>
The development and refinement of the skills of scientific communication, emphasizing oral presentation and writing skills, in the context of developing a literature review or thesis proposal. All Biophysics students will normally take this within 4 semesters of entering the program.
<i>Department(s):</i> Dean's Office, College of Engineering and Physical Sciences
<b>BIOP*6950 Advanced Topics in Biophysics U [0.50]</b>
This course provides opportunities for graduate students to study special topics in contemporary biophysical research under the guidance of graduate faculty members with pertinent expertise. Proposed course descriptions are considered by the Director of the Biophysics program on an ad hoc basis, and the course will be offered according to demand.
<i>Department(s):</i> Dean's Office, College of Engineering and Physical Sciences
<b>PHYS*7510 Clinical Applications of Physics in Medicine U [0.50]</b>
This course provides an overview of the application of physics to medicine. The physical concepts underlying the diagnosis and treatment of disease will be explored. Topics will include general imaging principles such as resolution, intensity, and contrast; x-ray imaging and computed tomography; radioisotopes and nuclear medicine, SPECT and PET; magnetic resonance imaging; ultrasound imaging and radiation therapy. Credit may be obtained for only one of PHYS*4070 or PHYS*7510.
<i>Department(s):</i> Department of Physics
<b>PHYS*7520 Molecular Biophysics U [0.50]</b>
Physical methods of determining macromolecular structure: energetics, intramolecular and intermolecular forces, with application to lamellar structures, information storage, DNA and RNA, recognition and rejection of foreign molecules. Offered in conjunction with PHYS*4540. Extra work is required of graduate students.
<i>Restriction(s):</i> Credit may be obtained for only one of PHYS*4540 or PHYS*7520
<i>Department(s):</i> Department of Physics
<b>PHYS*7540 Special Topics in Biophysics U [0.50]</b>
Offered on demand
<i>Department(s):</i> Department of Physics
<b>PHYS*7570 Special Topics in Biophysics U [0.25]</b>
Offered on demand
<i>Department(s):</i> Department of Physics

With approval of the Advisory Committee a student can take courses offered by other departments in Life, Physical and Engineering Sciences. Example courses could be, but not limited to:

## Courses in Related Subjects:

### Biomedical Sciences

BIOM*6110	[0.50]	Research Methods in Biomedical Sciences
BIOM*6160	[0.50]	Cellular Biology

### Chemistry

CHEM*7360	[0.50]	Regulation in Biological Systems
CHEM*7370	[0.50]	Enzymes
CHEM*7380	[0.50]	Cell Membranes and Cell Surfaces
CHEM*7310	[0.50]	Selected Topics in Biochemistry

### Computing and Information Science

CIS*6050	[0.50]	Neural Networks
CIS*6060	[0.50]	Bioinformatics
CIS*6080	[0.50]	Genetic Algorithms
CIS*6420	[0.50]	Soft Computing

### Engineering

ENGG*6070	[0.50]	Medical Imaging
ENGG*6130	[0.50]	Physical Properties of Biomaterials
ENGG*6150	[0.50]	Bio-Instrumentation
ENGG*6560	[0.50]	Advanced Digital Signal Processing

### Human Health and Nutritional Sciences

HHNS*6440	[0.50]	Nutrition, Gene Expression and Cell Signalling
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### Mathematics and Statistics

MATH*6051	[0.50]	Mathematical Modelling
MATH*6071	[0.50]	Biomathematics
STAT*6761	[0.50]	Survival Analysis
STAT*6950	[0.50]	Statistical Methods for the Life Sciences

### Molecular and Cellular Biology

MCB*6310	[0.50]	Advanced Topics in Molecular and Cellular Biology
MCB*6370	[0.50]	Protein Structural Biology and Bioinformatics

### Physics

PHYS*7010	[0.50]	Quantum Mechanics I *
PHYS*7020	[0.50]	Quantum Mechanics II
PHYS*7040	[0.50]	Statistical Physics I*
PHYS*7050	[0.50]	Statistical Physics II

## Biotechnology

The interdepartmental program focuses on molecular approaches and provides both scientific and business discipline-specific training. The Master of Biotechnology program provides graduates with advanced education, knowledge, technical and business expertise in the broad field of biotechnology. Courses promote effective communication of knowledge of the scientific discipline, as well as place it in a business context. It fosters academic and intellectual growth, as well as interactions between graduate students, faculty, the university, and the wider research community and the private sector. Students will be trained as highly competent, independent, and creative researchers/managers who are familiar with and able to integrate both the science and business environments. Furthermore, the program encourages the development of entrepreneurial activities in this area, which is crucial for the formation of new private sector companies. The ultimate goal of the program is to advance and encourage biotechnology research on campus, both amongst the graduate students enrolled in the program, as well as amongst and between faculty.

### Administrative Staff

#### Director

Steven Rothstein (4469 Summerlee Science Complex, Ext. 58524)  
rothstei@uoguelph.ca

#### Graduate Program Coordinator

Andrew Bendall (3459 Summerlee Science Complex, Ext. 53491)  
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#### Graduate Program Assistant

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### Graduate Faculty

#### From the Department of Food, Agriculture and Resource Economics

##### Michael von Massow

BA Manitoba, BSc, MSc Guelph, PhD McMaster - Assistant Professor

#### From the Department of Food Science

##### Paul Spagnuolo

BSc, MSc Guelph, PhD Waterloo - Associate Professor

#### From the Department of Integrative Biology

##### Robert Hanner

BSc Eastern Michigan, PhD Oregon - Associate Professor

##### Steven G. Newmaster

BSc Guelph, PhD Alberta - Associate Professor

#### From the Department of Molecular and Cellular Biology

##### Tariq Akhtar

BSc, MSc Waterloo, PhD Florida - Assistant Professor

##### Emma Allen-Verge

BSc London UK, PhD Open UK - Professor

##### Anthony J. Clarke

BSc, MSc, PhD Waterloo - Professor

##### Joseph L. Colasanti

BSc, PhD Western Ontario - Associate Professor

##### Marc Coppolino

BSc Waterloo, MSc, PhD Toronto - Associate Professor

##### Georgina Cox

BSc, PhD Leeds - Assistant Professor

##### John Dawson

BSc Wilfrid Laurier, PhD Alberta - Associate Professor

##### Michael J. Emes

BSc, PhD Sheffield - Professor

##### Steffen P. Graether

BSc, MSc, PhD Queen's - Associate Professor

##### George Harauz

BASc, MSc, PhD Toronto - Professor

##### Nina Jones

BSc Guelph, PhD Toronto - Associate Professor

##### David Josephy

BSc Toronto, PhD British Columbia - Professor

##### Azad Kaushik

BVSc, MVSc Haryana, DSc Inst. Pasteur - Associate Professor

##### Cezar Khursigara

BSc Ryerson, PhD McGill - Assistant Professor

##### Matthew S. Kimber

BSc, PhD Toronto - Associate Professor

##### Peter J. Krell

BSc, MSc Carleton, PhD Dalhousie - Professor

##### Joseph S.L. Lam

BSc, PhD Calgary - Professor

##### Ray Lu

BSc Wuhan (China), MSc Beijing Medical, PhD Saskatchewan - Associate Professor

##### Jaideep Mathur

BSc, MSc Lucknow (India), PhD Gorakhpur (India) - Associate Professor

##### Baozhong Meng

BSc, MSc Hebei Agricultural Univ. (China) - Associate Professor

##### Rod Merrill

BSc Lethbridge, PhD Ottawa - Professor

##### Richard D. Mosser

BSc, PhD Waterloo - Associate Professor

##### Robert T. Mullen

BSc, PhD Alberta - Professor

##### Lucy M. Mutharia

BSc, MSc Nairobi, PhD British Columbia - Associate Professor

##### Annette Nassuth

BSc, MSc Free University, Amsterdam, PhD Leiden - Associate Professor

##### Melissa Perreault

BSc, MSc, Ph.D., McMaster University - Assistant Professor

##### Steven Rothstein

BA Swarthmore College, PhD Wisconsin - Professor and Director, Biotechnology Program

##### Scott Ryan

BSc Memorial, PhD Ottawa - Assistant Professor

##### Stephen Y.K. Seah

BSc, MSc National University of Singapore, PhD Sheffield - Associate Professor

##### Rebecca Shapiro

BSc McGill, PhD Toronto - Assistant Professor

##### Ian Tetlow

BSc Newcastle (UK), PhD North Wales - Associate Professor

##### James Uniacke

BSc, PhD Concordia University - Assistant Professor

##### George van der Merwe

BSc, MSc, PhD Stellenbosch (South Africa) - Associate Professor

##### Terry Van Raay

BSc Windsor, MSc Guelph, PhD Utah - Assistant Professor

##### John Vessey

BSc, MSc Dalhousie, PhD Eberhard Karls University of Tübingen - Assistant Professor

##### Christopher Whitfield

BSc Newcastle, PhD Edinburgh - Professor

##### Krassimir (Joseph) Yankulov

BSc Sophia, PhD ICRF London - Associate Professor

### From the Department of Management

##### Elliott Currie

BA, MBA McMaster, CMA - Associate Professor

##### Davar Rezanian

MSc Utrecht, MBA Derby, PhD Ramon LLULL, CMA - Associate Professor and Chair

##### Trent Tucker

BSc Alberta, MBA Toronto, PhD Waterloo - Assistant Professor

### From the Department of Pathobiology

##### K. Sarah Wootton

BSc, PhD Guelph - Associate Professor

### From the Department of Physics

##### John R. Dutcher

BSc Dalhousie, MSc British Columbia, PhD Simon Fraser - Professor

## MBIOT Program

### Admission Requirements

Students entering the program will normally have completed an Honours Bachelor's degree with a minimum admission average of B (75% and higher) in one of the following fields: biology, molecular biology and genetics, biotechnology, microbiology, biochemistry, biophysics, food science, agriculture, food production systems, commerce with a strong science background. Anyone lacking the required background will be encouraged to complete them prior to commencing their studies in the new program (typically in the immediately preceding summer semester) or, if approved by the program counsellor, during their studies. Students whose first language is not English require a minimum TOEFL score of 93 with a minimum score of 22 in each of the four categories, or a minimum IELTS score of 7.0, with a minimum of at least 6.5 in each component. Applicants who have completed an undergraduate degree from institutions where the language of instruction was English may be exempt from ESL requirements, pending departmental approval.

All components of the application, including transcript(s), graduate certificate(s), grading scale(s), language test results and assessment forms must be uploaded no later than two months after an application is submitted through the OUAC portal. Applications that are incomplete after this time period will be closed.

### Admissions Process

Graduate student applications to programs in the College of Biological Science are handled by the Office of the Associate Dean, Research (ADR). Before submitting an application, applicants are strongly encouraged to view the "Before you Apply" and "Admission Process" webpages on the ADR Future Student's site.

Space in this program will be limited and students are advised to apply as early as possible to be accepted for the following Fall. Application details are posted on the program web-site.

### Degree Requirements

A total of 4.0 course credits are required to graduate, which must include BIOT\*6500, BIOT\*6600, BIOT\*6550, BIOT\*6610 and BIOT\*6700 (each 0.50). In addition, the research project course BIOT\*6800 (1.00) must be taken in Semester 3. Additional courses can be selected from electives.

An optional Semester 4 may be added, as a research project extension.

### Duration of the Program

Students will normally take three courses per semester for two semesters (3.0 credits) and complete the Biotechnology Masters project (1.0) credit in semester 3. Therefore, the program normally takes 12 months of full-time study. There is, however, the option to continue the Biotechnology Masters project into a second fall semester, in which case the program will take 16 months of full-time study.

### Courses

#### Core Courses

##### BIOT\*6500 Molecular Biotechnology F [0.50]

This course will provide an overview of molecular approaches relevant to a broad range of biotechnology industries including those found in medical, microbial, protein, pharmaceutical, environmental and agricultural fields.

*Department(s):* Department of Molecular and Cellular Biology

##### BIOT\*6550 Biodiversity and Biotechnology W [0.50]

Biological diversity includes the variability among living organisms spanning genetic, species, habitat and geographic scales, thereby encompassing all living things and associated systems. This course will provide an overview of DNA-based approaches used to analyze and characterize the main principles of biodiversity followed by discussions of the impact of biologically diverse communities within the biotechnology sector.

*Department(s):* Department of Molecular and Cellular Biology

##### BIOT\*6600 Innovation Management F [0.50]

This course will focus on the integration of science and business from initial discovery through to commercialization. This integration involves resolving issues related to technical, market and financial feasibility. Topics will include the innovation process, assessment of markets, development of business models and managing projects under high uncertainty.

*Department(s):* Department of Management

##### BIOT\*6610 Cases in Biotechnology Management W [0.50]

This course will examine contemporary issues in biotechnology / science-based business through a case-based approach. Topics from across the spectrum of business disciplines (marketing, management, strategy, intellectual property, etc.) will be examined. Time permitting, a live case with an industry partner will be used.

*Prerequisite(s):* BIOT\*6600

*Department(s):* Department of Management

##### BIOT\*6700 Communication in Science and Business W [0.50]

The goal of this course is to develop written, and oral presentation skills to effectively communicate ideas and experiments in both scientific and business contexts. Students will be asked to write and orally communicate a research proposal.

*Department(s):* Department of Molecular and Cellular Biology

##### BIOT\*6800 Research Project S [1.00]

The students will be matched with a research advisor in their first semester and write a research proposal on their project in the second semester communication course. During the time they do their research project, they will be expected to do the research work that they propose and then to prepare a written report of their results and conclusions as well as to give a poster presentation on this. The research project can be undertaken with any appropriate faculty member, or with an approved off-campus institution.

*Restriction(s):* Students registered in Master of Biotechnology program

*Department(s):* Department of Molecular and Cellular Biology

### Electives

#### College of Biological Sciences

MCB*6310	[0.50]	Advanced Topics in Molecular and Cellular Biology
MCB*6370	[0.50]	Protein Structural Biology and Bioinformatics
HHNS*6440	[0.50]	Nutrition, Gene Expression and Cell Signalling

#### Bioinformatics

BINF*6110	[0.50]	Genomic Methods for Bioinformatics
BINF*6210	[0.50]	Software Tools for Biological Data Analysis and Organization

#### College of Business and Economics

UNIV*6050	[1.00]	The Integration of Science and Business in Agrifood Systems
MGMT*6200	[0.50]	Leadership Assessment and Development
MGMT*6400	[0.50]	Project Management

#### Ontario Agricultural College

ANSC*6450	[0.50]	Topics in Animal Biotechnology
ENVS*6040	[0.50]	Molecular Basis of Plant-Microbe Interactions
PLNT*6500	[0.50]	Applied Bioinformatics



## Business Administration

The MBA program is based on the application of contemporary management concepts and strategies to industries where the University of Guelph has distinctive capabilities. Upon admission, participants choose an industry focus for their program. The three fields available to students are:

- Hospitality and Tourism Management
- Food and Agribusiness Management
- Sustainable Commerce

### Administrative Staff

If you have any enquiry pertaining to the MBA Program at the University of Guelph, please contact:

#### Assistant Dean and Executive Director, Executive Programs

Norm O'Reilly (303 Macdonald Hall, Ext. 53433)

noreilly@uoguelph.ca

#### Manager, Executive Programs

Catherine Statton (800 MacKinnon Bldg, Ext. 56607)

cstatton@uoguelph.ca

#### Rumina Dhalla

Graduate Program Coordinator

### Graduate Faculty

The MBA program is administered and managed by the College of Business and Economics (CBE), through the Executive Programs Office. The MBA currently has three fields; 1) Food and Agribusiness Management and 2) Hospitality and Tourism Management and 3) Sustainable Commerce which are offered in partnership with academic units: the Department of Food, Agricultural and Resource Economics (in the Ontario Agricultural College), the Department of Management (in CBE), the School of Hospitality, Food and Tourism Management (in CBE), the Department of Economics and Finance (in CBE) and the Department of Marketing and Consumer Studies (in CBE).

### From the Department of Food, Agricultural and Resource Economics (OAC):

#### Andreas Boecker

MSc, PhD Kiel - Associate Professor

#### John A.L. Cranfield

BSc, MSc Guelph, PhD Purdue - Professor

#### Brady J. Deaton

BS Missouri, MS Virginia Tech, PhD Michigan State - Associate Professor

#### Glenn C. Fox

BSc(Agr), MSc Guelph, PhD Minnesota - Professor

#### Getu Hailu

BSc, MSc Alemaya, PhD Alberta - Associate Professor

#### Spencer Henson

BSc, PhD Reading - Professor

#### Mark Holmes

BComm, MSA Ryerson, PhD York - Assistant Professor

#### Kalinga Jagoda

BSc Moratuwa, PhD Western Sydney - Assistant Professor

#### Rakhal C. Sarker

BSc, MSc Bangladesh, PhD Guelph - Associate Professor

#### Richard Vyn

BSc Dordt College, MSc Alberta, PhD Guelph - Assistant Professor

#### Alfons J. Weersink

BSc Guelph, MSc Montana State, PhD Cornell - Professor

### From the Department of Management (CBE):

#### Ron Baker

BComm Sudbury, MBA Athabasca, PhD Birmingham UK, CPA, CMA - Associate Professor

#### Michele Bowring

BA Queen's, MBA York, PhD Leicester - Assistant Professor

#### Francesco Braga

DOTT Milan, PhD Guelph - Associate Professor

#### Nita Chhinzer

BA York, MBA, PhD McMaster - Associate Professor

#### Julia Christensen Hughes

BComm Guelph, MBA, PhD York - Professor and Dean, College of Business and Economics

#### Elliott Currie

BA, MBA McMaster, CPA, CMA - Associate Professor

#### Rumina Dhalla

MBA, PhD York - Associate Professor

#### Jamie A. Gruman

BA Concordia, MA Lakehead, PhD Windsor - Associate Professor

#### Louise Hayes

BSc, MBA British Columbia, PhD Waterloo, CA - Assistant Professor

#### Kalinga Jagoda

BSc Moratuwa, PhD Western Sydney, CPA, CMA - Assistant Professor

#### Elizabeth Kurucz

BA McMaster, MIR Toronto, PhD York - Associate Professor

#### Philippe Lassou

MBA Senegal, MSc, PhD Birmingham - Assistant Professor

#### Jing Lu

BEng Shanghai, MBA Sungkyunkwan, PhD Calgary - Assistant Professor

#### Sean Lyons

BPA Windsor, MA, PhD Ottawa - Assistant Dean, Executive Programs and Associate Professor

#### Sara Mann

BComm MBA McMaster, PhD Toronto - Associate Professor

#### Davar Rezanian

MSc Utrecht, MBA Derby, PhD Ramon LLULL, CPA, CMA - Associate Professor and Chair

#### Sandra Scott

BSc Toronto, MBA, McMaster, CPA, CA, CFA - Assistant Professor

#### Trent Tucker

BSc Alberta, MBA Toronto, PhD Waterloo - Assistant Professor

#### John Walsh

BA Thames Polytechnic, MBA, PhD Western Ontario - Professor

#### Agnes Zdaniuk

BA Waterloo, MSc, PhD Waterloo - Assistant Professor

### From the School of Hospitality, Food and Tourism Management (CBE):

#### Hwan-Suk (Chris) Choi

BA Chung-Ang (Seoul, Korea), MTA George Washington, PhD Texas A&M - Associate Professor

#### Statia Elliot

BComm St. Mary's, MA McMaster, PhD Carleton - Assistant Professor

#### Joan Flaherty

BA, MA, MSc, Guelph - Assistant Professor

#### Lianne Foti

BComm Guelph, MBA EDHEC, DBA Bradford - Assistant Professor

#### Kerry Godfrey

BSc Victoria, MSc Surrey, PhD Oxford Brookes, MBA Leicester - Associate Dean and Associate Professor

#### Marion Joppe

BA Waterloo, MA, PhD Univ. d'Aix-Marseille III (France) - Professor and Research Chair

#### Nadège Levallet

MMGT Grenoble, MBA Ottawa, PhD Queen's - Assistant Professor

#### Tanya MacLaurin

BSc, MSc, PhD Kansas State - Associate Professor

#### Bruce McAdams

BComm, MA Guelph - Assistant Professor

#### Norm O'Reilly

BSc Waterloo, MBA Ottawa, PhD Carleton - Assistant Dean, Executive Programs

#### Erna van Duren

BA Waterloo, MSc, PhD Guelph - Professor

#### Michael von Massow

BA Manitoba, BSc, MSc Guelph, PhD McMaster - Assistant Professor

### From the Department of Economics and Finance (CBE)

#### Francis Tapon

MBA Columbia, MA, PhD Duke - Professor

#### Ilias Tsiakas

BA, MA York, PhD Toronto - Associate Professor

### From the Department of Marketing and Consumer Studies:

#### May H. Aung

BComm, MComm Burma, PhD York - Associate Professor

#### Vinay Kanetkar

BArch, MArch, MSc, PhD UBC - Associate Professor

#### Brent McKenzie

BA, Diploma in Business Administration, MBA, PhD Griffith University - Associate Professor

## MBA Program

The MBA program is offered in three broad fields: 1) hospitality and tourism management; 2) food and agribusiness management; 3) sustainable commerce and involves a core group of courses that build and develop key managerial skills, courses that allow students to apply concepts and skills to management situations in their chosen industry, and course work is followed by industry-related research culminating in a major project. Case studies are widely used. Program prerequisites include relevant experience in the participant's chosen industry.

### Admission Requirements

A four-year undergraduate degree or its equivalent (from a recognized university) with an average of at least a B-(70-72%) in the last two years of study and:

1. At least three years of industry related experience including supervisory and managerial responsibility **OR**
2. A mandatory GMAT for applicants who do not have the relevant three years work experience.

Alternate admission may be offered to applicants with a three year General degree, diploma and/or an acceptable professional designation AND having completed at least five years of relevant work experience.

### Degree Requirements

#### MBA Online

The University of Guelph Master of Business Administration (Online) program operates on a full cost recovery basis delivering a highly successful distance learning program that is a combination of electronic coursework and three residential periods.

The MBA program offers fields in Hospitality and Tourism Management, Food and Agribusiness Management and Sustainable Commerce and requires completion of twelve courses and a major research project or fourteen courses

Online courses are offered as 8-week modules that require approximately 20 hours of study per week. With internet service you can study anywhere, anytime with the flexibility that enables you to balance family, career and study priorities.

The three residential components are held in Guelph, Ontario, Canada.

#### Core Courses

Participants complete nine core courses, which provide a foundation for graduate management education. These courses build and develop key managerial skills applicable in the private and public sectors of the economy. The core program is specifically geared to today's manager- leader, team player, decision maker and coach:

BUS*6050	[0.50]	Management Communications
BUS*6110	[0.50]	Foundations of Leadership
BUS*6140	[0.50]	Foundations of Human Resource Management
BUS*6150	[0.50]	Research Methods for Managers
BUS*6180	[0.50]	Financial and Managerial Accounting
BUS*6200	[0.50]	Financial Management
BUS*6600	[0.50]	Sustainable Value Creation
BUS*6700	[0.50]	Strategic Management & Business Game
BUS*6790	[0.50]	Operations Management

#### Fields

##### Food and Agribusiness Management

The Food and Agribusiness Management field is designed to prepare graduates for advanced careers in the food, agribusiness and production agriculture sectors.

Working with faculty from CBE participants complete three advanced courses related to the food and agribusiness sector:

BUS*6100	[0.50]	Food and Agribusiness Economics and Policy
BUS*6120	[0.50]	Food and Agribusiness Marketing
BUS*6520	[0.50]	Managing Price Risk

In addition, the program allows participants to choose to complete the requirements for the MBA degree by additional two elective courses or by the completion of a major research project BUS\*6900.

##### Hospitality and Tourism Management

The Hospitality and Tourism Management field is designed to prepare graduates for advanced careers in the accommodation, food service and tourism industries.

Working with faculty from the School of Hospitality, Food and Tourism Management, participants complete three advanced courses related to the hospitality and tourism sector:

BUS*6510	[0.50]	Hospitality and Tourism Revenue Management
BUS*6320	[0.50]	Hospitality and Tourism Marketing
BUS*6550	[0.50]	Managing Service Quality

In addition, the program allows participants to choose to complete the requirements for the MBA degree by two additional courses or by the completion of a major research project BUS\*6900.

##### Sustainable Commerce

The Sustainable Commerce field is designed to prepare graduates for advanced careers in which sustainability is a key business objective

Working with faculty of CBE and the Department of Geography, participants complete three advanced courses related to sustainable commerce sector:

BUS*6300	[0.50]	Business Practices for Sustainability
BUS*6500	[0.50]	Governance for Sustainability
BUS*6850	[0.50]	Marketing Strategy

In addition, the program allows participants to choose to complete the requirements for the MBA degree by two additional courses for the course work option or by the completion of a major research project BUS\*6900.

### Major Research Project

The major research project is comprised of developing a research proposal, researching an applied management problem and requires data collection, analysis and the ability to link understanding of the problem with an appropriate body of literature.

### Program Time Commitment and Duration

Participants normally complete the Online MBA within two years. Courses are completed in sequence and are typically two months in length. Students are expected to devote 20 to 25 study hours per week to participate in the program.

### MBA On Campus

#### Note

Please note that this program is not accepting applicants at this time.

The MBA on-campus program is designed for people who wish to complete the MBA in one intensive year of study.

The MBA on campus program also requires completion of twelve courses and a major research project or the program may be completed entirely by coursework by completing fourteen courses.

The courses are completed on campus at the University of Guelph. Participants complete required coursework in three consecutive semesters beginning annually in May finishing with the capstone course the following May.

### Computer Systems Requirements

#### On-Line MBA: Equipment Requirements

MBA Online participants are required to have Microsoft Office software and adequate peripherals to support the learning system, which must include DVD capability and a sound card. A basic level of computer literacy is strongly recommended for the MBA program. High speed internet access is required.

Online MBA participants are solely responsible to arrange for purchase/maintenance of recommended computer systems and software, and should have a contingency plan in the event of system failure. Participants may be required to upgrade minimum hardware/software based on rapidly changing industry standards and continuous development of state-of-the-art learning tools.

For information pertaining to the computer requirements contact our program administrative staff or visit our MBA web site: <http://www.mba.uoguelph.ca/>

### Courses

<b>BUS*6050 Management Communications U [0.50]</b>
Examination of the theory, function and practice of managerial communications with particular emphasis on developing communication strategies and skills.
<i>Restriction(s):</i> CBE Executive Programs students only
<i>Department(s):</i> Executive Programs
<b>BUS*6100 Food and Agribusiness Economics and Policy U [0.50]</b>
An analysis of economic and policy issues relevant for food and agribusiness managers in affluent economies, with emphasis on the economic and policy environment that exists within North America.
<i>Restriction(s):</i> CBE Executive Programs students only
<i>Department(s):</i> Executive Programs
<b>BUS*6110 Foundations of Leadership U [0.50]</b>
The course will enhance participants' interpersonal competency, as well as their knowledge and understanding of the theory and research underlying the impact of team management and collaboration on the organization.
<i>Restriction(s):</i> CBE Executive Programs students only
<i>Department(s):</i> Executive Programs
<b>BUS*6120 Food and Agribusiness Marketing U [0.50]</b>
A study of marketing decision-making in food and agribusiness firms, with emphasis on the formulation of strategic marketing plans.
<i>Restriction(s):</i> CBE Executive Programs students only
<i>Department(s):</i> Executive Programs

**BUS\*6140 Foundations of Human Resource Management U [0.50]**

This course examines the essential human resource management functions of planning, staffing, employee development, compensation, health and safety, labour relations, and legal compliance, in a variety of organizational settings.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**BUS\*6150 Research Methods for Managers U [0.50]**

Students learn to formulate a research problem, undertake a literature review, and to select and use appropriate quantitative and qualitative techniques for the collection and analysis of relevant data. The course also promotes the use of the World Wide Web as an information resource.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**BUS\*6180 Financial and Managerial Accounting U [0.50]**

This course emphasizes the gathering and use of financial information to facilitate effective financial and management decisions. Cases are used to approach the subject from the perspective of the user of accounting information rather than that of the supplier.

*Department(s):* Executive Programs

**BUS\*6200 Financial Management U [0.50]**

This course takes the viewpoint of the senior financial officer of a commercial enterprise. The focus is on the management of cash, accounts receivable, inventories and capital assets, as well as on the sourcing of funds through short-term liabilities, long-term debt and owners' equity.

*Prerequisite(s):* BUS\*6180

*Restriction(s):* Non MBA students only by permission of instructor.

*Department(s):* Executive Programs

**BUS\*6220 Special Topics in Management Issues U [0.50]**

An advanced course for those specializing in management, marketing or organizational behaviour. Deals with current and future topics, trends and problems in the industry, strategic planning, and the integration of management, marketing, and organizational behaviour.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**BUS\*6230 Special Topics in Business U [0.50]**

Advanced course for those specializing in organizational behaviour. Deals with in-depth analysis of industry organizational behaviour, management of current and future problems, reorganizations, corporate cultures, multi-cultural organizations, and ethics.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**BUS\*6300 Business Practices for Sustainability U [0.50]**

This course focuses on critical strategic and managerial issues related to sustainability and introduces students to concepts linking organizational strategies and sustainability principles. It explores how managers can integrate consideration of the environment and society into business strategies and business practices to improve competitive advantage and create environmental, social and economic value.

*Department(s):* Executive Programs

**BUS\*6320 Hospitality and Tourism Marketing U [0.50]**

Analysis and application of marketing foundations through integration of marketing variables with real-world situations and in-depth analysis of strategic marketing issues.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**BUS\*6400 Canadian Business Law: Addressing Legal Issues in Organizations F,W [0.50]**

This course will introduce you to Canadian business law and give you an understanding of legal principals as they apply to business organizations. After reviewing basic foundational concepts and sources of law in Canada, we will undertake a more in-depth review of practical legal issues and solutions that arise in various business environments. Topics include contracts, torts, employment law, class action and conflict resolution.

*Restriction(s):* Executive Program students only

*Department(s):* Executive Programs

**BUS\*6450 Global Business Today U [0.50]**

This course will survey the key issues related to doing business internationally including the cultural context for global business, cross border trade and investment, ethics, the global monetary system, foreign exchange challenges and effectively competing in the global environment.

*Restriction(s):* Non MBA/MA Leadership students only by permission of Executive Programs Office.

*Department(s):* Executive Programs

**BUS\*6500 Governance for Sustainability U [0.50]**

This course introduces MBA students to the rise of environmentalism and state-led environmental management, and the evolving world of environmental governance. Coupled with this review is coverage of some key contemporary environmental issues of relevance to business executives such as climate change and fisheries decline.

*Restriction(s):* Executive Program students only

*Department(s):* Executive Programs

**BUS\*6510 Hospitality and Tourism Revenue Management U [0.50]**

This course discusses revenue maximization strategies and tactics that improve the profitability of businesses that work in fixed capacity environments, face time-varied demand, their product is homogeneous and their cost structure reflects a high proportion of fixed and a low proportion of variable cost items.

*Prerequisite(s):* HTM\*6300

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**BUS\*6520 Managing Price Risk U [0.50]**

The course deals with the use of futures, options and other instruments for marketing, risk management and investment purposes. Emphasis is placed on the development and implementation of trading strategies and on the policy and corporate governance framework necessary to support effective management.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**BUS\*6550 Managing Service Quality U [0.50]**

A holistic and interdisciplinary approach is used to explore the principles of service management. The course will enhance participants' understanding of what actually constitutes quality, the nature of service, and strategies for improving it.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**BUS\*6590 Organizational Theory and Design U [0.50]**

Core concepts in organizational theory and their interrelationships as well as concepts such as group decision making and intragroup and intergroup dynamics are explored.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**BUS\*6600 Sustainable Value Creation S [0.50]**

Many organizations have redefined their business strategies in line with principles of sustainability in order to maximize value creation for the organization and its stakeholders. In this course students will critically examine these sustainability drivers and strategic approaches to value creation.

*Restriction(s):* Executive Program students only

*Department(s):* Executive Programs

**BUS\*6700 Strategic Management & Business Game U [0.50]**

An integrative course which draws together the conceptual theories and models of the graduate program core. Utilizes conceptual, analytical, problem identification, and problem solving skills.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**BUS\*6790 Operations Management U [0.50]**

This course applies operations research theory and practices to management problem solving and decision-making. The focus is on modelling service and product delivery systems and major emphasis is placed on managerial problems in hospitality, tourism, and food and agribusiness organizations.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**BUS\*6800 Readings in Leadership I U [0.50]**

This course is available to individuals or groups of graduate students. Students will complete a set of readings and an associated paper as approved by designated faculty. Specific learning objectives consistent with the University's will be developed each time the course is offered.

*Department(s):* Executive Programs

**BUS\*6810 Readings in Leadership II U [0.50]**

This course is available to individuals or groups of graduate students. Students will complete a set of readings and an associated paper as approved by designated faculty. Specific learning objectives consistent with the University's will be developed each time the course is offered.

*Prerequisite(s):* BUS\*6800 (or may be taken concurrently)

*Department(s):* Department of Management

**BUS\*6820 Readings in Management U [0.50]**

This course is available to individuals or groups of graduate students. Students will complete a set of readings and an associated paper as approved by designated faculty. Specific learning objectives consistent with the University's will be developed each time the course is offered.

*Department(s):* Department of Management

**BUS\*6850 Marketing Strategy U [0.50]**

An advanced course for those specializing in marketing. Deals with marketing theories, models, and specific subsets of marketing such as pricing, consumer and industrial-buyer behaviour, distribution, services, and service-delivery concepts.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Department of Management

**BUS\*6900 Major Research Project U [1.00]**

A detailed critical review of an area of study specific to the specialization of students in the MBA by course work and major paper option.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Department of Management

## Capacity Development and Extension

The Capacity Development and Extension Program offers a thesis or major paper course of study leading to the MSc degree. Subject areas including community engagement, adult learning and development, communication, leadership, decision-making, facilitation as well as capacity building at individual, organizational and systems levels. Our MSc graduates work in Canada and around the world in the operations and management of training, innovation and knowledge systems, community development and organizational change.

### Administrative Staff

#### Director

Sean Kelly (1004 Landscape Architecture, Ext. 56874)  
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### Graduate Faculty

#### Ataharul Chowdhury

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#### Allan C. Lauzon

BA, MSc Guelph, EdD Toronto - Professor

### Associated Graduate Faculty

#### Glen Filson

BA Saskatchewan, MEd Saskatchewan, PhD Toronto - Retired Faculty, School of Environmental Design and Rural Development, University of Guelph

#### Laxmi Pant

HBSc. Tribhuvan Univeristy (Nepal), MSc Norwegian Univ of Life Sciences, PhD – University of Guelph - Sessional Lecturer, University of Guelph

### MSc Program

Capacity Development and Extension offers a professionally oriented program leading to the MSc degree in capacity development and extension. The program covers a broad range of topics including capacity development, interpersonal communication, facilitation and leadership, media and communication technologies, adult learning and innovation processes. A variety of learning formats are offered by the program including community engaged learning, independent study, distance education, seminars, international courses and research colloquia.

Graduate students focus on Capacity Development and Extension. The Program offers core courses and restricted electives. Other courses of interest are available in other academic units including Rural Planning and Development, and the Departments of Food, Agricultural and Resource Economics, Geography, History and Sociology and Anthropology. You should consult with your advisor or the graduate coordinator prior to enrolling in open electives.

### Admission Requirements

The program is open to qualified graduates from a wide variety of disciplines including agriculture, education, international development, sociology, communication, cultural studies, health, political science, history, and economics. A four-year honours degree is considered as the normal and basic admission requirement. Work or volunteer experience in a rural area or rural community is preferred.

Students in Capacity Development and Extension have employment opportunities in areas such as rural and volunteer organizations, community development, non-formal education, family and consumer studies, social work, communication technology, agricultural extension and applied research, health, international development project management and program analysis, and technology transfer.

### Degree Requirements

Students enrol in one of two study options: 1) course work and major paper, or 2) course work and thesis. A minimum of two full-time semesters of course work, or equivalent, must be completed. The MSc program requirements provide a foundation for capacity development and extension research and practice.

#### Thesis

Students must complete three (3) core courses, a minimum of two (2) restricted electives, one (1) open elective and a thesis.

The core courses consist of:

CDE*6070	[0.50]	Foundations of Capacity Building and Extension
CDE*6260	[0.50]	Research Design
EDRD*6000	[0.50]	Qualitative Analysis in Rural Development
OR		

RPD*6380	[0.50]	Application of Quantitative Techniques in Rural Planning and Development
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Students will be assigned an academic Advisor when they receive their offer of admission. By the end of their first semester they should have a thesis or major paper Advisor and an Advisory Committee. Your thesis/major paper Advisor may be the same as your original academic Advisor, or you may choose another faculty member from CDE. Your Advisor will guide you through the remainder of your program.

### Course Work and Major Research Paper (MRP)

Students must complete three (3) core courses, a minimum of four (4) restricted electives, one (1) open elective and the major paper.

The core course consist of:

CDE*6070	[0.50]	Foundations of Capacity Building and Extension
CDE*6260	[0.50]	Research Design
EDRD*6000	[0.50]	Qualitative Analysis in Rural Development
OR		
RPD*6380	[0.50]	Application of Quantitative Techniques in Rural Planning and Development

AND

CDE*6900	[1.00]	Major Research Paper
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### Collaborative Specializations

#### International Development Studies

Capacity Development and Extension participates in the International Development Studies (IDS) collaborative specialization. Students take a minimum of 2.5 course credits in the school and a minimum of 2.5 credits in international development studies. The MSc degree for students in this collaborative specialization will have the specialist designation rural extension studies: international development studies. Please consult the International Development Studies listing for a detailed description of the collaborative specialization including the special additional requirements for each of the participating departments.

### Courses

#### Core Courses

CDE*6070 Foundations of Capacity Building and Extension U [0.50]		
Contemporary issues and changes in rural communities and the implications for building community capacity. Students will be introduced to and examine dominant paradigms of community capacity building for meeting rural needs.		
<i>Department(s):</i> School of Environmental Design and Rural Development		
CDE*6260 Research Design U [0.50]		
Provides students with abilities and knowledge to undertake, formulate and implement research in their chosen area of development. Students are expected to acquire the ability to identify research question and the appropriate designs to answer such questions.		
<i>Department(s):</i> School of Environmental Design and Rural Development		
CDE*6900 Major Research Paper U [1.00]		
Students select a topic and write a paper that does not necessarily include original data but is an analysis and synthesis of materials dealing with the topic selected.		
<i>Restriction(s):</i> Instructor consent required.		
<i>Department(s):</i> School of Environmental Design and Rural Development		
EDRD*6000	[0.50]	Qualitative Analysis in Rural Development
OR		
RPD*6380	[0.50]	Application of Quantitative Techniques in Rural Planning and Development
Restricted Elective Courses		
CDE*6290 Special Topics in Capacity Building and Extension U [0.50]		
Selected study topics which may be pursued in accordance with the special needs of students in the program.		
<i>Department(s):</i> School of Environmental Design and Rural Development		
CDE*6311 Community Engagement and Public Participation U [0.50]		
This course will explore the philosophy and principles of public participation. An emphasis will be placed on those practices and methods that can be used to engage communities and organizations within a participatory framework.		
<i>Department(s):</i> School of Environmental Design and Rural Development		
CDE*6320 Capacity Building for Sustainable Development U [0.50]		
Learning processes enhancing human capital in civil society and the organizational and managerial capabilities that can empower communities to meet their economic, social, cultural and environmental needs. Examines development and underdevelopment and the role of non-formal education and administration in facilitation social change in peripheral regions from an interdisciplinary perspective.		
<i>Department(s):</i> School of Environmental Design and Rural Development		

**CDE\*6330 Facilitation and Conflict Management U [0.50]**

Explore the theories of leadership, practice leadership skills and activities, and develop an understanding of the role facilitation and conflict management play in organizational success. Emphasizes personal individual development through practice, lecture and group discussion. Service learning through facilitation of community meetings will be part of the course.

*Restriction(s):* Instructor consent required.

*Department(s):* School of Environmental Design and Rural Development

**CDE\*6410 Readings in Capacity Building and Extension U [0.50]**

A program of supervised independent study related to the student's area of concentration.

*Restriction(s):* Instructor consent required.

*Department(s):* School of Environmental Design and Rural Development

**CDE\*6420 Communication for Social and Environmental Change U [0.50]**

Communication process for social change and development including participatory media. Students engage in community-based work involving multi-media projects. Course covers the history of development communication and current praxis in Canada and internationally.

*Restriction(s):* Instructor consent required.

*Department(s):* School of Environmental Design and Rural Development

**CDE\*6690 Community Environmental Leadership U [0.50]**

This course explores the relationships between the environment and socio-economic issues at the community level and the resulting conflict. Using the social change model, this course examines the linkages between advocacy, decision-making and conflict and the development of strategies to mitigate community conflict.

*Restriction(s):* Instructor consent required.

*Department(s):* School of Environmental Design and Rural Development

## Chemistry

The Guelph-Waterloo Centre for Graduate Work in Chemistry and Biochemistry combines the Department of Chemistry at the University of Waterloo and the Department of Chemistry at the University of Guelph into a comprehensive and all-inclusive school of graduate chemistry and biochemistry. The members of the centre conduct research in virtually all areas of modern chemistry and biochemistry.

Professional personnel in the centre comprise those faculty members of the two departments who have been appointed as PhD advisors and have a record of recent research achievement. The centre is administered by the director and its affairs are guided by the co-ordinating committee, which consists of the director, the two departmental chairs, the two departmental Graduate Program Coordinators, two elected centre members from each campus, and one elected representative of the graduate student body from each campus. The regulations applying to graduate study in the centre meet the requirements of the graduate councils and the Senates of the two universities.

The fields of research in which theses can be written normally fall within the categories of:

- Analytical chemistry
- Inorganic chemistry
- Nanoscience
- Organic chemistry
- Theoretical chemistry
- Polymer chemistry
- Biological chemistry or Biochemistry
- Physical Chemistry

The category chosen will normally be referred to as the candidate's major. However, if a suitable topic is chosen, a candidate may pursue research which involves more than one of the categories listed above. Certain course requirements must be fulfilled both for the MSc and for the PhD. These courses are chosen in consultation with the candidate's advisory committee and the graduate officers of the centre.

### Administrative Staff

#### Director of the Centre

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#### Chair of the Department at Guelph

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### Graduate Faculty

#### France-Isabelle Auzanneau

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#### Michael K. Denk

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#### Kathryn E. Preuss

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#### Paul A. Rowntree

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#### Marcel Schlaf

Diplom-Chemiker Bayerische Julius-Maximilian Universität, PhD Toronto - Professor and Graduate Program Coordinator

#### Adrian L. Schwan

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#### Dmitriy V. Soldatov

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#### W.W.L. Tam

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#### Daniel F. Thomas

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#### Peter Tremaine

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### Graduate Faculty from University of Waterloo

#### Monica Barra

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#### Jonathan Baugh

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#### J. Michael Chong

BSc, PhD British Columbia - Professor

#### David Cory

BA, PhD (Case Western Reserve) - Professor and Canada Excellence Research Chair

#### Thorsten Dieckmann

Dipl., Dr. rer. nat. Braunschweig - Associate Professor

#### Gary I. Dmitrienko

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#### Jean Duhamel

BEng, MSc, PhD (ENSIC, Nancy, France) - Professor and Canda Research Chair

#### Eric Fillion

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#### Mario Gauthier

BSc, PhD McGill - Professor

#### Tadeusz Gorecki

MSc, PhD (Technical University of Gdansk) - Professor

#### J. Guy Guillemette

BSc, PhD Toronto - Associate Professor and Graduate Officer

#### John F. Honek

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**Marcel Nooijen**

BSc, PhD Vrije Universiteit van Amsterdam - Associate Professor

**Michael Palmer**

MD Giessen - Associate Professor

**Janusz Pawliszyn**

BSc, MSc Gdansk (Poland), PhD Southern Illinois - Professor and University/NSERC Industrial Research Chair and Canada Research Chair

**William P. Power**

BSc, PhD Dalhousie - Associate Professor and Department Chair

**Eric Prouzet**

MSc, PhD Nantes - Associate Professor

**Pavle Radovanovic**

MS Georgetown, PhD Washington - Assistant Professor and Canada Research Chair

**Derek Schipper**

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**German Sciaini**

BSc, PhD University of Buenos Aires - Associate Professor

**Rodney Smith**

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**Xiao-Wu (Shirley) Tang**

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**Scott Taylor**

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**Adam Wei Tsien**

BS University of California, Berkeley, PhD Cornell University, New York - Assistant Professor

**Xiaosong Wang**

BSc, MSc Zhejiang University, PhD East China University of Science &amp; Technology - Associate Professor

**MSc Program**

The fields of research in which theses can be written normally fall within: 1) analytical; 2) inorganic; 3) nanoscience; 4) organic; 5) theoretical (also chemical physics); 6) polymer chemistry; 7) biological chemistry or biochemistry and 8) Physical Chemistry.

An applicant is encouraged to apply for admission if he/she has an honours bachelor of science degree, or the equivalent, with a minimum standing of 75% in the last two years from an accredited university. The co-op MSc option is not available to students who have completed a co-op program as undergraduates. These students are, however, eligible for admission to the co-op PhD program.

Applicants whose first language is not English are required to submit evidence of proficiency in the English language or pass the Test of English as a Foreign Language (TOEFL).

**Degree Requirements**

Students enroll in one of three study options: 1) thesis, 2) co-op, or 3) course work and major research project.

**Thesis**

Students must successfully complete at least four semester-long graduate courses, one of which is the MSc Seminar, CHEM\*7940, and submit and defend an acceptable thesis.

**Co-op**

The academic requirements are the same as in the regular MSc program, but at least two of the required four semester-long courses (including CHEM\*7940) must be completed during the first two semesters of study. COOP\*1100 - Introduction to Co-operative Education, a mandatory, non-credit course, is a prerequisite for the first work term and prepares the student for the employment process. This course must be completed the semester prior to the competitive co-op job search semester.

The co-operative education requirements are to successfully complete two consecutive 4-month co-op work terms in an approved laboratory. The student's performance in the workplace is supervised and evaluated by the student's employer using the Work Performance Evaluation tool. The student's progress during the work term is also monitored by Co-operative Education & Career Services, including an official site visit during the co-op work term and a review of the student's official Learning Goals. A Co-op Work Term Report is required for each work term and is graded by an assigned Co-op Faculty Advisor. All evaluation grades will appear on the student's official transcript.

An altered co-op fee payment schedule will be proposed during the admission offer stage.

After returning to campus, the student will complete his/her course work and research and prepare the MSc thesis.

**Course Work and Major Research Project (MRP)**

Students who elect this option must successfully complete eight graduate courses, including MSc Seminar, CHEM\*7940, and MSc Research Project, CHEM\*7970. Part-time studies are designed for students whose employment or family responsibilities allow free time for study only in the evenings.

**PhD Program**

The fields of research in which theses can be written normally fall within: 1) analytical; 2) inorganic; 3) nanoscience; 4) organic; 5) theoretical (also chemical physics); 6) polymer chemistry; 7) biological chemistry or biochemistry; and 8) physical chemistry.

An applicant is eligible for admission to the PhD program at the discretion of the director. In general, an applicant must possess the qualifications listed for the MSc program, together with a master of science degree comparable to those awarded by North American universities and suitable references from the institution at which the MSc degree was awarded. However, direct admission to the PhD program is available to applicants with an overall A standing in an Honours BSc degree.

Applicants whose first language is not English are required to submit evidence of proficiency in the English language or pass the Test of English as a Foreign Language (TOEFL).

**Degree Requirements****PhD Program**

Students in the PhD program must successfully complete three semester-long courses beyond those required for the master of science degree. One of these courses will be the PhD Seminar, CHEM\*7950. Students must also pass an oral qualifying examination in their major field, and submit and defend an acceptable thesis.

Students admitted directly to the PhD program from a BSc must successfully complete one semester-long course beyond those required for the master of science degree. In addition, students must also complete CHEM\*7950 (PhD Seminar), pass an oral qualifying examination in their major field, and submit and defend an acceptable thesis.

**PhD Co-operative Option**

Students registered in the PhD program may proceed to that degree under the co-operative option. Under this option one of the two required one-term courses, in addition to CHEM\*7950 and qualifying, must be completed within the first two academic semesters of study in the centre. COOP\*1100 - Introduction to Co-operative Education, a mandatory, non-credit course, is a prerequisite for the first work term and prepares the student for the employment process. This course must be completed the semester prior to the competitive co-op job search semester.

After successful completion of the academic semesters of course work, the co-operative education requirements are to successfully complete three consecutive 4-month co-op work terms in an approved laboratory. The student's performance in the workplace is supervised and evaluated by the student's employer using the Work Performance Evaluation tool. The student's progress during the work term is also monitored by Co-operative Education & Career Services, including an official site visit during the co-op work term and a review of the student's official Learning Goals. A Co-op Work Term Report is required for each work term and is graded by an assigned Co-op Faculty Advisor. All evaluation grades will appear on the student's official transcript.

An altered co-op fee payment schedule will be proposed during the admission offer stage.

Following successful completion of the work year, the student will return to the centre to continue work on a PhD research project and complete the regular PhD requirements.

**Collaborative Specializations****Toxicology**

The Department of Chemistry participates in the MSc/PhD collaborative specialization in toxicology. Please consult the Toxicology listing for a detailed description of the MSc/PhD collaborative specialization. Students choosing this option must meet the requirements of the toxicology collaborative specialization, as well as those of (GWC)2 for their particular degree program. Three toxicology courses must be completed including Advanced Topics in Toxicology, TOX\*6200, and a research project must be conducted with a participating faculty member at the University of Guelph.

**Courses**

Except where specified, courses in the following list may be offered in any semester subject to student demand and the availability of an instructor.

All courses are given an eight character code with the sixth having the following significance: 1 (inorganic), 2 (analytical), 3 (biochemistry), 4 (theoretical), 5 (physical), 6 (organic), and 7 (polymer).

**Inorganic****CHEM\*7100 Selected Topics in Inorganic Chemistry U [0.50]**

Discussion of specialized topics related to the research interests of members of the centre. Special topics could include, for example: bioinorganic chemistry; inorganic reaction mechanisms; synthetic methods in inorganic and organometallic chemistry; homogeneous and heterogeneous catalysis; chemistry of polynuclear compounds.

*Department(s):* Department of Chemistry



**CHEM\*7120 X-ray Crystallography U [0.50]**

Introduction: crystals, basic concepts; space groups: the reciprocal lattice; x-ray diffraction; the phase problem; structure factors; electron density; small molecule structure solution, structure refinement, structure results, journals and databases, paper writing.

*Department(s):* Department of Chemistry

**CHEM\*7130 Chemistry of Inorganic Solid State Materials U [0.50]**

Introduction to solid state chemistry, common crystal structures, principles of solid state synthesis, theory and experimental methods for characterizing solids, including thermal analysis techniques, powder x-ray and neutron diffraction methods; special topics to include one or more of the optical, electronic, magnetic, or conductive properties of inorganic materials. Prerequisites: one semester-long undergraduate course (at least third-year level) in inorganic chemistry, preferably with content in structural and/or solid state.

*Department(s):* Department of Chemistry

**CHEM\*7150 Structure and Bonding in Inorganic Chemistry U [0.50]**

Free electron, Hückel and extended Hückel methods for molecules and clusters. Perturbation theory. Applications of group theory in inorganic chemistry; Jahn-Teller effects in molecules and solids. Energy bands in one, two and three dimensions. Prerequisites: three semester-long undergraduate courses in inorganic chemistry and one semester-long undergraduate course in quantum mechanics or group theory.

*Department(s):* Department of Chemistry

**CHEM\*7170 Advanced Transition Metal Chemistry U [0.50]**

Magnetochemistry of transition metal compounds. Electronic spectra of complex ions including applications of molecular orbital and ligand field theories. Stabilization of unusual oxidation states and co-ordination numbers. Bonding, structure and reactivity of certain important classes of metal complexes, e.g., metal hydrides, metal-metal bonded species, biologically significant model systems such as macrocycles.

*Department(s):* Department of Chemistry

**CHEM\*7180 Advanced Organometallic Chemistry U [0.50]**

Reactions, structure and bonding of organometallic compounds of transition and non-transition metals.

*Department(s):* Department of Chemistry

**Analytical****CHEM\*7200 Selected Topics in Analytical Chemistry U [0.50]**

Special topics could include, for example: trace analysis using modern instrumental and spectroscopic methods; advanced mass spectrometry (instrumentation and interpretation of spectra); analytical aspects of gas and liquid chromatography.

*Department(s):* Department of Chemistry

**CHEM\*7240 Chemical Instrumentation U [0.50]**

Instrumental components and optimum application; rudiments of design; electrical, spectral, migrational and other methods.

*Department(s):* Department of Chemistry

**CHEM\*7260 Topics in Analytical Spectroscopy U [0.50]**

Atomic emission and absorption spectroscopy; methods of excitation and detection; quantitative applications. Molecular electronic spectroscopy, UV, visible and Raman; instrumental characteristics; applications to quantitative determinations, speciation, measurements of equilibrium, etc. Sources and control of errors and interferences. Determination and description of colour.

*Department(s):* Department of Chemistry

**CHEM\*7270 Separations U [0.50]**

Material to be covered is drawn from the following topics: diffusion; isolation of organic material from the matrix; chromatographic techniques - principles of chromatographic separation, gas (GLC, GSC), liquid (LLC, LSC, GPC, IEC), supercritical fluid (SFC) chromatographies; GC-MS, CG-FTIR; electrophoresis, flow field fractionation. Prerequisites: undergraduate level course in instrumental analysis.

*Department(s):* Department of Chemistry

**CHEM\*7280 Electroanalytical Chemistry U [0.50]**

A study of electroanalytical techniques and their role in modern analytical chemistry. The underlying principles are developed. Techniques include chronamperometry, chronocoulometry, polarography, voltammetry, chronopotentiometry, coulometric titrations, flow techniques, electrochemical sensors and chemically modified electrodes.

*Department(s):* Department of Chemistry

**CHEM\*7290 Surface Analysis U [0.50]**

*Department(s):* Department of Chemistry

**Biochemistry****CHEM\*7300 Proteins and Nucleic Acids U [0.50]**

Determination of protein sequence and 3-dimensional structure, protein anatomy; prediction of protein structure; intermolecular interactions and protein-protein association; effects of mutation. Nucleic acid structure and anatomy; DNA and chromatin structure; RNA structure; snRNPs and ribozymes; protein-nucleic acid interactions.

*Department(s):* Department of Chemistry

**CHEM\*7310 Selected Topics in Biochemistry U [0.50]**

Discussion of specialized topics related to the research interests of members of the centre: for example, recent offerings have included peptide and protein chemistry, biochemical toxicology, medical aspects of biochemistry, glycolipids and glycoproteins, redox enzymes, biological applications of magnetic resonance, etc.

*Department(s):* Department of Chemistry

**CHEM\*7360 Regulation in Biological Systems U [0.50]**

Mechanisms of regulation of metabolism - enzyme clusters; phosphorylation and protein kinases/phosphatases, repression and induction, protein turnover. Regulation of transcription, translation and mRNA processing. Cell cycle and control of cell division.

*Department(s):* Department of Chemistry

**CHEM\*7370 Enzymes U [0.50]**

Mechanisms of rate enhancement. Enzyme kinetics - steady state; inhibitors; bisubstrate enzymes; fast reaction kinetics. Enzyme reaction mechanisms. Structural and genetic modification of enzymes. Catalytic antibodies. Binding processes. Multiple sites and co-operativity. Allosteric enzymes and metabolic control. Catalysis by RNA.

*Department(s):* Department of Chemistry

**CHEM\*7380 Cell Membranes and Cell Surfaces U [0.50]**

Membrane proteins and lipids - structure and function; dynamics; techniques for their study; model membrane systems. Membrane transport. The cytoskeleton. Membrane protein biogenesis, sorting and targeting. Signal transduction across membranes. The cell surface in immune responses.

*Department(s):* Department of Chemistry

**Physical/Theoretical****CHEM\*7400 Selected Topics in Theoretical Chemistry U [0.50]**

Discussion of specialized topics related to the research interests of the members of the centre. Special topics could include for example: theory of intermolecular forces; density matrices; configuration interaction; correlation energies of open and closed shell systems; kinetic theory and gas transport properties; theory of the chemical bond.

*Department(s):* Department of Chemistry

**CHEM\*7450 Statistical Mechanics U [0.50]**

Review of classical and quantum mechanics; principles of statistical mechanics; applications to systems of interacting molecules; imperfect gases, liquids, solids, surfaces and solutions.

*Department(s):* Department of Chemistry

**CHEM\*7460 Quantum Chemistry U [0.50]**

Approximate solutions of the Schrodinger equation and calculations of atomic and molecular properties.

*Department(s):* Department of Chemistry

**CHEM\*7500 Selected Topics in Physical Chemistry U [0.50]**

Discussion of specialized topics related to the research interests of the members of the centre. Special topics could include for example: principles of magnetic resonance in biological systems; collisions, spectroscopy and intermolecular forces, surface chemistry; catalysis; electrolyte theory; non-electrolyte solution theory, thermodynamics of biological systems; thermodynamics.

*Department(s):* Department of Chemistry

**CHEM\*7550 Kinetics - Dynamics U [0.50]**

Empirical analysis. Kinetic theory of gases. Potential energy surfaces. Unimolecular rates. Relaxation and steady state methods. Diffusion rates. Rates between polar molecules. Energy transfer.

*Department(s):* Department of Chemistry

**CHEM\*7560 Spectroscopy U [0.50]**

Aspects of electronic vibrational and rotational spectroscopy of atoms, molecules, and the solid state. Relevant aspects of quantum mechanics, Dirac notation, and angular momentum will be discussed. Group Theory will be presented and its implications for spectroscopy introduced. Prerequisites: one semester-long undergraduate course in quantum mechanics or the approval of the instructor.

*Department(s):* Department of Chemistry

## Organic

### CHEM\*7600 Selected Topics in Organic Chemistry U [0.50]

Two or three topics from a range including: bio-organic chemistry; environmental organic chemistry; free radicals; heterocyclic molecules; molecular rearrangements; organometallic chemistry; photochemistry; natural products.

*Department(s):* Department of Chemistry

### CHEM\*7640 Synthetic Organic Reactions U [0.50]

Named organic reactions and other synthetically useful reactions are discussed. The mechanism, stereochemical implications and use in organic synthesis of these reactions will be presented. Examples from the organic literature will be used to illustrate these aspects.

*Department(s):* Department of Chemistry

### CHEM\*7650 Strategies in Organic Synthesis U [0.50]

The synthesis of organic compounds is discussed and emphasis is placed on the design of synthetic routes. Examples drawn from the literature are used to illustrate this synthetic planning.

*Prerequisite(s):* CHEM\*7640

*Department(s):* Department of Chemistry

### CHEM\*7660 Organic Spectroscopy U [0.50]

Ultraviolet, infrared, resonance spectroscopy and mass spectrometry, with emphasis on applications to studies of organic molecules.

*Department(s):* Department of Chemistry

### CHEM\*7690 Physical Organic Chemistry U [0.50]

Linear free energy relationships; substituent effects and reactive intermediates.

*Department(s):* Department of Chemistry

## Polymer

### CHEM\*7700 Principles of Polymer Science U [0.50]

Introduction to the physical chemistry of high polymers, principles of polymer synthesis, mechanisms and kinetics of polymerization reactions, copolymerization theory, polymerization in homogeneous and heterogeneous systems, chemical reactions of polymers. Theory and experimental methods for the molecular characterization of polymers.

*Department(s):* Department of Chemistry

### CHEM\*7710 Physical Properties of Polymers U [0.50]

The physical properties of polymers are considered in depth from a molecular viewpoint. Rubber elasticity, mechanical properties, rheology and solution behaviour are quantitatively treated.

*Prerequisite(s):* CHEM\*7700 or equivalent

*Department(s):* Department of Chemistry

### CHEM\*7720 Polymerization and Polymer Reactions U [0.50]

The reactions leading to the production of polymers are considered with emphasis on emulsion and suspension polymerization and polymerization reaction engineering. Polymer degradation, stabilization and modification reactions are also considered in depth.

*Prerequisite(s):* CHEM\*7700 or equivalent.

*Department(s):* Department of Chemistry

### CHEM\*7730 Selected Topics in Polymer Chemistry U [0.50]

Discussion of specialized topics of polymer chemistry related to the research interests of the faculty or prominent scientific visitors. Special topics could include, for example: polymer stabilization and degradation; mechanical properties; polymer principles in surface coatings; organic chemistry of synthetic high polymers; estimation of polymer properties; reactions of polymers; polymerization kinetics.

*Department(s):* Department of Chemistry

## Research

### CHEM\*7940 MSc Seminar U [0.50]

A written literature review and research proposal on the research topic will be presented and defended in a 30-minute public seminar. This requirement is to be completed by all thesis-option MSc students within two semesters of entering the program.

*Department(s):* Department of Chemistry

### CHEM\*7950 PhD Seminar U [0.00]

*Department(s):* Department of Chemistry

### CHEM\*7970 MSc Research Paper U [0.50]

An experimental project normally based on the CHEM\*7940 research proposal, supervised by the advisor, taking three to four months to complete. This project may be completed at any time during the student's program, but it must follow CHEM\*7940. A written report is required, and a seminar based on the content of the report will be presented. The report must be completed as per the project/thesis guidelines of the University campus on which the student is registered. This course normally will follow the course CHEM\*7940 MSc Seminar.

*Department(s):* Department of Chemistry

### CHEM\*7980 MSc Thesis U [0.00]

*Department(s):* Department of Chemistry

### CHEM\*7990 PhD Thesis U [0.00]

*Department(s):* Department of Chemistry

## Clinical Studies

The Department of Clinical Studies offers graduate programs leading to MSc and DVSc degrees and the graduate diploma.

### Administrative Staff

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#### Thomas Gibson

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#### Henry Staempfli

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#### Donald Trout

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#### Alexander Valverde

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#### Adronie Verbrugghe

BSc, DVM, PhD Ghent, Dipl. ECVN - Assistant Professor

#### J. Paul Woods

DVM Guelph, MS Wisconsin, Dipl. ACVIM (Internal Medicine, Oncology) - Professor

### Associated Graduate Faculty

#### Luis Gaitero

DVM, Diplomate ECVN - Associate Professor, Contractually Limited Faculty, Clinical Studies, University of Guelph

### MSc Program

#### Admission Requirements

Candidates must have either an honours baccalaureate degree or a DVM degree; licensure to practice veterinary medicine in Ontario is not required.

#### Degree Requirements

Students enrol in one of two study options: 1) thesis, or 2) course work and major research paper.

#### Thesis

The thesis option provides focused research training in areas related to veterinary medicine. Research projects may examine aspects of clinical practice or concepts but are not considered discipline or specialty training. Candidates are accepted based on adequate background preparation and availability of an advisor in the area of interest. Applicants should contact potential faculty advisors with established research programs listed in the [department website](#)

Positions are generally not funded by the researcher. Qualified applicants need to provide their own living expenses and tuition funds, or obtain a scholarship or sponsorship by an organization.

We do not offer a clinical Master of Science program.

The program involves a minimum of 3 courses, a research project and writing of a thesis. Candidates are required to carry out an independent experimental study and produce a thesis. Three graduate level courses are required.

#### Course Work and Major Research Project (MRP)

The course work plus major project option will comprise a minimum of 4.5 credits, including six 0.5-credit graduate courses and a mandatory 1.0 credit, 2-semester major project course. The major project course will be supervised by the student's advisory committee, and will consist of a literature review, participation in a clinical research project or retrospective study, preparation of a manuscript suitable for publication in a peer-reviewed scientific journal, and presentation in a Departmental seminar. A mark will be assigned by the advisory committee, based on the manuscript and oral presentation.

There will be no required courses beyond the 1.0 credit project course. The remaining courses will be chosen from courses currently provided by the Department of Clinical Studies and other Ontario Veterinary College Departments, and will be tailored to the student's particular research interests. It is anticipated that most courses will be taken from within the Department. Undergraduate courses will not normally be eligible for credit toward this program. Course selection will be made by the student in consultation with the advisory committee, and will be approved by the departmental Graduate Studies and Research Committee. This option will normally require a minimum of 3 semesters of full-time study.

### DVSc Program

The DVSc degree is offered in large animal surgery, small animal surgery, large animal medicine, small animal medicine, anaesthesiology, cardiology, neurology, ophthalmology, dermatology and radiology, depending upon availability. The program provides advanced academic preparation in both clinical training and research and is a unique post-professional doctoral-level degree. The DVSc differs from PhD training by emphasizing the development of both research and applied skills in the various areas of clinical specialization appropriate for preparation for specialty Board certification.

Doctor of Veterinary Science positions are usually funded positions, and are usually advertised and selected through the American Association of Veterinary Clinicians' website at [www.virmp.org](http://www.virmp.org) which can be accessed in early October. Completed applications are due to us by December 1st each year, announcements made in early March and the start date is mid-July. Occasionally specialty training positions become available and are advertised on our website, as well as in the Canadian Veterinary Journal. This program involves one-third of the time taking a minimum of 5 graduate courses, conducting a research project and writing a thesis on the research, and two-thirds of the time in applied clinical practice. Applicants must be eligible to be licensed by the College of Veterinarians of Ontario.

The DVSc is currently an interdepartmental program and receives input from all academic departments in the Ontario Veterinary College (OVC): Biomedical Sciences, Clinical Studies, Pathobiology and Population Medicine.

### Admission Requirements

A doctor of veterinary medicine (DVM) or equivalent which would allow the applicant to be eligible for licensure to practice veterinary medicine in Ontario. In addition a completed internship or equivalent is usually required.

### Degree Requirements

Candidates are required to develop investigative skills in their chosen area of specialization by carrying out an original study, generally related to animal health. The results of the research must make a significant contribution to the candidate's area of specialization and be written up as a thesis. Five graduate level courses are required.

### Graduate Diploma Program

The diploma program in clinical studies was introduced to provide appropriate postgraduate discipline training for veterinarians who wish to improve their expertise in a specific area. It entails a full-time three-semester program for candidates who are veterinarians with limited time for graduate study but who desire to upgrade their knowledge and skills. The program requires the completion of formal graduate courses and extensive participation in the care of animals admitted to the Veterinary Teaching Hospital.

Clinical instruction is done using a service team concept, wherein a graduate diploma student interacts with DVSc students and faculty advisors. It is expected that graduates will return to private practice with enhanced clinical skills, or progress into MSc or internship programs.

Candidates are accepted based on adequate background preparation and availability of an advisor in the area of interest. Applicants should contact potential faculty advisors listed in the department website. This program is not intended to upgrade general knowledge to North American standards nor is this program intended to prepare foreign graduates for national board exams.

### Admission Requirements

Admission to a postgraduate diploma program as a regular student may be granted, on recommendation of the department, to the holder of a recognized DVM degree (or equivalent) with at least 'B-' standing during the final two years of study.

### Diploma Requirements

The student is assigned an advisor who is responsible for the planning and regular review of the program of the candidate. A thesis is not required. Both undergraduate and graduate courses may be taken and, when appropriate for the student, a review manuscript suitable for publication in a refereed scientific journal is prepared. For some students, a heavier course load is substituted for the manuscript requirement.

### Collaborative Specializations

Faculty in Clinical Studies also participate in the collaborative specialization in Neuroscience.

### Courses

#### Medicine

##### CLIN\*6010 Clinical Medicine F [0.50]

These are in-service clinical training courses based on case material presented to the student in the Veterinary Teaching Hospital. Under supervision, the student is expected to take primary responsibility for case management including decisions related to diagnosis, therapy and client/referring veterinarian communications. Case material studied in each course reflects a different clinical subspecialty commonly occurring in the Fall (F), Winter (W), and Summer (S) semesters respectively.

*Department(s):* Department of Clinical Studies

##### CLIN\*6030 Clinical Medicine W [0.50]

These are in-service clinical training courses based on case material presented to the student in the Veterinary Teaching Hospital. Under supervision, the student is expected to take primary responsibility for case management including decisions related to diagnosis, therapy and client/referring veterinarian communications. Case material studied in each course reflects a different clinical subspecialty commonly occurring in the Fall (F), Winter (W), and Summer (S) semesters respectively.

*Department(s):* Department of Clinical Studies

##### CLIN\*6031 Clinical Medicine S [0.50]

These are in-service clinical training courses based on case material presented to the student in the Veterinary Teaching Hospital. Under supervision, the student is expected to take primary responsibility for case management including decisions related to diagnosis, therapy and client/referring veterinarian communications. Case material studied in each course reflects a different clinical subspecialty commonly occurring in the Fall (F), Winter (W), and Summer (S) semesters respectively.

*Department(s):* Department of Clinical Studies

##### CLIN\*6190 Neurology F [0.50]

Basic principles of lesion localization in the domestic species with discussions of diagnostic problems in veterinary neurology. Offered alternate years.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Clinical Studies

##### CLIN\*6200 Concepts and Application of Infection Control U [0.50]

This course will involve principles of infection control in veterinary hospitals, drawing heavily from information from human medicine and evaluating human information in a veterinary context.

*Department(s):* Department of Clinical Studies

##### CLIN\*6380 Electrocardiography in Domestic Animals F,W,S [0.50]

This course will deal with the study of the electrocardiography of the cat, dog, cow and horse. Students will review the mechanisms of arrhythmogenesis and the role of anti-arrhythmic agents in the control of arrhythmogenesis.

*Department(s):* Department of Clinical Studies

##### CLIN\*6550 Small Animal Internal Medicine I F [0.50]

This is a graduate course designed for DVSc students and residents pursuing further study in the area. The basis of the course is the acquisition and application of knowledge of the pathophysiologic mechanisms of disease. Subject areas to be addressed may include: cardiovascular disease, respiratory disease and acid-base-electrolyte abnormalities.

*Department(s):* Department of Clinical Studies

##### CLIN\*6560 Small Animal Internal Medicine II W [0.50]

A continuation of Small Animal Internal Medicine I. Subject areas to be addressed may include: endocrine diseases, pharmacodynamics, renal disease and neurologic disease.

*Department(s):* Department of Clinical Studies

##### CLIN\*6570 Large Animal Internal Medicine I W [0.50]

Advanced study in general medicine and pathophysiologic principles of disorders of the gastrointestinal and urinary systems in ruminants, swine and horses. Offered every third year.

*Department(s):* Department of Clinical Studies

##### CLIN\*6580 Large Animal Internal Medicine II W [0.50]

Advanced study in general medicine and the pathophysiologic principles of disorders of the cardiovascular, respiratory and musculo-skeletal systems of ruminants and horses. Offered every third year.

*Department(s):* Department of Clinical Studies

##### CLIN\*6590 Large Animal Internal Medicine III W [0.50]

Advanced study in general medicine and the pathophysiologic principles of neonatal disorders and disorders of the nervous system, skin and general systemic disorders. Offered every third year.

*Department(s):* Department of Clinical Studies

##### CLIN\*6661 Respiratory Physiology & Pathophysiology U [0.50]

This is a graduate course designed for veterinarians pursuing advanced training in residency and DVSc programs. The course will cover normal respiratory anatomy, physiology and pulmonary function. A focus on respiratory pathophysiology will include respiratory failure, oxygen therapy and positive pressure ventilation. (offered every three years).

*Department(s):* Department of Clinical Studies

##### CLIN\*6670 Structure & Function of Animal Skin F,W,S [0.50]

A review of structure and function of skin in veterinary dermatology including the epidermis, dermis, subcutis and adnexal tissue. Application of knowledge in a clinical setting will follow with attention to modalities that will improve the epidermal barrier

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Clinical Studies

##### CLIN\*6680 Readings in Cardiology I F,W,S [0.50]

Original articles, review articles and textbook chapters dealing with the most recent concepts of pathophysiology, diagnostic procedures and therapeutic advancements will be reviewed, analyzed and discussed.

*Department(s):* Department of Clinical Studies

##### CLIN\*6690 Readings in Cardiology II F,W,S [0.50]

Readings in Cardiology II will be a continuation of the format of Readings in Cardiology I with further readings in clinical cardiology.

*Department(s):* Department of Clinical Studies

**CLIN\*6960 Special Topics: Zoological Med F,W [0.50]**

Preparation for the ACZM examination and based on the published ACZM examination reading list. Students will prepare reading assignments that will be discussed during scheduled time. Each semester will focus on a specific taxon group. A mock examination will be provided on an ACZM sub-specialty (typically birds, reptiles, wildlife, terrestrial mammals or aquatic medicine).

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Clinical Studies

**Surgery****CLIN\*6170 Clinical Surgery F [0.50]**

These are in-service clinical training courses based on case material presented to the student in the Veterinary Teaching Hospital. Under supervision, the student is expected to take primary responsibility for case management including decisions related to diagnosis, therapy and client/referring veterinarian communications. Case material studied in each course reflects a different clinical subspecialty occurring in Fall (F), Winter (W), and Summer (S) semesters respectively. The student is required to prepare a paper for publication in a recognized peer review journal based on clinical case material presented to the teaching hospital. As an alternative, the paper can be an in-depth review article on a clinically relevant topic.

*Department(s):* Department of Clinical Studies

**CLIN\*6180 Clinical Surgery W [0.50]**

These are in-service clinical training courses based on case material presented to the student in the Veterinary Teaching Hospital. Under supervision, the student is expected to take primary responsibility for case management including decisions related to diagnosis, therapy and client/referring veterinarian communications. Case material studied in each course reflects a different clinical subspecialty occurring in Fall (F), Winter (W), and Summer (S) semesters respectively. The student is required to prepare a paper for publication in a recognized peer review journal based on clinical case material presented to the teaching hospital. As an alternative, the paper can be an in-depth review article on a clinically relevant topic.

*Department(s):* Department of Clinical Studies

**CLIN\*6181 Clinical Surgery S [0.50]**

These are in-service clinical training courses based on case material presented to the student in the Veterinary Teaching Hospital. Under supervision, the student is expected to take primary responsibility for case management including decisions related to diagnosis, therapy and client/referring veterinarian communications. Case material studied in each course reflects a different clinical subspecialty occurring in Fall (F), Winter (W), and Summer (S) semesters respectively. The student is required to prepare a paper for publication in a recognized peer review journal based on clinical case material presented to the teaching hospital. As an alternative, the paper can be an in-depth review article on a clinically relevant topic.

*Department(s):* Department of Clinical Studies

**CLIN\*6270 Applied Surgical Principles U [0.25]**

General surgical principles associated with surgical and related treatment of various body systems. This is an applied course with laboratory and written components. Prerequisite: must have prior surgical training.

*Department(s):* Department of Clinical Studies

**CLIN\*6310 Advanced Equine Veterinary Orthopaedics U [0.50]**

This course will provide the student with an in-depth understanding of orthopaedic practice and will facilitate revision of materials to prepare board certification.

*Prerequisite(s):* DVM or BSc

*Department(s):* Department of Clinical Studies

**CLIN\*6600 Equine Soft Tissue Surgery I F,W,S [0.50]**

Based on required reference reading, every other week discussion will cover advanced soft tissue procedures performed in equine surgery. Guest lectures on selected topics will be presented. Laboratory will be given.

*Department(s):* Department of Clinical Studies

**CLIN\*6610 Equine Soft Tissue Surgery II F,W,S [0.50]**

Based on required reference reading, every other week discussion will cover advanced soft tissue procedures performed in equine surgery. Guest lectures on selected topics will be presented. Laboratory will be given.

*Department(s):* Department of Clinical Studies

**CLIN\*6620 Ruminant Surgery W [0.50]**

Through lectures/seminars, medical and surgical laboratories, and detailed case discussions, this course provides practical experience in ruminant medical, radiological and surgical procedures and in problem-solving related to ruminant practice.

*Department(s):* Department of Clinical Studies

**CLIN\*6700 Pathophysiology in Small Animal Surgery I F,W,S [0.50]**

Based on required reference reading, weekly discussions will cover the disease mechanisms involved in medical problems commonly encountered in small animal surgical practice. Guest lectures on selected topics will be presented.

*Department(s):* Department of Clinical Studies

**CLIN\*6710 Pathophysiology in Small Animal Surgery II F,W,S [0.50]**

Based on required reference reading, weekly discussions will cover the disease mechanisms involved in medical problems commonly encountered in small animal surgical practice. Guest lectures on selected topics will be presented.

*Department(s):* Department of Clinical Studies

**Anesthesiology****CLIN\*6420 Anesthesiology I S [0.50]**

A course in advanced veterinary anesthesia and allied topics such as fluid, acid-base, and electrolyte balance, shock therapy, and cardio pulmonary resuscitation.

*Department(s):* Department of Clinical Studies

**CLIN\*6440 Anesthesiology II F,W,S [0.50]**

A discussion, reading and investigative course on research methods in comparative anesthesiology.

*Prerequisite(s):* CLIN\*6420 is normally a prerequisite

*Department(s):* Department of Clinical Studies

**CLIN\*6460 Anesthesiology III: Species Specific and Coexisting Disease Considerations F-W [0.50]**

A course in advanced veterinary anesthesia that focuses on the scientific literature related to the anesthesia of specific species and veterinary patients with varying underlying diseases.

*Prerequisite(s):* DVM; CLIN\*6420 and CLIN\*6440

*Department(s):* Department of Clinical Studies

**Radiology****CLIN\*6330 Advanced Principles of Diagnostic Imaging U [0.50]**

This course is intended for students pursuing a career in veterinary radiology. Using a lecture-discussion format, the science of x-ray production and the fundamentals of other diagnostic imaging modalities will be presented. The specific applications of these techniques to research and clinical situations will be investigated.

*Department(s):* Department of Clinical Studies

**CLIN\*6350 Advanced Radiology I F,W,S [0.50]**

Radiographic changes seen in diseases of the thorax and abdomen are demonstrated by using radiographs. Contrast and special studies are included where applicable.

*Department(s):* Department of Clinical Studies

**CLIN\*6370 Advanced Radiology II F [0.50]**

A continuation of CLIN\*6350, covering radiographic abnormalities of the neurological and skeletal systems.

*Department(s):* Department of Clinical Studies

**General****CLIN\*6900 Clinical "Grand Rounds" Seminar F-W [0.25]**

This course allows each participant the opportunity to present a clinical case to colleagues in the veterinary school. The topic must be approved by the course co-ordinator. The oral presentation will be evaluated, as will the written presentation, which should be in a form suitable for submission to a veterinary journal.

*Department(s):* Department of Clinical Studies

**CLIN\*6920 Veterinary Clinical Practice I F [0.50]**

These are in-service clinical training courses for intern/graduate-diploma students based on case material presented to the Veterinary Teaching Hospital. Under supervision, the intern/graduate-diploma student, as part of a service team with a faculty clinician, is expected to hone his/her diagnostic, therapeutic and surgical skills, and gain experience with animal restraint and nursing care. They will also develop a problem-oriented approach to health management and disease. Case material studied in each course reflects the clinical problems commonly occurring in the Fall, Winter and Summer semesters respectively.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Clinical Studies

**CLIN\*6930 Veterinary Clinical Practice II W [0.50]**

These are in-service clinical training courses for intern/graduate-diploma students based on case material presented to the Veterinary Teaching Hospital. Under supervision, the intern/graduate-diploma student, as part of a service team with a faculty clinician, is expected to hone his/her diagnostic, therapeutic and surgical skills, and gain experience with animal restraint and nursing care. They will also develop a problem-oriented approach to health management and disease. Case material studied in each course reflects the clinical problems commonly occurring in the Fall, Winter and Summer semesters respectively.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Clinical Studies

**CLIN\*6940 Veterinary Clinical Practice III S [0.50]**

These are in-service clinical training courses for intern/graduate-diploma students based on case material presented to the Veterinary Teaching Hospital. Under supervision, the intern/graduate-diploma student, as part of a service team with a faculty clinician, is expected to hone his/her diagnostic, therapeutic and surgical skills, and gain experience with animal restraint and nursing care. They will also develop a problem-oriented approach to health management and disease. Case material studied in each course reflects the clinical problems commonly occurring in the Fall, Winter and Summer semesters respectively.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Clinical Studies

**CLIN\*6950 Special Topics in Clinical Studies F,W,S [0.50]**

*Department(s):* Department of Clinical Studies

**CLIN\*6990 Project in Clinical Studies F,W,S [1.00]**

This course involves participation in a clinical research project or clinical retrospective study. A review of the relevant literature will be performed. A manuscript suitable for publication in a peer-reviewed journal will be prepared, and the study will be presented in a departmental seminar.

*Restriction(s):* Only available to students enrolled in the MSc by Coursework Program.

*Department(s):* Department of Clinical Studies

## Computational Sciences

The School of Computer Science (SoCS) offers an Interdisciplinary PhD degree in Computational Sciences that encompasses multiple Departments/Schools across the University of Guelph. The program provides a unique opportunity for students to study computing within the context of another discipline commensurate with their interests and career goals. Students entering this PhD program perform research that bridges Computer Science with at least one other discipline such as Economics and Finance, Engineering, English and Theatre Studies, Geography, History, Integrative Biology, Mathematics and Statistics, Pathobiology, Population Medicine and Psychology.

### Administrative Staff

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### Graduate Faculty

#### From the School of Computer Science

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##### Stefan C. Kremer

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##### Xining Li

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##### Pascal Matsakis

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##### Judi R. McCuaig

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##### Blair Nonnecke

BSc, MSc Guelph, PhD South Bank - Associate Professor

##### Charlie F. Obimbo

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##### Yang Xiang

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#### From the Department of Economics and Finance

##### Miana Plesca

BSc Technical University of Cluj (Romania); MA Georgetown (Washington, D.C.); PhD Western - Associate Professor and Interim Associate Dean, Research and Graduate Programs, College of Business and Economics

#### From the School of Engineering

##### Hussein A. Abdullah

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##### Shawki Areibi

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##### Fantahun Defersha

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##### Robert Dony

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##### Stefano Gregori

Laurea, Doctorate Univ. of Pavia - Associate Professor

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##### Radu Muresan

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##### Graham Taylor

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##### Simon X. Yang

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#### From the School of English and Theatre Studies

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#### From the Department of History

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##### Lana M. Trick

BSc Calgary, MA, PhD Western Ontario - Associate Professor

#### PhD Program

The objective of the PhD program is to produce interdisciplinary scholars who are capable of tackling emerging problems in a variety of disciplines through investigation and application of current computer technologies. Students require two co-advisors: one from the School of Computer Science; and the second from another discipline (see Graduate Faculty).

## Admission Requirements

In addition to the Office of Graduate Studies admission requirements, applicants must submit: (i) a current CV including research publications; and (ii) a statement of research (maximum of 1500 words). The minimum academic requirement for admission to the PhD program is normally a recognized Master's degree that included a thesis or major independent project. We do not require students entering the program to have a credential in Computer Science. Such students are required to identify their experience using computerized techniques and demonstrate that they have the necessary background to complete the tasks outlined in a research proposal.

In exceptional circumstances, a student who has completed an honours undergraduate Computer Science degree (or an equivalent 4-year undergraduate degree) may apply for direct admission to the PhD program. The successful applicant must have an outstanding academic record, breadth of knowledge in Computer Science, demonstrated research accomplishments, and strong letters of recommendation.

Prospective students should check the School of Computer Science (SoCs) website <http://www.socs.uoguelph.ca/> for further details, procedures and deadlines.

## Degree Requirements

The PhD program requires completion of CIS\*6890: Technical and Communication Research Methodology, coupled with any additional courses and/or Computational Learning Modules assigned by the Advisory Committee on entry to the program. To achieve candidacy, students are expected to present a research proposal in a two-part seminar and successfully complete the Qualifying Examination (QE). Finally, students must present and defend a thesis.

## Courses

<b>CIS*6890 Technical Communication and Research Methodology U [0.50]</b>
This course aims to develop students' ability in technical communication and general research methodology. Each student is expected to present a short talk, give a mini lecture, review a conference paper, write a literature survey and critique fellow students' talks and lectures.
<i>Department(s):</i> School of Computer Science



## Computer Science

The School of Computer Science offers an MSc degree in Computer Science.

The program emphasizes both academic and applied research that can contribute to further research, academic studies, industry partnerships, and government programs. The MSc degree encompasses professors at the cutting edge of their fields, course offerings covering a wide range of computer science areas, and competitive financial incentives to eligible students.

There are four main fields that students can study in. However, interaction with other disciplines is encouraged and many of our professors work in collaboration with both industry partners and other Schools/Departments at the University of Guelph. The fields are:

- **Applied Modelling (AM):** Students working in this field will engage in research on topics such as graph theory and algorithms, formal specifications, hardware-software co-design, and interdisciplinary work in environmental modeling and disease spread modeling.
- **Artificial Intelligence (AI):** Students working in this field will engage in research on topics such as Bayesian techniques, artificial neural networks, evolutionary computation, fuzzy systems, data mining, pattern recognition, and, intelligent agents.
- **Distributed Computing (DC):** Students working in this field will engage in research on topics such as parallel computing, distributed systems, embedded systems, multi-agent systems, mobile computing, wireless networks, and ad hoc networks.
- **Human Computer Interaction (HCI):** Students working in this field will engage in research on topics such as context-aware systems, usability, interface design, and mobile and ubiquitous computing.

The School of Computer Science also offers an Interdisciplinary PhD degree in Computational Sciences. More information on can be found at: Computational Sciences

### Administrative Staff

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#### Michael A. Wirth

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#### Yang Xiang

BSs, MSc BUAA (Beijing), PhD UBC - Professor

### MSc Program

The MSc is offered in the fields of: 1) applied modelling; 2) artificial intelligence; 3) distributed computing; and 4) human computer interaction.

### Admission Requirements

Most spaces are filled in March for entry the following September, and in October for entry the following January. Prospective students should check the School of Computer Science website <http://www.socs.uoguelph.ca/> for admission procedures and deadlines.

#### General Requirements

To be considered for admission, applicants must have a four-year honours degree in computer science, or a four-year honours degree in another discipline with a minor in computer science. Applicants must meet the minimum admission requirements of both the university and the School of Computer Science, including at least a 75% average during the previous two years of full-time university study for a degree.

In addition to the university and School of Computer Science requirements, applicants must also submit (i) a current CV and (ii) a statement of research that would normally include the following sections:

- Specific research interest with justification.
- Academic and/or practical research experience.

#### Course Requirement

Entrants who have a four-year honours degree in another discipline and a minor (or equivalent) in computer science must have taken at least 12 courses as described below. University of Guelph equivalents are given for comparison as appropriate.

(A) Seven prescribed courses:

- An introductory programming course (CIS\*1500).
- An intermediate programming course (CIS\*2500).
- An object-oriented programming course (CIS\*2430).
- A software systems development course (CIS\*2750).
- A course on data structures (CIS\*2520).
- A course on discrete structures (CIS\*1910 or CIS\*2910).
- An introductory course in calculus (MATH\*1200).

(B) Three core courses at the second-year or higher level selected from the following:

- A course on hardware and/or assembly language (CIS\*2030).
- A course on digital systems (CIS\*3120).
- A course on simulation and/or modelling (CIS\*2460).
- A database course (CIS\*3530).
- An operating systems course (CIS\*3110).
- A computer algorithms course (CIS\*3490).
- A course on automata theory (CIS\*3150).
- A statistics course (STAT\*2040).

(C) Two elective courses at the third-year or higher level:

- These courses should be related to the applicant's proposed research area. They can be from a discipline other than computer science if deemed relevant by the proposed supervisor.

Applicants who meet requirements (A) and (C) but who do not meet requirement (B) may be granted provisional admission, i.e., they may be granted admission with the provision that they take specified courses within a specified time and achieve grades above a specified threshold.

#### English Proficiency

A test of English proficiency is required of all applicants whose first language is not English. Please refer to the University of Guelph [Admission Requirements](#)

### Degree Requirements

Once a student has been admitted to the MSc program, the following components are required for the successful completion of the MSc degree:

- Completion of the Technical Communication and Research Methodology course (CIS\*6890) and at least four other graduate courses
- Completion of the seminar requirement.
- An accepted thesis.

#### Duration of the Program

The MSc degree is a two-year program during which students complete five courses, give a public seminar and complete and successfully defend a thesis. Heavy emphasis is placed on the thesis, which usually requires at least two semesters. Students should plan on spending at least four full-time semesters (16 months) in the program assuming adequate preparation for graduate work.

### Course Requirement

An MSc student is required to take the Technical Communication and Research Methodology course CIS\*6890 and at least four other CIS graduate courses. Of these four courses, at least two should be outside of the student's thesis topic area. This area and the courses which fall outside of this area are identified by the student's advisor. With approval from the Graduate Program Committee, a CIS graduate course requirement may also be met by a non-CIS graduate course or by a 4000-level course. At most one reading course (CIS\*6660) and at most one 4000-level course can count towards the course requirement.

### Seminar Requirement

An MSc student must give one publicly announced research seminar on his/her MSc thesis research. The student will be allocated times and dates for the seminar. It must be attended by the student's advisor and at least one other member of the student's Advisory Committee. The quality of the presentation is graded on a pass/fail basis. The MSc seminar requirement is intended for students to practice presentation and communication skills and to participate in the process of knowledge dissemination as part of the academic life.

### Thesis Defence

Arrangements for the MSc thesis defence should be made at least four weeks prior to the anticipated date of the defence, and the student must submit his/her MSc thesis to the Examination Committee at least two weeks prior to the defence. The examination consists of an oral presentation by the student followed by questions from the Examination Committee.

## Collaborative Specializations

### Artificial Intelligence

The School of Computer Science participates in the collaborative specialization in Artificial Intelligence. MSc students wishing to undertake thesis research with an emphasis on artificial intelligence are eligible to apply to register concurrently in Computer Science and the collaborative specialization. Students should consult the Artificial Intelligence listing for more information.

## Courses

### Core Courses

The core graduate courses are designed to be accessible to any student with an appropriate background in Computer Science and will provide enough introduction for those unfamiliar with the specific area to allow them to keep up with the advanced material.

#### CIS\*6000 Distributed Systems U [0.50]

The evolution of distributed computer systems. Models for distributed processing. Taxonomy of multiprocessor systems. Interconnection networks. Memory and I/O for distributed architectures. Performance of distributed systems. Architectural issues of distributed systems

*Department(s):* School of Computer Science

#### CIS\*6020 Artificial Intelligence U [0.50]

An examination of Artificial Intelligence principles and techniques such as: logic and rule based systems; forward and backward chaining; frames, scripts, semantic nets and the object-oriented approach; the evaluation of intelligent systems and knowledge acquisition. A sizeable project is required and applications in other areas are encouraged.

*Department(s):* School of Computer Science

#### CIS\*6030 Information Systems U [0.50]

Relational and other database systems, web information concurrency protocols, data integrity, transaction management, distributed databases, remote access, data warehousing, data mining.

*Department(s):* School of Computer Science

#### CIS\*6070 Discrete Optimization U [0.50]

This course will discuss problems where optimization is required and describes the most common techniques for discrete optimization such as the use of linear programming, constraint satisfaction methods, and genetic algorithms.

*Department(s):* School of Computer Science

#### CIS\*6320 Image Processing Algorithms and Applications U [0.50]

Brightness transformation, image smoothing, image enhancement, thresholding, segmentation, morphology, texture analysis, shape analysis, applications in medicine and biology.

*Department(s):* School of Computer Science

#### CIS\*6420 Soft Computing U [0.50]

Neural networks, artificial intelligence, connectionist model, back propagation, resonance theory, sequence processing, software engineering concepts.

*Department(s):* School of Computer Science

#### CIS\*6890 Technical Communication and Research Methodology U [0.50]

This course aims to develop students' ability in technical communication and general research methodology. Each student is expected to present a short talk, give a mini lecture, review a conference paper, write a literature survey and critique fellow students' talks and lectures.

*Department(s):* School of Computer Science

### Advanced Courses

The advanced graduate courses are taught with the assumption that the student has sufficient background in the research area to understand the advanced concepts and research ideas. Students who intend to take a course for which they have insufficient background should consult with the instructor prior to enrollment in the course.

#### CIS\*6050 Neural Networks U [0.50]

Artificial neural networks, dynamical recurrent networks, dynamic input/output sequences, communications signal identification, syntactic pattern recognition.

*Department(s):* School of Computer Science

#### CIS\*6060 Bioinformatics U [0.50]

Data mining and bioinformatics, molecular biology databases, taxonomic groupings, sequences, feature extraction, Bayesian inference, cluster analysis, information theory, machine learning, feature selection.

*Department(s):* School of Computer Science

#### CIS\*6080 Genetic Algorithms U [0.50]

This course introduces the student to basic genetic algorithms, which are based on the process of natural evolution. It is explored in terms of its mathematical foundation and applications to optimization in various domains.

*Department(s):* School of Computer Science

#### CIS\*6090 Hardware/Software Co-design of Embedded Systems U [0.50]

Specification and design of embedded systems, system-on-a-chip paradigm, specification languages, hardware/software co-design, performance estimation, co-simulation and validation, processes architectures and software synthesis, retargetable code generation and optimization.

*Department(s):* School of Computer Science

#### CIS\*6100 Parallel Processing Architectures U [0.50]

Parallelism in uniprocessor systems, parallel architectures, memory structures, pipelined architectures, performance issues, multiprocessor architectures.

*Department(s):* School of Computer Science

#### CIS\*6120 Uncertainty Reasoning in Knowledge Representation U [0.50]

Representation of uncertainty, Dempster-Schafer theory, fuzzy logic, Bayesian belief networks, decision networks, dynamic networks, probabilistic models, utility theory.

*Department(s):* School of Computer Science

#### CIS\*6130 Object-Oriented Modeling, Design and Programming U [0.50]

Objects, modeling, program design, object-oriented methodology, UML, CORBA, database

*Department(s):* School of Computer Science

#### CIS\*6140 Software Engineering U [0.50]

This course will discuss problems where optimization is required and describes the most common techniques for discrete optimization such as the use of linear programming, constraint satisfaction methods, and meta-heuristics.

*Department(s):* School of Computer Science

#### CIS\*6160 Multiagent Systems U [0.50]

Intelligent systems consisting of multiple autonomous and interacting subsystems with emphasis on distributed reasoning and decision making. Deductive reasoning agents, practical reasoning agents, probabilistic reasoning agents, reactive and hybrid agents, negotiation and agreement, cooperation and coordination, multiagent search, distributed MDP, game theory, and modal logics.

*Department(s):* School of Computer Science

#### CIS\*6200 Design Automation in Digital Systems U [0.50]

Techniques and software tools for design of digital systems. Material covered includes high-level synthesis, design for testability, and FPGAs in design and prototyping.

*Department(s):* School of Computer Science

#### CIS\*6490 Analysis and Design of Computer Algorithms U [0.25]

The design and analysis of efficient computer algorithms: standard methodologies, asymptotic behaviour, optimality, lower bounds, implementation considerations, graph algorithms, matrix computations (e.g. Strassen's method), NP-completeness.

*Department(s):* School of Computer Science

**CIS\*6650 Topics in Computer Science I U [0.50]**

This special topics course examines selected, advanced topics in computer science that are not covered by existing courses. The topic(s) will vary depending on the need and the instructor.

*Department(s):* School of Computer Science

**CIS\*6660 Topics in Computer Science II U [0.50]**

This is a reading course. Its aim is to provide background knowledge to students who need to get a head-start in their thesis research fields early during their program while no suitable regular graduate courses are offered. Admission is under the discretion of the instructor.

*Restriction(s):* Instructor consent required.

*Department(s):* School of Computer Science

## Creative Writing

The Master of Fine Arts (MFA) Program in Creative Writing is designed to prepare students for careers in creative writing, by exploring and developing their skills as writers, and providing them with a wide range of opportunities to connect with the arts and culture community. Critically acclaimed writers and literary professionals participate in the program as workshop instructors, mentors and visitors. Through its master classes, workshops and plenary courses, the MFA Program aims to assist new writers in locating their work in both a global and a national context. Students will pursue the program on a full-time basis. The program has been designed to facilitate completion within two years.

### Administrative Staff

#### Director

Ann Wilson (425 MacKinnon, Ext. 53881)  
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#### Graduate Program Coordinator

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#### Assistant to the Graduate Program Coordinator, MFA Creative Writing Program

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### Graduate Faculty

#### Dionne Brand

BA, MA O.I.S.E. Toronto - Professor and University Research Chair

#### Catherine Bush

BA Yale - Assistant Professor

#### Sky Gilbert

BA York , MA, PhD Toronto - Professor

#### Judith Thompson

BA Queen's, Cert. National Theatre School - Professor

### Associated Graduate Faculty

#### Karen Connelly

Author

#### Kevin Connolly

BA York - Poet

#### Camilla Gibb

BA Toronto, DPhil Oxford - June Callwood Professor, Victoria College, Univ. of Toronto

#### Kathryn Kuitenbrouwer

BA Ottawa - Writer

#### Kyo Maclear

BA Toronto, MA, OISE - Writer

#### Shani Mootoo

BFA Western, MA Guelph - Writer

#### Russell Smith

Writer

#### Susan Swan

BA McGill - Author

#### Michael Winter

Writer

### MFA Program

### Admission Requirements

The normal minimum requirement for admission to the MFA Program is a baccalaureate degree, in an honours program or the equivalent, from a recognized degree-granting institution. There are no requirements as to the discipline in which the degree was earned. Successful applicants will be expected to have achieved an average standing of at least a 'B-' in their last four semesters of study. A limited number of students, however, may be admitted to the MFA without having satisfied the degree requirement and/or academic standing requirements set out above if they are assessed as qualified to undertake graduate studies in creative writing on the basis of other experience and/or practice.

### Admissions Portfolio

Students will be selected for admission to the MFA program primarily on the basis of a portfolio. The portfolio should be between 25 and 40 pages in length and may contain published and/or unpublished work and/or work-in-progress. It must include a minimum of two separate works (or excerpts from separate works). Applicants are encouraged to submit works in more than one genre, e.g., fiction and poetry. Considerations of balance over the program as a whole, with respect to genres in which applicants are particularly interested and particularly strong, will have some impact on admission decisions.

### Degree Requirements

Students will take one workshop and one plenary course in the first (Fall) semester of study; one workshop in the second (Winter) semester; the individual study course in the third (Summer) semester; and one workshop and a second plenary course in the fourth (Fall) semester. The remaining two semesters of the two-year program will be devoted to the thesis. With permission, MFA students may choose to take one or two courses at the University of Guelph - e.g., MA courses in the School of English and Theatre Studies. All students will be required to complete at least six semesters of study.

### Plenary Courses

There are two Plenary courses, CRWR\*6000 and CRWR\*6010, and both are required courses for MFA students. Plenary courses will be offered on an alternate-year basis in the Fall semester, allowing students to take one in the Fall semester of their first year, and one in the Fall semester of their second year. These courses are intended in part to provide a forum for visiting writers and other literary professionals. Each course will also have a substantial component addressing practical matters associated with the progress of a writer's career.

### Workshops

Students are required to take three workshops over the course of the program; the genres in which workshops will be offered are fiction, poetry, drama, and creative non-fiction. Students are also required to ensure through their selection of workshops that they work in a minimum of two separate genres and are strongly encouraged to take workshops that include work in at least three genres. The workshops will be strongly focused on writing, but each will also incorporate a substantial reading component.

### Individual Study Course

The individual study course, required in the third (Summer) semester of the program, pairs each student with a mentor. It is intended to install within the curriculum a critical opportunity to address the variable learning needs of individual students. For the majority of students, it will be an intensive writing course, supplemented by a reading component that allows for additional work in the student's primary genre and offers the chance to build a body of work towards the thesis. For some students, it may be primarily a reading course, with practice in writing in relation to particular models, or provide an opportunity to develop a significant project in a secondary genre.

### Thesis

The thesis is the single most important component of the MFA Program. Students should register for UNIV\*7500 in each semester that they are writing their thesis. The thesis may be a novel, a book-length manuscript of poems, a collection of short stories, a full-length play or screenplay, or a work of creative non-fiction. The standard to be applied is that the thesis should not be a first draft but have undergone significant revision and be approaching publishable quality in the estimation of the examiners.

### Courses

For courses without a semester designation the student should consult the Associate Coordinator or Assistant to the Associate Coordinator.

<b>CRWR*6000 Plenary Course: Writers on Writing F [0.50]</b>
This required plenary course addresses important historical and contemporary perspectives on creative writing as an art, a practice, and a profession. Readings, discussion and visits from writers and other literary professionals will help students to articulate effectively their own literary aesthetic and to develop professional skills.
<i>Restriction(s):</i> MFA.CW students only
<i>Department(s):</i> School of English and Theatre Studies
<b>CRWR*6010 Plenary Course: Writers in the World F [0.50]</b>
This required plenary course addresses changing and conflicting ideas about the responsibilities of the writer in the world. Readings, discussion, and visits from writers and other literary professionals will help students to articulate effectively their own positions and to develop professional skills.
<i>Restriction(s):</i> MFA.CW students only
<i>Department(s):</i> School of English and Theatre Studies
<b>CRWR*6100 Poetry Workshop F-W [0.50]</b>
The Poetry Workshop engages students in an intensive program of reading and writing work. The workshops will be strongly focused on writing and on responding to the work of students in the course with productive, constructive criticism. Students will have the opportunity to work closely with a nationally recognized poet to develop their own skills as poets and editors. Students are expected to read widely and to develop their understanding of the technical aspects of their craft.
<i>Restriction(s):</i> MFA.CW students only
<i>Department(s):</i> School of English and Theatre Studies

**CRWR\*6200 Fiction Workshop F-W [0.50]**

The Fiction Workshop engages students in an intensive program of reading and writing work. The workshops will be strongly focused on writing and on responding to the work of students in the course with productive, constructive criticism. Students will have the opportunity to work closely with a nationally recognized author to develop their skills as writers and editors. Students are expected to read widely and to develop their understanding of the technical aspects of their craft.

*Restriction(s):* MFA.CW students only

*Department(s):* School of English and Theatre Studies

**CRWR\*6300 Drama Workshop U [0.50]**

The Drama Workshop engages students in an intensive program of writing and reading work. Students will produce a substantial amount of dramatic writing and will also provide constructive criticism of the work of other workshop participants. Required reading will cover a wide range of dramatic literature and the study of dramatic forms and techniques.

*Restriction(s):* MFA.CW students only

*Department(s):* School of English and Theatre Studies

**CRWR\*6400 Practicum in Creative Writing U [0.50]**

In this course of guided study, the student will work on a creative project with a mentor who is a recognized member of the professional writing community.

*Restriction(s):* MFA.CW students only

*Department(s):* School of English and Theatre Studies

**CRWR\*6500 Non-Fiction Workshop U [0.50]**

The Non-Fiction Workshop engages students in a reading and writing intensive program of creative non-fiction. The workshops will be strongly focused on writing and will involve the creation and revision of a substantial body of new work in the genre, as well as critiquing the work of other students in the course. The reading component will focus on texts from a varied social and cultural range (e.g. family memoir, travel narrative, cultural memoir, themed meditation).

*Restriction(s):* MFA.CW students only

*Department(s):* School of English and Theatre Studies

**CRWR\*6600 Special Topics in Creative Writing U [0.50]**

A variable-content course focusing on a particular issue or approach to writing within one genre of creative writing (fiction, poetry, drama, etc.) or a particular issue or approach to writing that is at work across multiple genres.

*Department(s):* School of English and Theatre Studies

## Criminology and Criminal Justice Policy

The MA in Criminology and Criminal Justice Policy (CCJP) is a program jointly run by the Department of Sociology and Anthropology and the Department of Political Science. As such, the program offers a unique opportunity for students to pursue advanced studies and research in crime and the criminal justice system from both sociological and criminological perspectives as well as from political science and public policy and management perspectives.

### Administrative Staff

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### Graduate Faculty

#### Dennis Baker

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#### Ryan Broll

MA, PhD Western - Assistant Professor

#### Myrna Dawson

BA York, MA, PhD Toronto - Professor

#### Andrew Hathaway

BA, MA Calgary, PhD McMaster - Associate Professor

#### Madonna Maidment

BA, MA Memorial, PhD Carleton - Associate Professor

#### Mavis Morton

BA Carleton, MA, PhD York - Associate Professor

#### William O'Grady

BA, MA Carleton, PhD Toronto - Professor

#### Patrick Parnaby

BA, MA Queen's, PhD McMaster - Associate Professor

#### Troy Riddell

BA, MA Calgary, PhD McGill - Associate Professor

#### Byron M. Sheldrick

BA Carleton, LLB Toronto, MA, PhD York - Associate Professor

#### Ron Stansfield

BSc McMaster, BA, MA Toronto, PhD York - Associate Professor

#### Carolyn Yule

BA UBC, MA, PhD Toronto - Assistant Professor

### MA Program

### Admission Requirements

The program requires a 4-year undergraduate degree in Sociology, Criminology or Political Science, but students with at least 5 courses in one or more of these three disciplines may be admitted as long as these were part of a major in another social science or humanities program. The program requires a minimum of a "B+" average to be considered for admission. Generally, those admitted will have a higher academic average.

### Degree Requirements

Students enrol in one of two study options: 1) course work or course work and major research paper, or 2) thesis option. These options are detailed below.

#### Thesis

Students are required to complete four (4) core courses and a thesis.

The core courses are:

CCJP*6100	[0.50]	Governing Criminal Justice
CCJP*6200	[0.25]	Professional Seminar in CCJP
CCJP*6300	[0.75]	Research Methods in Criminal Justice
SOC*6350	[0.50]	Society, Crime and Control

#### Course Work and Major Research Paper (MRP)

Students are required to complete five (5) core courses, one (1) elective and the MRP.

The core courses are:

CCJP*6000	[0.50]	Courts
CCJP*6100	[0.50]	Governing Criminal Justice
CCJP*6200	[0.25]	Professional Seminar in CCJP
CCJP*6300	[0.75]	Research Methods in Criminal Justice

SOC\*6350 [0.50] Society, Crime and Control

One elective from the list found in the Courses section below and the MRP completed under the supervision of a faculty supervisor:

CCJP\*6660 [1.00] Major Research Paper

### Course Work

Students are required to complete five (5) core courses and three (3) electives for a total of 4.0 credits.

The core courses are:

CCJP*6000	[0.50]	Courts
CCJP*6100	[0.50]	Governing Criminal Justice
CCJP*6200	[0.25]	Professional Seminar in CCJP
CCJP*6300	[0.75]	Research Methods in Criminal Justice
SOC*6350	[0.50]	Society, Crime and Control

Three elective courses from the list found in the Courses section below.

### Courses

For courses without a semester designation the student should consult the Graduate Program Coordinator.

### Core Courses

CCJP*6000 Courts W [0.50]	
This course examines courts from a variety of political, social, and socio-legal perspectives depending on the interest of the instructor(s). Particular attention will be paid to the role of courts in shaping criminal justice policy through such means as constitutional decisions and sentencing decisions.	
<i>Restriction(s):</i>	CCJP students. Instructor consent required.
<i>Department(s):</i>	Department of Sociology and Anthropology, Department of Political Science

CCJP*6100 Governing Criminal Justice F [0.50]	
This course analyzes criminal justice policy and governance of the criminal justice system from applied and theoretical perspectives. Particular attention is paid to the interplay between criminal justice policy and management and the larger political process.	
<i>Restriction(s):</i>	CCJP students
<i>Department(s):</i>	Department of Political Science

CCJP*6200 Professional Seminar in CCJP F,W [0.25]	
This course introduces students to graduate studies in the program; to the professions of sociology, political science and criminology; and to professional life in occupations related to criminal justice. It includes information on the following: the program and how it relates to criminology, sociology and political science; library and computer research; research in the field; challenges facing criminal justice professionals; applying for further graduate study and research funding; and skill development.	
<i>Restriction(s):</i>	CCJP students
<i>Department(s):</i>	Department of Sociology and Anthropology, Department of Political Science

CCJP*6300 Research Methods in Criminal Justice F [0.75]	
This course introduces students to the primary methods, data sources and statistical methods used in criminal justice and criminology research. Particular attention will be paid to the role research and methods and statistics play in shaping criminal justice/criminological theory, research and policy.	
<i>Restriction(s):</i>	CCJP students. Instructor consent required.
<i>Department(s):</i>	Department of Sociology and Anthropology

SOC\*6350 [0.50] Society, Crime and Control

### Elective Courses

SOC*6070	[0.50]	Sociological Theory
SOC*6130	[0.50]	Quantitative Research Methods
SOC*6140	[0.50]	Qualitative Research Methods
SOC*6270	[0.50]	Diversity and Social Equality
POLS*6400	[0.50]	Citizenship and Social Policy
POLS*6630	[0.50]	Approaches to Public Policy
POLS*6640	[0.50]	Canadian Public Administration: Public Sector Management
POLS*6950	[0.50]	Specialized Topics in Political Studies
SOC*6600	[0.50]	Reading Course

### Major Research Paper Course

CCJP*6660 Major Research Paper S,F,W [1.00]	
The major paper is an extensive research paper for those who do not elect to complete a thesis. It may be taken over two semesters.	
<i>Restriction(s):</i>	Restricted to CCJP graduate students
<i>Department(s):</i>	Department of Sociology and Anthropology, Department of Political Science

## Economics

The Department of Economics and Finance offers programs of study leading to the MA and PhD degrees in the following fields: 1) Econometrics, 2) Financial Economics, 3) Resources, Environment and Energy, 4) Development and Growth and 5) Applied Microeconomics.

- Econometrics (PhD)
- Financial Economics (MA, PhD)
- Resources, Environment and Energy (PhD)
- Development and Growth (PhD)
- Applied Microeconomics (PhD)

### Administrative Staff

#### Chair

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#### Graduate Program Assistant

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### Graduate Faculty

#### J. Atsu Amegashie

BA Ghana, MA Queen's, MA Dalhousie, PhD Simon Fraser - Professor

#### Kurt Annen

MA, PhD Fribourg (Switzerland) - Associate Professor

#### C. Bram Cadsby

BSc London School of Economics, MA Queen's, PhD MIT - Professor

#### Laurent Cellarier

BA, MA Limoges (France); PhD Southern California - Associate Professor

#### Brian S. Ferguson

BA Mount Allison, MA Guelph, PhD Australian National - Professor

#### Talat Genc

BS, MA Bogazici, MA, Ms, PhD Arizona - Associate Professor

#### Johanna Goertz

BSc Bonn, MA, PhD Ohio State - Associate Professor

#### Nikola Gradojevic

BSc, MSc Eng Novi Sad, MA Essex and CEU, PhD British Columbia - Professor

#### Louise A. Grogan

BSc London School of Economics, MA Catholique de Louvain, PhD Amsterdam - Associate Professor

#### Michael J. Hoy

BMath Waterloo, PhD London School of Economics - Professor

#### Kris E. Inwood

BA Trent, MA, PhD Toronto - Professor

#### Rene Kirkegaard

BA, MSc, PhD Aarhus - Professor

#### Stephen Kosempel

BA Queen's, MA Victoria, PhD Simon Fraser - Associate Professor and Chair

#### Delong Li

BA, BS Tsinghua, MA, Peking, MA, PhD John Hopkins - Assistant Professor

#### Mei Li

BA, MA Wuhan, MA, PhD Queen's - Associate Professor

#### Patrick Martin

BA California (Irvine), MA Cornell, PhD Guelph - Assistant Professor

#### Alex Maynard

BA Cornell, MA, MPhil, PhD Yale - Professor

#### Chris J. McKenna

BSc Salford, DPhil York - Professor

#### Ross McKittrick

BA Queen's, MA, PhD British Columbia - Professor

#### Miana Plesca

BSc Technical University of Cluj (Romania); MA Georgetown (Washington, D.C.); PhD Western Ontario - Associate Professor

#### David M. Prescott

BA Durham, MA Warwick, PhD Queen's - Professor

#### Asha Sadanand

BSc, MA Alberta, PhD California Institute of Technology - Professor

#### Thanasis Stengos

BSc, MSc London School of Economics, PhD Queen's - Professor

#### Yiguo Sun

BSc Hebei Normal, MSc Hebei Teacher's, MA Guelph, PhD Toronto - Professor

#### Francis Tapon

DES Paris, MBA Columbia, MA, PhD Duke - Professor

#### Henry Thille

BComm Saskatchewan, MA, PhD British Columbia - Associate Professor

#### Ilias Tsiakas

BA Toronto, MA York, PhD Toronto - Professor

### MA Program

The MA program contains core courses in theory and quantitative methods.

### Admission Requirements

The university requires that students have the equivalent of an honours degree at the baccalaureate level.

Admission to the MA program requires that students have a solid background in economic theory and econometrics from a recognized undergraduate program. Normally, the Department requires a 'B+' average as a minimum.

Students whose background is not in economics but who are otherwise outstanding should consult the [Department website](#) for further information. Applicants whose background in economics is difficult to evaluate may be granted admission as a provisional graduate student for one semester. If, at the end of the semester, the Department is satisfied with the student's progress, it will recommend to the Assistant Vice-President (Graduate Studies) that the student be transferred to regular graduate student status.

Program offices should be consulted for admission deadlines.

### Degree Requirements

The MA requires the completion of a minimum of 4.0 course credits. Most one-semester courses have 0.5 course credits. With approval from the Department, up to 1 credit of the required 4 credits can be taken outside the Department of Economics and Finance. However, students may, with approval, take additional courses from other Departments provided that their program includes at least six course equivalents (3.0 credits) from the Department of Economics and Finance. The minimum duration of the program is 2 semesters of full-time study as a regular graduate student. There are two options to the MA in Economics: (i) by course work, and (ii) by course work and major research paper.

### Course Work and Major Research Project

A minimum of 4.0 credits is required, including:

1. The Economics Core (1.5 credits)
 

ECON*6020	[0.50]	Macroeconomic Theory I
ECON*6500	[0.50]	Microeconomic Theory MA
ECON*6140	[0.50]	Econometrics I
or		
ECON*6180	[0.50]	Econometric Methods
2. Three additional courses (1.5 credits)
3. ECON\*6940 [1.00] Research Project

### Course Work

A minimum of 4.0 credits is required, including:

1. The Economics Core (1.5 credits)
 

ECON*6020	[0.50]	Macroeconomic Theory I
ECON*6500	[0.50]	Microeconomic Theory MA
ECON*6140	[0.50]	Econometrics I
or		
ECON*6180	[0.50]	Econometric Methods
2. Five additional courses (2.5 credits). At least two courses must have substantial research components (50% or more of the total course grade).

### Course Work and Major Research Project in the Field of Financial Economics

1. The Economics Core (1.5 credits)
 

ECON*6020	[0.50]	Macroeconomic Theory I
ECON*6500	[0.50]	Microeconomic Theory MA
ECON*6140	[0.50]	Econometrics I
or		
ECON*6180	[0.50]	Econometric Methods
2. The Finance Core (1.5 credits)
 

ECON*6380	[0.50]	Financial Economics
ECON*6390	[0.50]	Empirical Finance and Financial Econometrics
ECON*6820	[0.50]	Security Analysis and Portfolio Management
3. ECON\*6940 [1.00] Research Project

### Course Work in the Field of Financial Economics

A minimum of 4.0 credits is required, including:

1. The Economics Core (1.5 credits)
 

ECON*6020	[0.50]	Macroeconomic Theory I
ECON*6500	[0.50]	Microeconomic Theory MA
ECON*6140	[0.50]	Econometrics I

- or  
ECON\*6180 [0.50] Econometric Methods
2. The Finance Core (1.5 credits)
- ECON\*6380 [0.50] Financial Economics  
ECON\*6390 [0.50] Empirical Finance and Financial Econometrics  
ECON\*6820 [0.50] Security Analysis and Portfolio Management
- Note that all courses in the finance core have substantial research components (50% or more of the total course grade).
3. Two additional courses (1.0 credits). Students are encouraged to take:
- ECON\*6320 [0.50] International Finance  
ECON\*6490 [0.50] Money and Banking

## PhD Program

The objective of the PhD program is to train individuals who already have a strong background in economics to become independent and skilled researchers, in preparation for a career in academia, government or the private sector. Course offerings cover a broad range of topics in theoretical and applied economics. PhD candidates may write a dissertation in any of the areas of expertise of the graduate faculty in the Department.

Graduates are expected to have demonstrated competence at an advanced level in the core areas of Microeconomic theory, Macroeconomic theory, and Econometrics, to have demonstrated competence at the cutting edge of knowledge in their area of specialization and advanced competence in at least one other area, and to have demonstrated mature scholarship, research and communication abilities.

## Admission Requirements

Applicants to the PhD program should have a master's degree in economics with a minimum average of 80% (A-) in their postgraduate studies. Applicants without a master's degree but with an outstanding record at the baccalaureate level, may be admitted initially to the MA program in economics. For students who achieve a superior record and show an aptitude for research, The Board of Graduate Studies, on the recommendation of the Department, may authorize transfer to the PhD program without requiring the student to complete a master's degree.

## Degree Requirements

The program requires the satisfactory completion of a minimum of 12 courses covering core theory, econometrics, and field courses. (Students with an MA will be given credit for courses already in hand, where appropriate). The following sequence of milestones represents the typical path through the PhD program.

### Year I: Core Courses

Students must complete the following courses, in preparation for the comprehensive examinations in economic theory, which is written at the end of Year I:

#### Econometrics

ECON*6140	[0.50]	Econometrics I
ECON*6160	[0.50]	Econometrics II

#### Theory

ECON*6000	[0.50]	Microeconomic Theory I
ECON*6010	[0.50]	Microeconomic Theory II
ECON*6020	[0.50]	Macroeconomic Theory I
ECON*6040	[0.50]	Macroeconomic Theory II

### Year II: Dissertation Proposal

After the theory comprehensive exams are passed, students must prepare a PhD proposal under the supervision of a faculty member. Proposals are presented to the Department at a symposium, and upon acceptance the Graduate Program Coordinator will notify the Assistant Vice-President (Graduate Studies) that the student has passed the "Qualifying Examination" requirement as set out by the Faculty of Graduate Studies. At this point, the student becomes a "candidate" for the PhD.

### Year III and IV: Thesis

Submission and defence of an acceptable thesis on a topic approved by the student's advisory committee completes the requirements for the PhD. The thesis is expected to be a significant and original contribution to knowledge in its field and must demonstrate scholarship and critical judgement on the part of the candidate. Theses must be submitted within 48 months of completing the minimum duration.

## Collaborative Specializations

### International Development Studies

The Department of Economics and Finance participates in the International Development Studies (IDS) MA collaborative specialization. Applicants for this collaborative specialization enter through one of the participating departments; course selections are based, in part, on the applicant's primary discipline. Those faculty members in the Department of Economics and Finance whose research and teaching expertise includes aspects of international development studies may serve as advisors for these MA students. Please consult the International Development Studies listing for a detailed description of the MA collaborative specialization including the special additional requirements for each of the participating departments.

## Courses

### Economic Theory

#### ECON\*6000 Microeconomic Theory I U [0.50]

A graduate course in microeconomics, intended for PhD students, presenting a rigorous treatment of the analysis of choices for consumers and producers with and without strategy and uncertainty, partial and general equilibrium, and the fundamental theorems of welfare economics.

*Department(s):* Department of Economics and Finance

#### ECON\*6010 Microeconomic Theory II U [0.50]

Advanced topics in modern microeconomics to include elements of game theory, information economics, economics of risk and uncertainty, the theory of incentives and others.

*Prerequisite(s):* ECON\*6000

*Department(s):* Department of Economics and Finance

#### ECON\*6020 Macroeconomic Theory I U [0.50]

A first graduate course in macroeconomics, presenting a rigorous introduction to the tools and basic models of dynamic general equilibrium theory. The topics covered include economic growth and development, economic fluctuations, and monetary and fiscal policies.

*Department(s):* Department of Economics and Finance

#### ECON\*6040 Macroeconomic Theory II U [0.50]

This course considers the dynamics resulting from intertemporal optimization models. Foundations of unemployment theory. Approaches to business cycles. Models of long-run growth.

*Prerequisite(s):* ECON\*6020

*Department(s):* Department of Economics and Finance

#### ECON\*6060 Mathematical Methods for Economics F [0.00]

This course is designed to provide students with the necessary mathematical tools to follow the contents of the core economics and econometrics courses in the MA program and successfully complete them. The material covered will include advanced topics in linear algebra, multivariate optimization techniques and comparative statics.

*Department(s):* Department of Economics and Finance

#### ECON\*6090 Game Theory U [0.50]

This course introduces the student to game theory, which is an important tool for modelling economic situations with multi-person interaction. Economic applications such as oligopoly, bargaining, auctions, and public goods provision will be discussed. Broader applications to voting games, candidate strategy, war games, and parlour games will also be briefly discussed. Students need to be very familiar with optimization and single person decision-making.

*Department(s):* Department of Economics and Finance

#### ECON\*6100 Experimental Economics U [0.50]

This course examines the use of the experimental methodology in economics. We will study how experiments have been used to test theories in many subfields within economics. In the process, students will learn how to construct and run economics experiments and analyze experimental data.

*Department(s):* Department of Economics and Finance

#### ECON\*6110 Mathematical Economics U [0.50]

This course introduces students to the mathematical techniques used in advanced economic analysis. Topics covered in any year: analysis of dynamic economic models and optimization in dynamic economic models.

*Department(s):* Department of Economics and Finance

#### ECON\*6500 Microeconomic Theory MA U [0.50]

A first graduate course in microeconomics, intended for Master students, presenting a rigorous treatment of the analysis of choices in markets and organizations. It covers consumer theory, general equilibrium, uncertainty, game theory, and information economics.

*Restriction(s):* Restricted to MA students only.

*Department(s):* Department of Economics and Finance

### Econometrics

#### ECON\*6050 Introduction to Econometric Methods U [0.50]

Introduction to the specification, estimation and testing of economic models. Topics include the classical linear regression model, t tests, structure tests, specification error, the consequences of the violation of the classical assumptions, detection and correction of autocorrelation and heteroscedasticity.

*Department(s):* Department of Economics and Finance



**ECON\*6140 Econometrics I U [0.50]**

Topics include a review of the classical linear regression model, applications of generalized least squares, maximum likelihood methods and various statistical test procedures.

*Department(s):* Department of Economics and Finance

**ECON\*6160 Econometrics II U [0.50]**

Topics include maximum likelihood as a method of estimation and inference, nonlinear estimation and simultaneous equations. Also more specialized topics such as limited-dependent-variable models and non-parametric regression methods may be covered.

*Department(s):* Department of Economics and Finance

**ECON\*6170 Topics in Econometrics U [0.50]**

This is an advanced econometrics topics course that covers the area of non-parametric and semiparametric estimation and testing of econometrics models, including time series and panel data semiparametric models.

*Department(s):* Department of Economics and Finance

**ECON\*6180 Econometric Methods U [0.50]**

This course follows ECON\*6050. It covers estimation by instrumental variables, estimations of simultaneous systems, asymptotic distribution theory, maximum likelihood estimation, binary choice and limited dependent variable models, and issues in time series analysis.

*Department(s):* Department of Economics and Finance

**Economic History****ECON\*6200 Economic History U [0.50]**

This course considers topics in economic history which vary from year to year. The emphasis will be usually on late-19th or 20th century topics and often involves a world emphasis. Student presentations and papers form a large part of the course.

*Department(s):* Department of Economics and Finance

**ECON\*6370 Economic Development in Historical Perspective U [0.50]**

This course will examine the experience of economic development focusing on the emergence of the Third World. Topics for discussion will vary from year to year; they may include the impact of trade expansion during the eighteenth and nineteenth centuries, the role of manufacturing as a leading sector, statist vs. the new classical approaches to government policy, and others.

*Department(s):* Department of Economics and Finance

**Money and Finance****ECON\*6320 International Finance U [0.50]**

This course deals with the theoretical policy and issues of international finance. Topics may include exchange rate determination, capital flows in international markets, the financing of trade flows, and open economy macroeconomic models and policy issues.

*Department(s):* Department of Economics and Finance

**ECON\*6380 Financial Economics U [0.50]**

This course has three objectives: (i) build a common background for all students in asset pricing and corporate finance in order to facilitate discussion of finance research; (ii) provide an in-depth look at selected finance topics, and (iii) expose students to top published research papers.

*Department(s):* Department of Economics and Finance

**ECON\*6390 Empirical Finance and Financial Econometrics U [0.50]**

This course covers topics in empirical finance, involving the integration of financial theory, financial econometrics, and data analysis. Students will learn how empirical research in finance is conducted through reading involving both textbooks and journal articles and from conducting an independent research project.

*Department(s):* Department of Economics and Finance

**ECON\*6490 Money and Banking U [0.50]**

This course studies monetary economies using overlapping generations models, MIU models and CIA models. More specifically, we will study major issues in money and banking, such as the role of money and banks, the cost of inflation, and the optimal monetary policies.

*Department(s):* Department of Economics and Finance

**ECON\*6820 Security Analysis and Portfolio Management U [0.50]**

This course has three goals: 1. to teach students how to analyze companies in the context of constructing equity portfolios. 2. to help students understand the valuation process of firms and calculate companies intrinsic value. 3. to make students aware of the role and activities of equity security analysts in highly competitive markets.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Economics and Finance

**Developmental Economics****ECON\*6350 Economic Development U [0.50]**

This course examines economic development from an international perspective: theories, history, policies and prospects.

*Department(s):* Department of Economics and Finance

**Labour Economics****ECON\*6600 Labour Economics U [0.50]**

Major themes in labour market theory including static and dynamic labour demand and supply, migration and wage structures and dynamics, unemployment, migration and the role of social programs.

*Department(s):* Department of Economics and Finance

**ECON\*6610 Topics in Labour Economics U [0.50]**

This course complements ECON\*6600. Topics include advanced issues in family labour supply, human capital, wage bargaining and contract theory, search theory, duration analysis and its application to major labour market spells such as employment and unemployment.

*Department(s):* Department of Economics and Finance

**Environmental and Resource Economics****ECON\*6800 Environmental Economics U [0.50]**

A topics course concerning the interrelationships between economic activities and the state of the natural environment. Topics may include: pollution and economic growth; energy use and environmental quality; international trade and pollution; policies for controlling pollution; techniques for assessing the benefits of environmental improvement.

*Department(s):* Department of Economics and Finance

**ECON\*6810 Economic Theory of Natural Resources Use U [0.50]**

This course examines economic models of the use of non-renewable resources to analyze issues such as resource conservation, sustainable development, taxation of resource rents, and price determination in resource markets.

*Department(s):* Department of Economics and Finance

**Other****ECON\*6300 International Trade Theory U [0.50]**

This course provides a rigorous treatment of both positive and normative aspects of trade theory through extensive use of general equilibrium models under varying assumptions. Topics may also include barriers to trade, international factor movements, growth and development, and strategic trade policy.

*Department(s):* Department of Economics and Finance

**ECON\*6400 Public Finance U [0.50]**

This course surveys the normative theory of the public sector. Topics may include public expenditure theory, tax theory, cost benefit analysis and fiscal federalism.

*Department(s):* Department of Economics and Finance

**ECON\*6650 Economics of Social Welfare U [0.50]**

This course deals with the analysis of social welfare programs, concentrating on national health insurance. It covers their structure, incentives and distribution effects, and includes empirical analysis of existing programs.

*Department(s):* Department of Economics and Finance

**ECON\*6700 Industrial and Market Organization U [0.50]**

The major topics of industrial organization are analyzed from both a game theoretic perspective and from a Structure-Conduct-Performance perspective. Typical topics include: oligopoly theory, determinants of industrial structure, Coase theorem, market entry, advertising, research and development, product differentiation, and price discrimination.

*Department(s):* Department of Economics and Finance

**ECON\*6750 Managerial Economics U [0.50]**

The course introduces students to the latest developments in the economic analysis of the inside workings and organization of firms. The course tries to explain the diversity of economic organizations, and more generally why economic activity is sometimes carried out through firms and sometimes through markets. For graduate students outside the Department of Economics and Finance.

*Department(s):* Department of Economics and Finance

**ECON\*6770 Financial Management U [0.50]**

This course examines the implications of financing decisions made by firms in a world of uncertainty. Topics such as capital budgeting, capital structure, dividend policy, market efficiency and capital asset pricing will be analyzed from the perspective of corporate finance and portfolio management theory. Co-requisite: AGEC\*6070. For graduate students outside the Department of Economics and Finance.

*Department(s):* Department of Economics and Finance

**ECON\*6930 Reading Course U [0.50]**

In some circumstances, students may arrange to take a reading course under the direction of a faculty member.

*Department(s):* Department of Economics and Finance

**ECON\*6940 Research Project U [1.00]**

All students who choose the research project option in the MA program will register in this course. Research projects are written under the direct supervision of a faculty member. Normally, research projects are completed within one or two semesters. Students must make a presentation of their work and a copy of the final report must be submitted to the Department before the final grade is submitted to the Office of Graduate and Postdoctoral Studies.

*Department(s):* Department of Economics and Finance

**ECON\*6950 Finance Research Project S [0.50]**

This program is a supervised research project exclusively for students in the Finance Specialization stream in the MA program. Students may elect either to write a major paper in a finance-related topic or to do a placement in a financial consulting company to conduct a structured portfolio analysis. Students must indicate their preference prior to the start of the summer semester to the Graduate Program Coordinator, who will oversee placements.

*Prerequisite(s):* ECON\*6000, ECON\*6140, ECON\*6380, ECON\*6820, AND ECON\*6930,

*Restriction(s):* For students in the MA Economics Finance Specialization

*Department(s):* Department of Economics and Finance

## Engineering

The graduate degree programs offered in the School of Engineering include a course-work MEng and research thesis programs at the MSc and PhD levels. All programs are offered as full- or part-time studies. These programs provide for specialization in six fields of study: 1) Biological Engineering 2) Computer Engineering 3) Environmental Engineering 4) Engineering Systems and Computing 5) Mechanical Engineering 6) Water Resources Engineering. In addition, the School of Engineering offers two graduate diploma programs: Modelling Applications in Water Resources Engineering and Engineering Design of Sustainable Water Resource Systems.

- **Biological Engineering** is broadly categorized as bio-process, food, biomedical or biomechanical engineering. Research is conducted in many areas such as: physical, chemical and thermal processing of food, biomaterials or waste; physical properties of biological materials; process control; remote sensing; medical imaging; bioinstrumentation design and the development of medical diagnostics; ergonomic and prosthetic biomechanics; design of implants and surgical tools for human and veterinary applications.
- **Computer Engineering** is about the design and implementation of computer devices and systems. Driven by the ubiquity of integrated computing systems, Computer Engineering has expanded from a discipline with a few core areas, mainly focused on the design of microchips, to a broad field with widespread ramifications. It involves mapping computing ideas into physical implements and software components. Some active research areas include: integrated circuits and microprocessors, digital systems design and computer architecture, high-performance and configurable computing, telecommunication and cloud-computing networks, operating systems and software engineering.
- **Environmental Engineering** involves methods to prevent or mitigate damage to the environment by the reduction, treatment, or reclamation of solid, liquid, or gaseous by-products of industrial, agricultural and municipal activities. Emphasis is on the behaviour and fate of contaminants in the environment. Recent research topics include the following: composting of organic solids; control and remediation of chemical spills; wastewater treatment; soil/site remediation technology; policy innovations; air pollution and meteorology; vapour exchange and supercritical fluid extraction; air-surface pollutant exchange measurement; bio-filtration and membrane technologies; modelling of environmental processes.
- **Engineering Systems and Computing** involves development of digital or microelectronic devices, computer or robotic technologies and their application to manufacturing, computing, mechatronic or embedded systems. Some active research areas include: soft computing and neural networks; autonomous robots; intelligent control systems; micro-electromechanical (MEMS) devices; embedded systems and special purpose computing; VLSI circuit design and layout; analog integrated circuits and system-on-chip design; integrated sensor systems and networks; digital devices and signal processing; wireless and optical communication systems; cryptographic systems.
- **Mechanical Engineering** combines individual depth of experience and competence in a particular chosen major specialty with a strong background in the basic and engineering sciences. It strives to develop professional independence, creativity, leadership, and the capacity for continuing professional and intellectual growth. To help support the objectives of graduate degree programs at Guelph, an interdisciplinary learning environment is provided. Research areas that are pertinent and in line with Guelph's vision include: sustainable energy, sustainable mobility, sustainable design, life-cycle design and assessment, systems modernization, materials and manufacturing, thermo-fluids, solid mechanics, remanufacturing, intelligent control system, closed-loop supply chain management, product life assessment and engineering management.
- **Water Resources Engineering** involves investigation, analysis and design of systems for control and utilization of land and water resources as part of the management of urban and rural watersheds. Research areas include: water quality control and safety; resource use and groundwater quality; hydrologic modelling; design and planning of urban water and sewage infrastructure; rural waste treatment systems; erosion control; non-point source pollution and mitigation; Geographic Information Systems (GIS); sediment and contaminant transport; irrigation and drainage modelling.

## Administrative Staff

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### Marwan Hassan

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#### **Syeda Tasnim**

MASc, PhD Waterloo - Assistant Professor

#### **Hugh Whitely**

BSc Queens, MSc Minnesota, PhD Guelph - Retired Faculty

### **MASc Program**

The MASc program is intended to provide advanced training in engineering sciences, analysis, design, and research methodology. This objective is achieved through a combination of course work, applied research, and thesis writing. Upon graduation students will be able to analyse and research an engineering problem and apply their acquired skills and knowledge in a practical solution. A final examination is conducted following a public seminar presentation of the student's thesis.

### **Admission Requirements**

In addition to the general admission standards of the university, the school has adopted additional admissions criteria for MASc studies. Applicants must meet one of the following requirements:

- Baccalaureate degree in engineering or equivalent. Applicant must be a graduate from an honours engineering program with at least a 75% average in the past four full-time semesters or the equivalent. International degree and grade equivalents will be determined by the Office of Graduate Studies.
- Bachelor of Science degree or equivalent. At least a 'B+' or 75% average in the work of the last four full-time semesters or the last two complete undergraduate years of an honours science degree. Applicants must demonstrate acceptable analytical ability by having taken a sufficient number of courses in mathematics and the physical sciences (chemistry and physics). Applicants lacking background in specific topics related to their research project must be prepared to complete make-up undergraduate engineering courses without receiving graduate credit.

### **Degree Requirements**

The prescribed program of study must consist of no fewer than 2.0 credits, of which at least 1.5 credits must be at the graduate level, and at least 1.0 must be engineering graduate courses. Under special circumstances the school may reduce the 1.5 credit course requirement; however, the 1.0 graduate-engineering-course credit requirement will not be changed. In all cases the remaining courses must be acceptable for graduate credit; that is, they must be either graduate courses or senior undergraduate courses. Depending on the student's background, the advisory committee may specify more than four courses, including undergraduate make-up courses. If make-up courses are deemed necessary, they will be considered additional courses.

### **MEng Program**

The objective of the course-work master's degree program (MEng) is to provide an opportunity for engineering graduates, usually practising engineers, to advance their understanding of engineering principles and increase their grasp of the application of these principles to the solution of complex, practical problems. Many of these students are returning to school in order to learn about recent technological developments that have occurred since graduation in their field. The objective is achieved through selecting from a number of core and elective courses and completing a major project. The project requires a final written report that is presented in a public seminar followed by an oral examination of the candidate.

### **Admission Requirements**

Applicants must be graduates of an honours engineering program with at least a 70% average in the past four full semesters or the last two complete undergraduate years or the equivalent. International degree and grade equivalents will be determined by the Office of Graduate Studies.

Applicants must demonstrate acceptable analytical ability by having taken a sufficient number of courses in mathematics, and the physical sciences.

Biological Engineering applicants must have a minimum of three of the following courses or equivalents:

- Biological/Food/Bioprocess Engineering
- Engineering Unit Operations
- Bioreactor Design
- Bioinstrumentation Design
- Food Process Engineering Design
- Digital Process Control Design
- Heat and Mass Transfer
- Process Engineering

Computer Engineering applicants must have a minimum of three of the following courses or equivalents:

- Circuit Analysis
- Programming
- Digital Systems
- Microelectronics
- Computer Organization
- Telecommunications

Environmental Engineering applicants must have a minimum of three of the following courses or equivalents:

- Introduction to Environmental Engineering
- Engineering Unit Operations
- Water Quality
- Air Quality
- Solid Waste Management
- Water and Wastewater Treatment

Water Resources Engineering applicants must have a minimum of three of the following courses or equivalent:

- Fluid Mechanics
- Water Management
- Hydrology
- Water Quality
- Urban Water Systems
- Watershed Structures
- Soil and Water Conservation

Engineering Systems and Computing applicants must have a minimum of three of the following courses or equivalents:

- Electric Circuits
- Digital Systems
- Systems and Control Theory
- Programming
- Electronics
- Robotics

Mechanical Engineering applicants must have a minimum of three of the following courses or equivalents:

- Thermo-fluids
- Heat Transfer
- Solid mechanics
- Material science
- Dynamic System and controls
- Manufacturing processes
- Electrical circuits
- Machine Design
- Quality control
- Intelligent manufacturing

Applicant qualifications may be assessed via an entrance interview/oral examination conducted by the proposed advisor and one member of the School of Engineering Graduate Program Committee. Students deficient in certain areas will be required to take make-up undergraduate courses. Such students will be admitted and allowed to continue on provisional status for a maximum of two semesters or until the requirements are completed. These courses will not count toward the student's graduate credit requirements.

## Degree Requirements

The prescribed program of studies consists of at least 5.0 credits acceptable for graduate credit. This includes 2.5 credits from the program core (see the School of Engineering Graduate Handbook), and 2.5 additional credits chosen from approved courses (section 5.5 of the School of Engineering Graduate Handbook). No more than 1.0 of these credits will be for undergraduate engineering courses, as approved by the Director, and no more than 1.5 credits will be from courses offered outside the School of Engineering. For the final project course (1.0 credit), one member of the graduate faculty will be appointed by the Associate Director, Graduate Studies as an advisor.

## PhD Program

The PhD program prepares candidates for a career in engineering teaching, research, or consulting. The program is designed to provide both broad knowledge of engineering science and training in advanced research. Doctoral research carries the expectation of making an original contribution to the body of existing knowledge or technology. It is also expected that the responsibility of problem definition and solution is that of the student, and that the student's advisor acts truly in an advisory capacity. Therefore, graduates are expected to have acquired autonomy in defining and analysing problems, conducting research, and preparing scholarly publications. These objectives are achieved through a combination of course work, independent research, a qualifying examination, and the production and defence of a research dissertation.

## Admission Requirements

The minimum academic requirement for admission to the PhD program is normally a recognized Master's degree in engineering. Applicants are usually required to have completed a Bachelor's and a Master's degree from a recognized post-secondary institution and must have achieved a minimum B average in their Master's program. Applicants must also have demonstrated strong potential for research. A strong recommendation from the MASC advisor is necessary. Direct admission to the PhD program from a Bachelor's program is rarely granted. Applicants requesting direct admission must hold a bachelor's degree with exceptionally high academic standing and have related research experience. Such applicants should discuss this option with the Associate Director, Graduate Studies at the earliest opportunity.

## Degree Requirements

The prescribed program of study must consist of no fewer than 2.0 credits in addition to those taken as part of the MASC degree. At least 1.5 of the credits must be at the graduate level, and at least 1.0 must be engineering graduate courses. Under special circumstances and with the approval of the Director, the school may reduce the requirement for 1.5 credit course requirement; however the 1.0 graduate-engineering-course credit requirement will not be changed. In all cases the remaining courses must be acceptable for graduate credit; that is, they must be either graduate courses or senior undergraduate courses. Depending on the student's background, the advisory committee may specify more than four courses, including undergraduate make-up courses. If make-up courses are deemed necessary, they will be considered additional courses.

The qualifying examination as outlined in the Graduate Calendar is held by the end of the fourth semester but no later than the fifth semester after the student has completed the required courses

## Graduate Diplomas in Water Resources

The objective of the graduate diploma is to provide mid-career, engineering professionals from Canada and abroad with post graduate education and training to improve their job-related expertise within an 8 month period. The program enhances the ability of these professionals to gain employment in the field of Water Resources engineering by developing specialized knowledge in one of two areas of Water Resources. The first area will emphasize higher learning in the application of Modelling in a Water Resources context. Application of existing tools, particularly GIS, to a variety of contemporary water resources problems will be emphasized. The second area focuses on the Design of Sustainable Water Resources Systems that will be sustainable in today's development environment.

## Admission Requirements

Students with an honours degree will be considered for the Graduate Diploma program provided they have satisfactory preparation in mathematical and physical sciences. A minimum average grade of 70% for the last four full-time semesters, or the last two complete undergraduate years, prior to entry will normally be required.

Since an adequate background in undergraduate engineering courses is prerequisite for courses offered in the program, there is a requirement of the following courses or equivalent.

ENGG*2230	Fluid Mechanics
ENGG*3650	Hydrology
ENGG*3340	Geographic Information Systems I

The qualification will be assessed by transcripts supplied by the student at the time of application. Students deficient in certain areas will be required to take make-up undergraduate courses as decided by the Graduate Program Committee. The student will be admitted on probation until the requirements have been completed. These courses will not count toward the student graduate degree requirement.

<sup>1</sup>Only required for students in the Modelling Applications in Water Resources Systems

## Diploma Requirements

The prescribed program consists of 2.0 credits acceptable at the graduate level.

## Modelling Applications in Water Resource Engineering

The core courses consist of a total of 2.0 credits, 1.5 credits must come from the list below. One of these must be ENGG\*6800.

ENGG*6800	[0.50]	Deterministic Hydrological Modelling
ENGG*6740	[0.50]	Ground Water Modelling
ENGG*6840	[0.50]	Open Channel Hydraulics
ENGG*6880	[0.50]	Soil Erosion and Fluvial Sedimentation
ENGG*6030	[0.50]	Finite Difference Methods
ENGG*6050	[0.50]	Finite Element Methods
ENGG*4510	[0.50]	Risk Assessment and Management
ENGG*6060	[0.50]	Engineering Systems Modelling and Simulation

In addition, the student must complete ENGG\*6910. This is a 0.5 credit, 1 semester course. This special topics course will focus on one of the following areas:

- Watershed Systems Design
- Soil-Water Conservation Systems Design
- Urban Water Systems Design

And include a project utilizing a GIS-based modeling approach.

## Engineering Design of Sustainable Water Resource Systems

The courses consist of a total of 2.0 credits. Two courses (1.0 credits) must be selected from the following courses:

ENGG*6610	[0.50]	Urban Stormwater Management
ENGG*6860	[0.50]	Stream and Wetland Restoration Design
ENGG*6840	[0.50]	Open Channel Hydraulics
ENGG*6140	[0.50]	Optimization Techniques for Engineering
ENGG*4510	[0.50]	Risk Assessment and Management
ENGG*6680	[0.50]	Advanced Water and Wastewater Treatment
ENVS*6280	[0.50]	Soil Physics
RPD*6310	[0.50]	Environmental Impact Assessment
ENGG*4250	[0.50]	Watershed Systems Design2
ENGG*4360	[0.50]	Soil-Water Conservation Systems Design2
ENGG*4370	[0.50]	Urban Water Systems Design2

In addition to the courses above, the course ENGG\*6910 must be completed. This is a 0.5 credit, one semester course. For each of these an area of emphasis from one of the following three areas<sup>3</sup> must be selected:

- Watershed Systems Design
- Soil-Water Conservation Systems Design
- Urban Water Systems Design

For this special topics course the project must focus on sustainability of water resources within the area of emphasis selected.

<sup>2</sup>Only one of these courses may be selected.

<sup>3</sup>If one of the undergraduate courses listed above are selected, the area of emphasis for this course must differ from the undergraduate course.

## Interdepartmental Programs

### MSc Food Safety and Quality Assurance

The School of Engineering participates in the MSc program in food safety and quality assurance. Those faculty members whose research and teaching expertise includes aspects of food safety and quality assurance may serve as advisors for MSc students. Please consult the Food Safety and Quality Assurance listing for a detailed description of the MSc program.

## Collaborative Specializations

### International Development Studies

The School of Engineering participates in the MEng, MASc and PhD collaborative specialization in International Development Studies (IDS). The International Development Studies collaborative specialization provides an interdisciplinary framework for the study of international development combining training in a selected academic discipline with exposure to a broad range of social science perspectives. This collaborative specialization will add the designation "International Development Studies" to your program. Applicants apply directly through the School of Engineering and must meet the University of Guelph and department program admission requirements. Students should consult the International Development Studies listing to confirm the IDS collaborative specialization requirements.

### Artificial Intelligence

The School of Engineering participates in the collaborative specialization in Artificial Intelligence. MASc students wishing to undertake thesis research with an emphasis on artificial intelligence are eligible to apply to register concurrently in Engineering and the collaborative specialization. Students should consult the Artificial Intelligence listing for more information.

## Courses

### General

<b>ENGG*6000 Advanced Heat and Mass Transfer U [0.50]</b>
Basic physical principles of transport phenomena. Heat and mass transfer methods for physical systems. Time and volume averaging. Dimensional analysis. <i>Department(s):</i> School of Engineering
<b>ENGG*6010 Assessment of Engineering Risk U [0.50]</b>
The question of "how safe is safe enough?" has no simple answer. In response, this course develops the bases by which we can assess and manage risk in engineering. Course deals with fate and transport issues associated with risk, as relevant to engineering and how these aspects are employed in the making of decisions. <i>Prerequisite(s):</i> STAT*2040 or STAT*2120 <i>Department(s):</i> School of Engineering
<b>ENGG*6020 Advanced Fluid Mechanics U [0.50]</b>
Laminar and turbulent flow. Turbulence and turbulence modelling. Boundary-layer flow. Compressible flow. Potential flow. <i>Department(s):</i> School of Engineering

<b>ENGG*6030 Finite Difference Methods U [0.50]</b>
Numerical solution of partial differential equations of flow through porous media; flow of heat and vibrations; characterization of solution techniques and analysis of stability; convergence and compatibility criteria for various finite difference schemes. <i>Department(s):</i> School of Engineering
<b>ENGG*6050 Finite Element Methods U [0.50]</b>
Boundary-value problems. Methods of approximation. Time dependent problems. Isoparametric elements. Numerical integration. Computer implementation. Mesh generation and layouts. Two-dimensional finite elements. <i>Department(s):</i> School of Engineering
<b>ENGG*6060 Engineering Systems Modelling and Simulation U [0.50]</b>
A study of theoretical and experimental methods for characterizing the dynamic behaviour of engineering systems. Distributed and lumped parameter model development. Digital simulation of systems for design and control. <i>Department(s):</i> School of Engineering
<b>ENGG*6080 Engineering Seminar U [0.00]</b>
The course objective is to train the student in preparing, delivering and evaluating technical presentations. Each student is required to: (a) attend and write critiques on a minimum of six technical seminars in the School of Engineering; and (b) conduct a seminar, presenting technical material to an audience consisting of faculty and graduate students in the school. This presentation will then be reviewed by the student and the instructor. <i>Department(s):</i> School of Engineering
<b>ENGG*6090 Special Topics in Engineering U [0.50]</b>
A course of directed study involving selected readings and analyses in developing knowledge areas which are applicable to several of the engineering disciplines in the School of Engineering. <i>Department(s):</i> School of Engineering
<b>Biological Engineering</b>
<b>ENGG*6110 Food and Bio-Process Engineering U [0.50]</b>
Kinetics of biological reactions, reactor dynamics and design. Food rheology and texture; water activity and the role of water in food processing; unit operations design-thermal processing; and drying, freezing and separation processes. <i>Department(s):</i> School of Engineering
<b>ENGG*6120 Fermentation Engineering U [0.50]</b>
Modelling and design of fermenter systems. Topics include microbial growth kinetics, reactor design, heat and mass transfer. Instrumentation and unit operations for feed preparation and product recovery. Prerequisite: undergraduate course in each of microbiology, heat and mass transfer, and biochemistry or bioprocess engineering. <i>Department(s):</i> School of Engineering
<b>ENGG*6130 Physical Properties of Biomaterials U [0.50]</b>
Rheology and rheological properties. Contact stresses between bodies in compression. Mechanical damage. Aerodynamic and hydro-dynamic characteristics. Friction. <i>Department(s):</i> School of Engineering
<b>ENGG*6150 Bio-Instrumentation U [0.50]</b>
Instrumentation systems. Transducers. Amplifier circuits. Recording methods. Spectroscopy & colorimetry. Radiation, humidity, pH and noise measurements. Chromatography. <i>Restriction(s):</i> ENGG*3450 or equivalent. <i>Department(s):</i> School of Engineering
<b>ENGG*6160 Advanced Food Engineering U [0.50]</b>
Application of heat and mass transfer, fluid flow, food properties, and food- processing constraints in the design and selection of food process equipment. Development of process specifications for the control of the flow of heat and moisture and the associated microbial, nutritional and organoleptic change in foods. Food system dynamics and process development. <i>Department(s):</i> School of Engineering
<b>ENGG*6170 Special Topics in Food Engineering U [0.50]</b>
A course of directed study involving selected readings and analyses in developing knowledge areas of food engineering. <i>Department(s):</i> School of Engineering
<b>ENGG*6180 Final Project in Biological Engineering U [1.00]</b>
A project course in which a problem of advanced design or analysis in the area of biological engineering is established, an investigation is performed and a final design or solution is presented. <i>Restriction(s):</i> This course is open only to students in the biological MEng program. <i>Department(s):</i> School of Engineering

**ENGG\*6190 Special Topics in Biological Engineering U [0.50]**

A course of directed study involving selected readings and analyses in developing knowledge areas of biological engineering.

*Department(s):* School of Engineering

**ENGG\*6300 Research Methods in Bioengineering U [0.50]**

Research methodologies used in bioengineering are reviewed and assessed in the context of a diverse range of applications: biomechanics, control and instrumentation, ergonomics, diagnostic tools, biomaterials and food safety. The scientific method is discussed in terms of defining research problems, appropriate tests and hypotheses, experimental methods, data analysis and drawing conclusions. The objective is to guide students as they develop a coherent research proposal and deepen their understanding of the breadth of the discipline. (Offered in alternate years)

*Restriction(s):* Instructor consent required.

*Department(s):* School of Engineering

**ENGG\*6440 Advanced Biomechanical Design U [0.50]**

Biomechanical Design from concept through prototyping and testing. This course will investigate and apply techniques used for biomechanical design including reverse engineering, solid modelling, geometric tolerancing, testing and rapid prototyping. Instructor's signature required.

*Department(s):* School of Engineering

**Computer Engineering****ENGG\*6450 Queueing Theory & Traffic Modeling in Data Networks U [0.50]**

Network traffic modeling. Transient and steady-state analysis of Markov chains. Queueing analysis. Admission and access control. Flow control protocols. Congestion control. End-to-end performance bounds analysis.

*Restriction(s):* Engineering graduate students. Instructor consent required.

*Department(s):* School of Engineering

**ENGG\*6510 Analog Integrated Circuit Design U [0.50]**

In this course, operating principles and design techniques of analog integrated circuits are introduced with emphasis on device and system modelling. These circuits include analog and switched-capacitor filters, data converters, amplifiers, oscillators, modulators, circuits for communications, sensor readout channels, and circuits for integrated memories. It is recommended that students are familiar with the fundamentals of linear systems, circuit analysis, and electronic devices.

*Department(s):* School of Engineering

**ENGG\*6520 VLSI Digital Systems Design U [0.50]**

This course will introduce the principles of VLSI MOSFET digital design from a circuit and system perspective. Advanced topics include: power issues related to each level of design abstraction; voltage and frequency scaling; power to speed tradeoffs; ASIC digital design flow; Verilog intergrationintegration; ASIC case studies. It is recommended that students are familiar with the fundamentals of digital circuits and electronic devices.

*Department(s):* School of Engineering

**ENGG\*6530 Reconfigurable Computing U [0.50]**

This course serves as a graduate introduction into reconfigurable computing systems. It introduces students to the analyses, synthesis and design of embedded systems and implementing them using Field Programmable Gate Arrays. Topics include: Programmable Logic devices, Hardware Description Languages, Computer Aided Design Flow, Hardware Accelerators, Hardware/Software Co-design techniques, Run Time Reconfiguration, High Level Synthesis. It is recommended that students are familiar with the fundamentals of digital design and hardware description languages.

*Department(s):* School of Engineering

**ENGG\*6550 Intelligent Real-Time Systems U [0.50]**

Soft real-time systems, hard real-time systems, embedded systems, time handling and synchronization, deadlines, preemption, interruption, RTS languages, RTS/ operating systems, system life-cycle, petri nets, task scheduling and allocation, fault-tolerance, resource management, RTS/search techniques, dealing with uncertainty.

*Department(s):* School of Engineering

**ENGG\*6570 Advanced Soft Computing U [0.50]**

Neural dynamics and computation from a single neuron to a neural network architecture. Advanced neural networks and applications. Soft computing approaches to uncertainty representation, multi-agents and optimization.

*Prerequisite(s):* ENGG\*4430 or equivalent

*Department(s):* School of Engineering

**ENGG\*6580 Advanced Control Systems U [0.50]**

This course will start with state space analysis of multi-input multi-output control systems. Then state space design will be presented. After that, nonlinear control systems and soft computing based intelligent control systems will be studied. Finally, hybrid control systems, H infinite control and uncertainty and robustness in control systems will be addressed.

*Department(s):* School of Engineering

**ENGG\*6980 Special Topics in Computer Engineering U [0.50]**

This course addresses specialized topics in one or more aspects of Computer Engineering not covered by other graduate courses. Includes selected readings and thorough analyses in emerging knowledge areas, advanced engineering tools, and current technical developments. May be repeated for credit as topics vary.

*Department(s):* School of Engineering

**ENGG\*6990 Final Project in Computer Engineering U [1.00]**

An independent project carried out under the supervision of a Computer Engineering faculty member in which an advanced modelling or design problem and the desired outcomes are defined, possible solutions are synthesized and analyzed, and a final model or design is evaluated. Regular meetings, final report, and presentation required.

*Restriction(s):* This course is open only to students in the Computer Engineering MEng program.

*Department(s):* School of Engineering

**Environmental Engineering****ENGG\*6610 Urban Stormwater Management U [0.50]**

Continuous stormwater management models and model structure. Catchment discretization and process disaggregation. Pollutant build-up, wash off and transport. Flow and pollutant routing in complex, looped, partially surcharged pipe/channel networks including pond storage, storage tanks, diversion structures, transverse and side weirs, pump stations, orifices, radical and leaf gates and transient receiving water conditions (including tides). Pollutant removal in sewer networks, storage facilities and treatment plants.

*Department(s):* School of Engineering

**ENGG\*6630 Environmental Contaminants: Fate Mechanisms U [0.50]**

Analysis of fate mechanisms associated with environmental contaminants. Focus on substances which are generally considered to be hazardous to humans, or other animal life at low concentrations. Study of physicochemical properties and fate estimation on control and remediation strategies. Quantitative analysis of contaminant partitioning and mass flows, including cross-media transport and simultaneous action of contaminant fate mechanisms.

*Department(s):* School of Engineering

**ENGG\*6650 Advanced Air Quality Modelling U [0.50]**

Analysis of analytical and computational models used to predict the fate of airborne contaminants; role of air quality models for the solution of engineering-related problems; analysis of important boundary layer meteorology phenomena that influence the fate of air pollutants; conservation equations and mathematical solution techniques; model input requirements such as emissions inventories; Gaussian models; higher-order closure models; Eulerian photochemical grid models.

*Department(s):* School of Engineering

**ENGG\*6660 Renewable Energy U [0.50]**

The engineering principles of renewable energy technologies including wind, solar, geothermal and biomass will be examined, including technology-specific design, economic and environmental constraints. Students will compare the relative merits of different energy technologies and gain a knowledge base for further study in the field.

*Restriction(s):* Engineering graduate students. Instructor consent required.

*Department(s):* School of Engineering

**ENGG\*6670 Hazardous Waste Management U [0.50]**

This course will define the different types of hazardous wastes that currently exist and outline the pertinent legislation governing these wastes. Information will be presented on different ways to handle, treat and dispose the hazardous waste, including separation, segregation, minimization, recycling and chemical, physical, biological, and thermal treatment. Also to be discussed are hazardous waste landfills and site remediation technologies. Specifics include design and operation of hazardous landfill sites, handling and treatment of leachate, comparison of pertinent soil remediation technologies. Case studies will be reviewed.

*Department(s):* School of Engineering

**ENGG\*6680 Advanced Water and Wastewater Treatment U [0.50]**

This design course will discuss advanced technologies not traditionally covered during an undergraduate curriculum. An important consideration will be the reuse of water.

*Department(s):* School of Engineering

**ENGG\*6790 Special Topics in Environmental Engineering U [0.50]**

A course of directed study involving selected readings and analyses in developing knowledge areas of environmental engineering.

*Department(s):* School of Engineering

**ENGG\*6950 Final Project in Environmental Engineering U [1.00]**

A project course in which a problem of advanced design or analysis in the area of environmental engineering is established, an investigation is performed and a final design or solution is presented.

*Restriction(s):* This course is only open to students in the Environmental MEng program.

*Department(s):* School of Engineering

**Engineering Systems and Computing****ENGG\*6070 Medical Imaging U [0.50]**

Digital image processing techniques including filtering and restoration; physics of image formation for such modalities as radiography, MRI, ultrasound.

*Prerequisite(s):* ENGG\*3390 or equivalent

*Department(s):* School of Engineering

**ENGG\*6100 Machine Vision U [0.50]**

Computer vision studies how computers can analyze and perceive the world using input from imaging devices. Topics covered include image pre-processing, segmentation, shape analysis, object recognition, image understanding, 3D vision, motion and stereo analysis, as well as case studies.

*Department(s):* School of Engineering

**ENGG\*6140 Optimization Techniques for Engineering U [0.50]**

This course serves as a graduate introduction into combinatorics and optimization. Optimization is the main pillar of Engineering and the performance of most systems can be improved through intelligent use of optimization algorithms. Topics to be covered: Complexity theory, Linear/Integer Programming techniques, Constrained/Unconstrained optimization and Nonlinear programming, Heuristic Search Techniques such as Tabu Search, Genetic Algorithms, Simulated Annealing and GRASP.

*Department(s):* School of Engineering

**ENGG\*6500 Introduction to Machine Learning U [0.50]**

The aim of this course is to provide students with an introduction to algorithms and techniques of machine learning particularly in engineering applications. The emphasis will be on the fundamentals and not specific approach or software tool. Class discussions will cover and compare all current major approaches and their applicability to various engineering problems, while assignments and project will provide hands-on experience with some of the tools.

*Department(s):* School of Engineering

**ENGG\*6540 Advanced Robotics U [0.50]**

This course is intended for graduate students who have some knowledge and interest in robotics. The course covers modelling, design, planning control, sensors and programming of robotic systems. In addition to lectures, students will work on a term project in which a problem related to robotics systems will be studied. Instructors signature required.

*Department(s):* School of Engineering

**ENGG\*6560 Advanced Digital Signal Processing U [0.50]**

Discrete-time signals and systems, z transform, frequency analysis of signals and systems, fourier transform, fast fourier transform, design of digital filters, signal reconstruction, power spectrum estimation.

*Department(s):* School of Engineering

**ENGG\*6590 Final Project in Engineering Systems and Computing U [1.00]**

A project course in which a problem of advanced design or analysis in the area of Engineering Systems and Computing is established by the student, an investigation is performed, and a report on the final design or solution selected is presented.

*Restriction(s):* This course is only open to students in the engineering systems and computing MEng program.

*Department(s):* School of Engineering

**ENGG\*6600 Special Topics in Engineering Systems and Computing U [0.50]**

A course of directed study involving selected readings and analyses in developing knowledge areas of Engineering Systems and Computing.

*Department(s):* School of Engineering

**Mechanical Engineering****ENGG\*6290 Special Topics in Mechanical Engineering U [0.50]**

A course of directed study involving selected readings and analyses in developing knowledge areas of mechanical engineering.

*Department(s):* School of Engineering

**ENGG\*6310 Advanced Electromechanical Devices U [0.50]**

Course covers: switched reluctance motor, brushless motor, linear motor, axial flux motor, and harmonic drive motor with applicable actuators. Other topics introduced include: Electromagnetic micro power generation, design and analysis of cooling systems and control mechanism. Background in electromagnetism required. (Offered in alternate years)

*Department(s):* School of Engineering

**ENGG\*6320 Advanced Topics in Mechatronics U [0.50]**

This course covers materials related to mechatronics systems in terms of dynamics, control, sensing, estimation. The course covers advanced topics in these areas and provides students the tools to model, analyze, and control these systems. The focus is on vehicles and robots (mobile robots).

*Department(s):* School of Engineering

**ENGG\*6340 Bioenergy and Biofuels U [0.50]**

Theoretical and hands-on experience in bio-renewable energy areas prepares students from diverse backgrounds for a career in the biorefinery industry, academia, or entrepreneurial endeavors. Also deals with the technologies of converting biomass into upgraded energy, value added products, fuels, and chemicals. Thermodynamics background helpful.

*Department(s):* School of Engineering

**ENGG\*6350 Flow Induced Vibrations U [0.50]**

Course covers fluid-structure interaction problems with an emphasis on analytical and numerical methods. Topics include vortex and turbulence induced vibration, galloping and flutter, fluid-elastic instability, and acoustic resonance. Various case studies and applications will be discussed. Background in fluid mechanics and vibrations required. (Offered in alternate years)

*Department(s):* School of Engineering

**ENGG\*6360 Fuel Cell Technology U [0.50]**

Examination of principles governing fuel cell technology and the technical challenges associated with developing fuel cell systems. Topics include the chemical thermodynamics and electrochemical kinetics of fuel cells, the evolution of fuel cell technology, and fuel cell system design. Background in materials and thermodynamics required.

*Department(s):* School of Engineering

**ENGG\*6370 Heat Transfer in Porous Media U [0.50]**

Course covers general conservation equations for studying the flow and heat transfer through porous media. Application and case studies of porous materials will be discussed. Modelling techniques will be shown for a particular application area. Background in Heat Transfer required. (Offered in alternate years)

*Department(s):* School of Engineering

**ENGG\*6380 Simulation Analysis of Discrete Event Systems U [0.50]**

Many complex engineering, operations, and business systems can be modeled as discrete-event systems. Efficient management and operation of these systems requires simulation to study their performance. Case studies and applications will be presented and discussed. (Offered in alternate years)

*Department(s):* School of Engineering

**ENGG\*6390 Final Project in Mechanical Engineering U [1.00]**

A project course in which a problem of advanced design or analysis in the area of mechanical engineering is established, an investigation is performed and a final design or solution is presented.

*Restriction(s):* This course is only open to students registered in the School of Engineering

*Department(s):* School of Engineering

**Water Resources Engineering****ENGG\*6740 Ground Water Modelling U [0.50]**

Introduction to current groundwater issues, definition of terms, review of fundamental equations describing fluid and contaminant transport in saturated groundwater zones. Mathematical techniques (analytical, FE and FD) for the solution of the fundamental equations. Application of numerical groundwater models to a variety of situations. Case studies. Review of groundwater models used in industry.

*Department(s):* School of Engineering

**ENGG\*6800 Deterministic Hydrological Modelling U [0.50]**

Deterministic hydrological models. Function of watershed models for hydraulic design, environmental assessment, operation of water control structures, flood warning. Calculation algorithms.

*Department(s):* School of Engineering



**ENGG\*6820 Measurement of Water Quantity and Quality U [0.50]**

This course covers techniques used to measure rates of movement and amounts of water occurring as precipitation, soil water, ground water and streamflow. Available measurements of water quality are surveyed. Calculation procedures involved in the use of indirect indicators of water quantity and quality individually and in combination are described.

*Department(s):* School of Engineering

**ENGG\*6840 Open Channel Hydraulics U [0.50]**

Basic concepts, energy principle; momentum principle; flow resistance; non-uniform flow; channel controls and transitions; unsteady flow; flood routing.

*Department(s):* School of Engineering

**ENGG\*6860 Stream and Wetland Restoration Design U [0.50]**

Explores the multi-disciplinary principles of stream and wetland restoration and the tools and techniques for restoration design. Restoration design is approached from a water resources engineering perspective with emphasis on hydrological and hydraulic techniques. Numerous case studies are examined as a means to identify more successful design approaches.

*Prerequisite(s):* ENGG\*3650 or equivalent.

*Department(s):* School of Engineering

**ENGG\*6880 Soil Erosion and Fluvial Sedimentation U [0.50]**

Students will be able to (i) describe processes related to soil erosion by water, (ii) describe processes related to fluvial sedimentation, (iii) evaluate and prescribe structural and non-structural control methods, and (iv) run at least one soil erosion/fluvial sedimentation computer model if the course is satisfactorily completed.

*Department(s):* School of Engineering

**ENGG\*6900 Final Project in Water Resources Engineering U [1.00]**

A project course in which an advanced design problem in the area of watershed engineering is established, a feasibility investigation performed and a final design presented.

*Restriction(s):* This course is open only to students in the water resources MEng program.

*Department(s):* School of Engineering

**ENGG\*6910 Special Topics in Water Resources Engineering U [0.50]**

A course of directed study involving selected readings and analyses in developing knowledge areas of water resources engineering.

*Department(s):* School of Engineering

## English

The English MA program in the School of English and Theatre Studies is designed to provide students with an intensive introduction to graduate-level work in English studies, within a flexible program. Students can draw on the program's strengths in the following fields:

- Studies in Canadian Literatures
- Colonial, Postcolonial and Diasporic Studies
- Early Modern Studies
- Sexuality and Gender Studies
- Transnational Nineteenth-Century Studies.

Students can also pursue a wide range of research topics in consultation with faculty members actively engaged with the literatures of different historical periods and geographical locations, and with current debates in such areas as critical theory, cultural studies, gender studies, and queer theory.

### Administrative Staff

#### Director

Dr. Ann Wilson (425 MacKinnon, Ext. 53881)  
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#### Graduate Program Coordinator

Gregor Campbell (431 MacKinnon, Ext. 53255)  
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### Graduate Faculty

#### Christine Bold

MA Edinburgh, PhD University College London - Professor

#### Dionne Brand

BA, MA Toronto - Professor

#### Susan Brown

BA King's College and Dalhousie, MA Dalhousie, PhD Alberta - Professor and Canada Research Chair

#### Julie Cairnie

BA Brock, MA, PhD York - Associate Professor

#### Gregor Campbell

BA, MA, PhD Toronto - Assistant Professor

#### Elaine Chang

BA British Columbia; MA, PhD Stanford - Associate Professor

#### Michelle Elleray

BA Victoria (Wellington), MA Auckland, MA, PhD Cornell - Associate Professor

#### Jade Ferguson

BA UBC, MA, PhD Cornell - Associate Professor

#### Alan Filewod

BA York, MA Alberta, PhD Toronto - Professor

#### Daniel Fischlin

BFA, MA Concordia, PhD York - Professor and University Research Chair

#### Mark Fortier

BA Windsor, MA Toronto, PhD York, LLB Toronto - Professor

#### Ajay Heble

BA Toronto, MA Dalhousie, PhD Toronto - Professor

#### Kimberley McLeod

BA Queen's, MA Alberta, PhD York - Assistant Professor

#### Martha Nandorfy

BA, MA Ottawa, PhD Toronto - Professor

#### Daniel O'Quinn

BSc, MA Western, PhD York - Professor

#### Stephen Powell

BA Oberlin College, MA Indiana, PhD Toronto - Associate Professor

#### Pablo Ramirez

BA Yale, MFA Miami, MA, PhD Michigan - Associate Professor

#### Paul W. Salmon

BA Western, MA Toronto, PhD Western - Assistant Professor

#### Jennifer Schacker

BA McGill, MA, PhD Indiana - Associate Professor

#### Sandra Singer

BA Trent, MA Queen's, PhD Cambridge - Associate Professor

#### J.R. (Tim) Struthers

BA, MA, PhD Western Ontario - Associate Professor

#### Ann Wilson

BA, MA, PhD York - Associate Professor and Director

### MA Program

The English MA program in the School of English and Theatre Studies is designed to provide students with an intensive introduction to graduate-level work in English studies, within a flexible program. Students can draw on the program's strengths in the following fields: 1) studies in Canadian literatures; 2) colonial, postcolonial and diasporic studies; 3) early modern studies; 4) sexuality and gender studies; and 5) transnational nineteenth-century studies. Students can also pursue a wide range of research topics in consultation with faculty members actively engaged with the literatures of different historical periods and geographical locations, and with current debates in such areas as critical theory, cultural studies, gender studies, and queer theory.

### Admission Requirements

The normal requirement for admission to the English MA program is the equivalent of an Honours degree in English studies from a recognized institution with at least 78% or higher in the last two years of study. Students with degrees with excellent academic records in other disciplines will also be considered. Successful applicants will be admitted in the Fall Semester, the Program's only entry point. Program offices should be consulted for admission deadlines. If the applicant's first degree was completed in a country where English is not the first language, English-language proficiency must be documented at the time of application.

### Degree Requirements

Students enrol in one of two study options: 1) course work and major research project, or 2) thesis.

#### Thesis

Students complete four courses (4 x 0.50 credit); plus a thesis of 20,000 to 25,000 words (80-100 pages).

### Course Work and Major Research Project (MRP)

Students complete six courses (6 x 0.50 credit); plus ENGL\*6803 Research Project.

### Collaborative Specializations

The English program participates in the International Development Studies (IDS) collaborative specialization. Please consult the International Development Studies listing for a detailed description of the collaborative specialization including the special additional requirements for each of the participating departments.

### Courses

#### Note

The content of the courses listed below will vary according to the research interests of the faculty involved in offering the course. Specific course descriptions for a particular offering of the course will be available from the Graduate Program Coordinator one year in advance of the course being offered.

#### ENGL\*6002 Topics in the History of Criticism U [0.50]

This course deals with various aspects of the field of literary criticism, focusing on a specific problem or question each time it is offered. Topics may include the investigation of a specific critical debate - the debate between the Ancients and the Moderns, for instance - or the various ways in which a particular concept - such as didacticism or intentionality - has been treated or is being treated in literary studies.

*Department(s):* School of English and Theatre Studies

#### ENGL\*6003 Problems of Literary Analysis U [0.50]

Variable in content and practical in orientation this course seeks to familiarize the student with particular critical techniques and approaches by applying specific examples of those approaches and methods to particular topics (e.g., cultural studies and renaissance literature, discourse analysis and the Victorian novel, computer-mediated analysis and the theatre of the absurd).

*Department(s):* School of English and Theatre Studies

#### ENGL\*6201 Topics in Canadian Literature U [0.50]

A course to be offered at least once every academic year. This course in Canadian Literature may focus on cross-genre study or on single genres such as poetry, biography, the short story, literary memoir and/or autobiography, and poetic prose. The focus may be on such topics as the literary and general cultural production of a time-period, an age group (such as children's literature), or a specific region (such as Atlantic Canada, the Prairies, or the West Coast), or may bring together texts from two or more categories to allow for a comparative study. Other possible topics include: post-modernism and the creation of an ex-centric Canadian canon; multiculturalism and the transcultural aesthetics of Canadian writing; the construction and reinvention of a national identity and literature; and literary history, influence, reception and critique.

*Department(s):* School of English and Theatre Studies

**ENGL\*6209 Topics in Colonial, Postcolonial and Diasporic Literature U [0.50]**

A course to be offered at least once every academic year. A comparative study of postcolonial literatures in English. Topics may include a focus on a single area, such as India, the Caribbean, Africa, Australia, or New Zealand or may focus on the comparative study of some of these literatures, considering the construction of Third World, diasporic, or settler-invader colonies, or writing and reading practices in colonial, neo-colonial, and postcolonial environments.

*Department(s):* School of English and Theatre Studies

**ENGL\*6412 Topics in Medieval/Renaissance Literature U [0.50]**

An examination of the literature of Britain in the medieval and/or early modern periods. Topics may focus on a single author, a specific genre, or relationships between the literary and the cultural.

*Department(s):* School of English and Theatre Studies

**ENGL\*6421 Topics in Eighteenth Century and Romantic Literature U [0.50]**

A examination of the literature of Britain between the 17th century and the latter part of the 18th century. Topics may focus on a single author, a specific genre, or relationships between the literary and the cultural.

*Department(s):* School of English and Theatre Studies

**ENGL\*6431 Topics in Nineteenth Century Literature U [0.50]**

This course is a study of the literature of Britain, Canada, the United States, or another region from the late 18th century until the start of the First World War. Topics may focus on a single author, a specific genre, or a central critical question.

*Department(s):* School of English and Theatre Studies

**ENGL\*6441 Topics in Modern British Literature U [0.50]**

A study of the literature of Britain in the twentieth century. This course includes a consideration of the interaction between literature and culture in the period - sometimes through the examination of a specific author, sometimes through the study of a particular genre or issue.

*Department(s):* School of English and Theatre Studies

**ENGL\*6451 Topics in American Literature U [0.50]**

Topics may include a focus on a single region, such as the American West, on a single time period, such as the Civil War, on a specific genre, such as the novels of frontier women, or other issues in American literary studies.

*Department(s):* School of English and Theatre Studies

**ENGL\*6611 Topics in Women's Writing U [0.50]**

In the past the course has dealt with Victorian women poets, with the place of women in the literature of the American West, and with other issues of interest to students of women's writing and the broader issues of feminist theory.

*Department(s):* School of English and Theatre Studies

**ENGL\*6621 Topics in Children's Literature U [0.50]**

Past offerings have involved a focus on a specific author - such as Lucy Maud Montgomery - or on a specific kind of writing for or by children.

*Department(s):* School of English and Theatre Studies

**ENGL\*6641 Topics in Scottish Literature U [0.50]**

Courses under this rubric are concerned with the various literatures produced by Scots both within and beyond the boundaries of Scotland. The course could involve the study of a specific genre, the investigation of a specific theme, or the examination of a particular author over the course of her/his career.

*Department(s):* School of English and Theatre Studies

**ENGL\*6691 Interdisciplinary Studies U [0.50]**

Designed to provide the opportunity to explore alternative fields and modes of critical inquiry, this variable-content course will study the relationship between literary study and other forms of intellectual inquiry such as the relationship between literature and sociology, between critical theory and psychology, between literary history and historical fact.

*Department(s):* School of English and Theatre Studies

**ENGL\*6801 Reading Course I U [0.50]**

An independent study course, the nature and content of which is agreed upon between the individual student and the person offering the course. Subject to the approval of the student's advisory committee and the graduate program committee.

*Department(s):* School of English and Theatre Studies

**ENGL\*6802 Reading Course II U [0.50]**

An independent study course, the nature and content of which is agreed upon between the individual student and the person offering the course. Subject to the approval of the student's advisory committee and the graduate program committee.

*Department(s):* School of English and Theatre Studies

**ENGL\*6803 Research Project U [1.00]**

An independent study course, the content of which is agreed upon between the individual student and the person offering the course. Subject to the approval of the student's advisory committee and the Graduate Program Committee. This course is designed to provide the student with the opportunity to conduct an extended research project that, while not as complex or as extensive as a thesis, still provides the student with training in research methodology.

*Department(s):* School of English and Theatre Studies

**ENGL\*6811 Special Topics in English U [0.50]**

Depending on the research interests of the instructor, courses under this rubric explore topics in the study of literature that do not fall neatly under the rubrics above. In the past the course has dealt with literature and aging, and with issues in the field of popular culture.

*Department(s):* School of English and Theatre Studies

## Environmental Sciences

The School of Environmental Sciences offers program of study leading to MSc, MES, PhD, and Graduate Diploma degrees. Graduate Studies in the Environmental Sciences programs are designed to train people to work independently and imaginatively with a high level of technical skill and scientific acumen. It is expected that the graduates of the SES program will provide leadership in research and training in academic, government, and industrial sectors of society and who will participate in the formulation and implementation of constructive national and international science policy.

The PhD program has three fields of specialization: 1) earth and atmospheric sciences; 2) ecosystem science and biodiversity; and 3) plant and environmental health.

- Earth and Atmospheric Sciences – Research areas include: soil biology and soil physics, sedimentology, geobiology, soil chemistry, geochemistry, micrometeorology and air quality, soil and land resource management
- Ecosystem Science and Biodiversity – Research areas include: toxicology, pest management, management of agroecosystems, microbiology, forest systems, agroforestry, climate change biology, ecology, and insect systematics and taxonomy
- Plant & Environmental Health – Research areas include: plant biology, plant pathology, epidemiology, soil-plant interactions, biotechnology, molecular biology, forest systems, agroforestry, and climate change biology

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### **MSc Program**

The objective of the MSc program is to develop and train graduate students that possess a high level of knowledge about the field of environmental science, expertise in specific aspects of environmental science (their thesis research focus), training in laboratory and field techniques, and excellence in writing and oral communication. With these skills, MSc students will possess a strong foundation on which they can be highly successful in science-related positions in government, industry, and consulting, or carry out high quality research at the PhD level.

#### **Admission Requirements**

The School's admission standard for the MSc program is the same as the University and requires a four-year, honours science degree with a minimum B- (70-72%) average during the final two years (4 semesters) of full time undergraduate study. Meeting the minimum requirement (B-) does not guarantee entrance; depending on other criteria (e.g., letters of reference, standardized test scores, academic background relevant to the area to which the applicant has applied, degree of work experience in related fields of study) students may be considered for admission with provisional status. Students on provisional status must obtain a "B" average (70%) in at least two graduate courses during their first two semesters of study to continue in the program. Provisional students will be funded at the same level as regular students.

#### **Degree Requirements**

The MSc thesis program requires:

- At least 1.5 graduate course credits, including one mandatory 0.50 credit course (Research Seminar in Environmental Sciences).
- Completion and defense of a thesis on research carried out under the direct supervision of a core faculty member.

The thesis and the oral defense of the thesis are evaluated on a pass/fail basis. An acceptable MSc thesis consists of a defensible account of the student's research. The project is expected to represent a well-defined research problem, or hypothesis, and should be planned such that the clarity of the underlying rationale, the appropriateness of the technical approach, the research, and the critical evaluation of the results could normally be completed and the thesis defended within six semesters.

### **MES Program**

The MES (coursework Master's) degree enables students to study the most recent theoretical and technical advances in the environmental sciences through multidisciplinary teaching and research. There are two options to the MES in Environmental Sciences: by coursework + research project and by coursework-only. The MES will promote critical thinking and enhance oral and written communication skills so that graduates can excel in industry, government and other sectors of civil society (e.g., environmental risk assessors/managers, political advisors on policy/law issues in government, senior positions in national and international agencies, etc.).

#### **Admission Requirements**

The School's admission standard for the MES program is the same as the University and requires a four-year, honours science degree with a minimum B- (70-72%) average during the final two years (4 semesters) of full time undergraduate study. Meeting the minimum requirement (B-) does not guarantee entrance; depending on other criteria (e.g., letters of reference, standardized test scores, academic background relevant to the area to which the applicant has applied, degree of work experience in related fields of study) students may be considered for admission with provisional status. Students on provisional status must obtain a "B" average (70%) in at least two graduate courses during their first semester of study to continue in the program. Provisional students will be funded at the same level as regular students

#### **MES Degree Requirements**

##### **Course Work and Major Research Project (MRP)**

Candidates must complete a minimum of 4.0 credits

- ENVS\*6500 [1.0] The Environmental Science Research Project
- ENVS\*6501 F [0.5] Advanced Topics in Environmental Science
- ENVS\*6502 W [0.5] Seminar in Environmental Science
- Two additional credits from Environmental Sciences courses

The research project may be completed at the University or as part of a placement with an approved non-academic agency. The project may include analysis of a data set (derived from lab, field, or computer simulation) related to the specialization chosen by the student including analyses and interpretations of relevant data (the student may or may not be involved in collecting the data), or major, critical literature review. The outcome of the research project will be a written report and a seminar presented to the department.

#### **Course Work**

Candidates must complete a minimum of 4.0 credits

- ENVS\*6501 F [0.5] Advanced Topics in Environmental Science
- ENVS\*6502 W [0.5] Seminar in Environmental Science
- Three additional credits from Environmental Sciences courses

Students in either option may select courses from other departments on campus but are advised that access may be restricted and permission may be required by course instructors. A maximum of 1.0 credits may be taken from senior undergraduate courses, with permission of the Graduate Coordinator.

### **PhD Program**

The PhD is offered in the following fields: 1) earth and atmospheric sciences; 2) ecosystems science and biodiversity; and 3) plant and environmental health. The objectives of the PhD program are to develop highly competent, independent, creative, and critical scientists. Doctoral students of the SES graduate program will provide leadership as scholars in academic institutions, as managers and officers in the industrial research and development sector, research and policy branches within the government sector and in other social institutions. Research in the PhD program is expected to be original and novel, contribute significantly to the relevant research field, and published in high-quality peer-reviewed journals.

#### **Admission Requirements**

Admission to the PhD program is generally restricted to students with a recognized MSc degree in a related field obtained with a minimum academic standing of "A-" (≥80%) in their postgraduate studies. Students who meet the minimum University requirement (73-76%) but not the School requirement (≥80%) may be considered depending on other criteria (e.g., letters of reference, standardized test scores, academic background relevant to the area to which the applicant has applied, degree of work experience in related field of study) for admission with provisional status. Students on provisional status must obtain an "A-" (≥80%) average in at least two graduate courses during their first two semesters of study to continue in the program. Provisional students will be funded at the same level as regular students. In exceptional cases, students may enter the PhD program directly from a BSc (Hons) if they have the minimum requirements as defined by the Office of Studies, University of Guelph.

#### **Degree Requirements**

The PhD program requires:

- Completion of one mandatory 0.50 credit course (Research Seminar in Environmental Sciences).
- Successful completion of a qualifying exam within five semesters of first registration in the program
- Successful defense of a thesis describing original research, carried out under the direct supervision of a core faculty member.

In the PhD program, the qualifying exam, thesis and the oral defense of the thesis are evaluated on a pass/fail basis. An acceptable PhD thesis consists of an authoritative report of the student's research. The project is expected to represent a well-defined research problem, or hypothesis, and should be planned such that the research could normally be completed and the thesis defended in nine semesters (12 semesters for those students transferring from the MSc program). The research described in the thesis must represent a significant contribution to knowledge in that field. Emphasis is therefore placed on the quality of the presentation, maturity in scholarship, breadth and depth of the work, and critical judgement. Successful completion of the PhD thesis occurs when the research is judged to be sufficiently meritorious to warrant publication in reputable, peer-reviewed journals in its field. PhD students are normally expected to have published, or have "in-press", one or more papers in peer-reviewed journals prior to the defense. In cases involving intellectual property, it is recognized that publication may not always be immediately possible. In such cases, a Pass will require that the committee is satisfied that, in their opinion, the work is of sufficient quality and originality that it would meet the standards for peer-reviewed publications.

### **Collaborative Specializations**

#### **International Development Studies**

The School of Environmental Sciences participates in the MSc collaborative specialization in International Development Studies.

Please consult the International Development Studies listing for a detailed description of this collaborative specialization.

## Toxicology

The School of Environmental Sciences participates in the MSc/PhD collaborative specialization in toxicology. The faculty members' research and teaching expertise includes aspects of toxicology; they may serve as advisors for MSc and PhD students.

Please consult the Toxicology listing for a detailed description of the MSc/PhD collaborative specialization.

## Courses

### ENVS\*6000 Physical Environment of Crops and Forests F [0.50]

Recent literature on temperature, humidity, radiation, wind, gases and particles in crop and forest environments; evapotranspiration and photosynthesis of plant communities; modification of microclimates; applied micrometeorology.

*Offering(s):* Offered in even-numbered years.

*Department(s):* School of Environmental Sciences

### ENVS\*6050 Micrometeorology W [0.50]

Exchanges of mass, momentum and energy between the surface and the atmosphere will be studied in the context of larger-scale meteorology. Diffusion and turbulence in and above plant canopies will be examined from theoretical and practical perspectives. Topics include time-series analysis, micrometeorological measurement theory, and basic principles of atmospheric science.

*Offering(s):* Offered in even-numbered years.

*Department(s):* School of Environmental Sciences

### ENVS\*6060 Meteorological Instrumentation W [0.50]

Theoretical and practical aspects of electronic circuits, sensors, and equipment used in meteorological research.

*Prerequisite(s):* ENVS\*4210 or equivalent

*Department(s):* School of Environmental Sciences

### ENVS\*6190 Environmental Microbial Technology U [0.50]

Current topics in selected areas of environmental microbial technology. An emphasis will be placed on the physiology and genetics of microorganisms useful in environmental biotechnology. The course involves extensive use of current journal articles.

*Restriction(s):* Undergraduate degree in microbiology or related discipline.

*Department(s):* School of Environmental Sciences

### ENVS\*6242 Special Topics in Atmospheric Science F,W,S [0.50]

Students will explore topics within atmospheric science such as climatology, animal biometeorology, air pollution meteorology, and hydrometeorology. Normally, an independent course of study will be developed with a faculty advisor and one or more students in the semester prior to enrollment. Occasionally, the course will be offered as a lecture/seminar in a particular area, to be advertised in the semester prior to offering. Typically, students will produce a major paper or scientific report.

*Restriction(s):* Instructor consent required.

*Department(s):* School of Environmental Sciences

### ENVS\*6280 Soil Physics W [0.50]

The soil as a physical system with special regard to soil water movement and the diffusion and dispersion of chemical substances. Numerical techniques and computer solutions will be developed.

*Department(s):* School of Environmental Sciences

### ENVS\*6340 Colloquium in Insect Systematics W [0.25]

Weekly discussions and seminars dealing with current topics in systematic entomology.

*Offering(s):* Offered in odd-numbered years.

*Department(s):* School of Environmental Sciences

### ENVS\*6350 Soil Organic Matter and Biochemistry F [0.50]

(1) Soil organic matter characterization, (2) dynamics of soil organic matter, (0.5) nutrient cycling.

*Offering(s):* Offered in odd-numbered years.

*Department(s):* School of Environmental Sciences

### ENVS\*6360 Soil and Water Chemistry F [0.50]

Thermodynamics of soil solutions; solution-solid phase equilibria; reaction kinetics; computer modelling of solute-mineral interactions.

*Department(s):* School of Environmental Sciences

### ENVS\*6400 Soil Nitrogen Fertility and Crop Production W [0.50]

Emphasis will be placed on soil N transformations and processes, and N sources for crops; field experimentation methods; environmental issues.

*Department(s):* School of Environmental Sciences

### ENVS\*6440 Field Sampling Strategies and Geostatistics W [0.50]

Concepts and practical aspects of collecting, synthesizing and interpreting data from spatially and temporally variable and/or correlated fields. Hands-on experience in describing spatial structure of large data sets (supplied by student or instructor) using available software.

*Offering(s):* Offered in even-numbered years.

*Department(s):* School of Environmental Sciences

### ENVS\*6452 Special Topics in Ecosystem Science and Biodiversity F,W,S [0.50]

Students will explore topics within ecosystem science such as terrestrial ecology, forest science, aquatic systems and environmental biology. Normally, an independent course of study will be developed with a faculty advisor and one or more students in the semester prior to enrollment. Occasionally, the course will be offered as a lecture/seminar in a particular area, to be advertised in the semester prior to offering. Typically, students will produce a major paper or scientific report.

*Restriction(s):* Instructor consent required.

*Department(s):* School of Environmental Sciences

### ENVS\*6460 Environmental Remediation W [0.50]

This course will discuss environmental remediation topics including, but not limited to, using plants, microorganisms and substrates (e.g., soil and engineered materials) to improve air, water and soil quality. For example, this course will explore the current sciences and technologies of living walls to improve indoor air quality, green roofs to manage storm water and air pollutants, and constructed wetlands to treat wastewater. Environmental remediation is, by nature, multidisciplinary, involving chemistry, physics, biology, engineering, landscape design, etc.

*Department(s):* School of Environmental Sciences

### ENVS\*6470 The Science and Management of Multiple Stressors in the Great Lakes F [0.50]

In this two-week lecture-field course, students will learn about historical and current environmental issues affecting the Great Lakes basin from the perspective of multiple stressors and their cumulative impacts. The importance of linking science and policy, and the role important of governments, are emphasized.

*Restriction(s):* Instructor consent required.

*Department(s):* School of Environmental Sciences

### ENVS\*6500 Environmental Sciences Research Project U [1.00]

A concise, critical review of an area of study related to the field chosen by the student including analyses and interpretation of relevant data. The project will be written in the form of a scientific paper and presented to the department as a seminar.

*Restriction(s):* Available only to students registered in the Environmental Sciences: MES program.

*Department(s):* School of Environmental Sciences

### ENVS\*6501 Integrating Science and Policy in Environmental Science F [0.50]

A case-study approach, based on current and historical issues, and involving presentations from faculty, professionals and students, will be used to develop an advanced understanding of current issues in the environmental sciences, including examination of the underlying science and management of the issues, and the effectiveness of associated policies.

*Restriction(s):* Preference will be given to students in the MES.ENVS:L.

*Department(s):* School of Environmental Sciences

### ENVS\*6502 Seminar in Environmental Sciences W [0.50]

This course will provide an interactive and critical forum for students to participate in an advanced discussion and debate on current environmental issues, and to learn about the practical skill set(s) required by various employment sectors in solving these issues.

*Restriction(s):* Instructor consent required. Preference will be given to students in the MES program.

*Department(s):* School of Environmental Sciences

### ENVS\*6503 Biogeochemistry of Wetlands S [0.50]

This course is focused on the role of wetlands in maintaining healthy ecosystems and in controlling contaminant fluxes to water. Lectures complement field and laboratory assessments of wetlands to understand element biogeochemical cycles in these transitional environments. The course includes field trips to Ontario wetlands.

*Restriction(s):* Preference will be given to students in MES.ENVS:L, MSc.ENVS and PhD.ENVS

*Department(s):* School of Environmental Sciences

**ENVS\*6505 Soil Survey and Interpretation S [0.50]**

Students will learn concepts, techniques and analysis related to the characterization of soil in the landscape. Focus will be given to soils encountered in southern Ontario. Course involves multiple field excursions to examine the distribution of soils in this region.

*Restriction(s):* Preference will be given to students in MES.ENVS:L, MSc.ENVS, PhD.ENVS

*Department(s):* School of Environmental Sciences

**ENVS\*6506 Forest Ecosystem Patterns and Processes S [0.50]**

Students will learn concepts, techniques and analysis related to the ecological characterization of forests. Focus will be on southern and mid-central Ontario forests and will involve periodic excursions to various locations for the purpose of demonstrating theoretical principles, sampling techniques, in-field measurements, and collecting samples for in-lab assessment.

*Restriction(s):* Preference will be given to students in MES.ENVS:L, MSc.ENVS, PhD.ENVS

*Department(s):* School of Environmental Sciences

**ENVS\*6520 Pollinator Biology F [0.50]**

The biology of pollinators will be discussed in lectures and seminars stressing fundamental and applied aspects. The honey bee will be used as the model system.

*Offering(s):* Offered in odd-numbered years.

*Department(s):* School of Environmental Sciences

**ENVS\*6530 Pollinator Conservation W [0.50]**

In this course students will explore the ecology of pollination with an emphasis on the factors affecting declines in pollinating insects as well as potential mitigation strategies to ensure long-term stability of food production and maintenance of biodiverse wild plant communities. Offered in conjunction with ENVS\*4070. Extra work is required of graduate students.

*Restriction(s):* Credit may be obtained for only one of ENVS\*6530 or ENVS\*4070.

*Department(s):* School of Environmental Sciences

**ENVS\*6540 Integrated Pest Management - Insects W [0.50]**

Concepts associated with integrated pest management of insect pests of various plant hosts will be introduced to students in an interactive lecture and laboratory format. Experiential learning and skill development, associated with economic entomology, will also be emphasized.

*Offering(s):* Offered annually

*Restriction(s):* Credit may be obtained for only one of ENVS\*6540 and ENVS\*4100

*Department(s):* School of Environmental Sciences

**ENVS\*6550 Bioactivity and Metabolism of Insecticides W [0.50]**

The basis of insecticide bioactivity will be examined, with emphasis on mode of action, structure-activity relationships and analytical methods. Students will choose a specific insecticide or class of insecticides as their primary topic of study for the semester. Students will participate in seminars, prepare a conference poster and complete a research paper.

*Offering(s):* Offered in even-numbered years.

*Department(s):* School of Environmental Sciences

**ENVS\*6560 Forest Ecosystem Dynamics F [0.50]**

An exploration of energy flow and distribution in forest ecosystems. Both components will be examined in the context of biomass and productivity, perturbations and resilience. Some aspects of modelling will be covered.

*Offering(s):* Offered in odd-numbered years.

*Department(s):* School of Environmental Sciences

**ENVS\*6582 Special Topics in Soil Science F,W,S [0.50]**

Students will explore topics within soil science such as soil physics, pedology, soil chemistry and microbiology. Normally, an independent course of study will be developed with a faculty advisor and one or more students in the semester prior to enrollment. Occasionally, the course will be offered as a lecture/seminar in a particular area, to be advertised in the semester prior to offering. Typically, students will produce a major paper or scientific report.

*Restriction(s):* Instructor consent required.

*Department(s):* School of Environmental Sciences

**ENVS\*6700 Glacial Sedimentary Environments U [0.50]**

Students will learn about the processes and deposits of glacial environments as well as the use of sedimentary records to reconstruct past glacial environments. Case studies from modern to ancient glacial sedimentary environments will be used. Field trip included.

*Offering(s):* Offered only as needed

*Department(s):* School of Environmental Sciences

**ENVS\*6710 Advanced Sedimentology U [0.50]**

Topics covered through case studies of sedimentary deposits and environments include facies analysis, large scale controls, and novel techniques in sedimentology. Topics may also include specific sedimentary environments or specific sedimentary deposits such as turbidites, cross-bedded strata or seismites depending on student interest. (Offered only as needed)

*Offering(s):* Offered only as needed

*Department(s):* School of Environmental Sciences

**ENVS\*6720 Geology of Groundwater Systems W [0.50]**

This course will examine the geological characteristics and processes that influence groundwater flow systems and contaminant transport and fate in different geological settings. The course will include seminar discussions of readings, guest speakers from industry and government agencies as well as hands-on exercises in class.

*Offering(s):* Offered in alternate years

*Department(s):* School of Environmental Sciences

**ENVS\*6730 Special Topics in Environmental Earth Science F,W,S [0.50]**

Students will explore topics within environmental earth science such as glacial geology, environmental geophysics and hydrogeology. Normally, an independent course of study will be developed with a faculty advisor and one or more students in the semester prior to enrollment. Occasionally, the course will be offered as a lecture/seminar in a particular area, to be advertised in the semester prior to offering. Typically, students will produce a major paper or scientific report.

*Restriction(s):* Instructor consent required.

*Department(s):* School of Environmental Sciences

**ENVS\*6740 Environmental Organic Chemistry W [0.50]**

This course explores the chemical processes that influence organic compounds in the environment. Topics discussed include: the transformation of anthropogenic organic contaminants, the form and function of natural organic matter, and analytical methods including compound specific stable isotope analysis and environmental nuclear magnetic resonance. Offered in conjunction with ENVS\*4370. Extra work is required of graduate students.

*Restriction(s):* Credit may be obtained for only one of ENVS\*6740 or ENVS\*4370. Preference will be given to students in the MES.ENVS, MSc.ENVS and PhD.ENVS programs.

*Department(s):* School of Environmental Sciences

**ENVS\*6882 Special Topics in Plant and Environmental Health F,W,S [0.50]**

Students will explore topics within plant and environmental health such as integrated pest management, apiculture and environmental microbiology. Normally, an independent course of study will be developed with a faculty advisor and one or more students in the semester prior to enrollment. Occasionally, the course will be offered as a lecture/seminar in a particular area, to be advertised in the semester prior to offering. Typically, students will produce a major paper or scientific report.

*Restriction(s):* Instructor consent required.

*Department(s):* School of Environmental Sciences

**ENVS\*6900 Research Seminar in Environmental Sciences F-W [0.50]**

This course provides information and training in scientific presentations for thesis-based Environmental Sciences (ENVS) programs. Students will prepare a written research proposal and make an oral presentation of their proposed studies. Students are expected to complete this course in their second or third semester of study.

*Restriction(s):* Offered only to MSc.ENVS and PhD.ENVS students

*Department(s):* School of Environmental Sciences

## European Studies

The European Studies MA program is designed to provide students with a flexible, inter- and transdisciplinary approach to European Studies that combines humanities and social science perspectives on the study of European cultures and the concept of European identities. The program has three key objectives: 1) to promote studies crossing boundary-lines of all types and explore European culture in its relations with other continents; 2) to introduce students to a variety of methodological approaches in preparation for advanced doctoral research in the field of the Humanities; 3) to prepare students for careers in the arts, teaching and communication, and management, and to equip them with the skills needed to play leading roles in international institutions, national administrations, cultural organizations or media groups.

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#### Paola Mayer

BA Toronto, MA, PhD Princeton - Associate Professor, School of Languages and Literatures, German Studies

#### Alan McDougall

BA, MA, PhD Oxford - Professor, History

#### Jeff Mitscherling

BA California, MA McMaster, PhD Guelph - Professor, Philosophy

#### Ruediger Mueller

BA British Columbia, MA McGill, PhD Queen's - Associate Professor, School of Languages and Literatures, German Studies

#### Padraig O'Cleirigh

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#### Dorothy Odartey-Wellington

BA Ghana, MA, PhD McGill - Associate Professor, School of Languages and Literatures, Spanish Studies

#### Sandra Parmegiani

Laurea, Dottorato Trieste, PhD Toronto - Associate Professor

#### Omid A. Payrow Shabani

BA, MA Carleton, PhD Ottawa - Professor, Philosophy

#### John Russon

BA Regina, MA, PhD Toronto - Professor, Philosophy

#### Andrew Sherwood

BA Calgary, MA Victoria, MA, PhD Princeton - Associate Professor, School of Languages and Literatures, Classics

#### Christina Smylitopoulos

BA Victoria, MA York (UK), PhD McGill - Assistant Professor, School of Fine Art and Music, Art History

#### Clive Thomson

BA, MA, PhD Toronto - Professor, School of Languages and Literatures, French

### Associated Graduate Faculty

#### John Walsh

PhD Otago - Lecturer, School of Languages and Literatures

### MA Program

The European Studies program offers two streams:

1. Exploring European Identities: 3 to 4 consecutive semesters in length, program requirements to be completed mainly at Guelph, with the option of a semester abroad (in France, Germany, Italy or Spain).
2. Crossways in Cultural Narratives, is offered through the University of Guelph's participation in the Erasmus Mundus Consortium. This stream is 2 years in length (2 Fall and 2 Winter semesters) and involves a compulsory mobility component, whereby the student attends 3 different universities in 3 different member-states of the Consortium.

### Admission Requirements

Admission requirements and procedure as well as program requirements for the two streams differ, and are listed separately below.

#### Exploring European Identities

Candidates for admission must hold a BA in an honours program or equivalent from a recognized university or college. The applicant must have achieved a grade average of at least B+ in the work of his/her last four semesters or last two undergraduate years (full-time equivalent). A reading competence in a European language in addition to English is recommended.

#### Crossways in Cultural Narratives

Candidates for admission must have a Bachelor's Degree in an honours program or equivalent in the field of Arts, Languages or Social Sciences; particularly a Modern Languages Degree (e.g. language, literature, thought and cultural studies programs of a high, specialised level relating to one or more of the following: Britain, France, Italy, Portugal, Spain – or Europe as a whole). The applicants must have achieved a grade average of B+ or better (or equivalent), or be among the top 5-10 students of their year. Applicants must also possess a near-native, degree-level command of TWO of the following European Languages: English, French, Italian, Portuguese, and Spanish – together with a basic knowledge of, or a willingness to acquire, a THIRD European language.

Applications should be made through the [Mundus Masters consortium](#)

### Degree Requirements

#### Exploring European Identities

A minimum of 4.00 credits is required for completion of the M.A., to consist of the following:

1. A minimum of six semester courses, each worth 0.5 credits, including: a) Core courses: Team-taught courses on European Identities (EURO\*6010) and Research Methods (EURO\*6000). b) Electives: 2.0 credits to be chosen from a list of restricted electives in European Studies and other programs such as Art History and Visual Culture, English, French, History, Political Science and Philosophy. Visit the EuropeanStudies website for an updated list. <https://www.uoguelph.ca/arts/solal/programs/european-studies/exploring-european-identities-ma>
2. Students will also write a research project (EURO\*6100), worth 1.0 credit of approximately 12,000 words under the supervision of a faculty member.

#### Study Abroad

It is strongly recommended that students study or conduct research abroad. Typically, this would be taken over one semester.



## Crossways in Cultural Narratives

A total of 6.00 credits (120 ECTS minimum) must be obtained: 4.00 for coursework, 1.75 for a thesis of 20,000 words (0.25 or 0.50 credits for the thesis proposal depending on whether students opt for an internship or not, 1.50 for the thesis). Students may opt for an internship worth 0.25 credits.

In compliance with the compulsory mobility component, students are required to obtain 2.00 credits (40 ECTS) from each of 3 universities chosen from the 8 member institutions:

- University of Perpignan Via Domitia, France
- University of Bergamo, Italy
- University of Guelph, Canada
- New University of Lisbon, Portugal
- Adam Mickiewicz University, Poland
- University of Santiago de Compostela, Spain
- University of Saint Andrews, United Kingdom
- University of Sheffield, United Kingdom

The required mobility pattern is as follows: Semester 1 – University A, Semesters 2 & 3 – University B (known as the home university), Semester 4 – University C.

For further details of the program and for downloadable application, visit the [Crossways website at](#)

## Courses

### EURO\*6000 Research Methods F [0.50]

This course will: a) introduce students to the field and research methods of European Studies, b) familiarize them with field-relevant research skills and methodologies.

*Department(s):* School of Languages and Literatures

### EURO\*6010 European Identities W [0.50]

This core course examines historical and contemporary ideas of the 'nation' and of 'Europe' and their relationships to identity, from an interdisciplinary perspective. Using core concepts that span various disciplines, the course investigates the construction and implications of national, minority, European and EU identities.

*Department(s):* School of Languages and Literatures

### EURO\*6020 Myth, Fairy Tales and European Identities U [0.50]

An exploration of how myths and fairy tales have been refashioned in European literature, music and art to express political, social or psychological concerns. Examples will be chosen from different national cultures and epochs. Content will vary according to the interests of the instructor(s).

*Department(s):* School of Languages and Literatures

### EURO\*6030 Women and the Arts in Europe: Seeking Expression U [0.50]

This course examines women's participation in the arts in Europe. Content will vary according to the interests of the instructor(s). Possible approaches: an examination of women's relationships to European cultural institutions, or the extent of women's participation in central pan-European artistic movements.

*Department(s):* School of Languages and Literatures

### EURO\*6040 Europe and the Discourse of Civilization U [0.50]

This course explores the genealogy of the idea of 'civilization' with respect to Europe as it emerges from the writings of medieval, renaissance, early modern and modern art historians, and its role in contemporary political discourse. Literature and music may also be included.

*Department(s):* School of Languages and Literatures

### EURO\*6060 Contemporary Europe U [0.50]

This course examines the major trends and developments in European culture and society since the end of the Cold War and the post-1989 geo-political, social and cultural events. The course will focus on literature, film, art, political and economic theory and will address Europe's transcontinental relationships, inter-European immigration, the role of religious and cultural minorities, the impact of the financial crisis on the Eurozone. Offered in conjunction with EURO\*4050. Extra work is required for graduate students.

*Restriction(s):* Credit may be obtained for only one or EURO\*6060 or EURO\*4050.

*Department(s):* School of Languages and Literatures

### EURO\*6070 Topics in Comparative European Culture I U [0.50]

An examination of a topic, period, or region in any aspect of European culture. The content of the course will vary according to the topic and the professor teaching the course at any given time. It will also differ from the content of Topics in Comparative European Culture II.

*Department(s):* School of Languages and Literatures

### EURO\*6072 Topics in Comparative European Culture II U [0.50]

An examination of a topic, period, or region in any aspect of European culture. The content of the course will vary according to the topic and the professor teaching the course at any given time. It will also differ from the content of Topics in Comparative European Culture I.

*Department(s):* School of Languages and Literatures

### EURO\*6080 Directed Reading Course F,W,S [0.50]

An independent reading project carried out by the student under the supervision of a European Studies graduate faculty member.

*Department(s):* School of Languages and Literatures

### EURO\*6100 Research Project U [1.00]

This research project will result in a major paper of about 12,000 words. The student chooses a topic with guidance of a faculty member. Oral examination of this work is required. The topic must be approved by the Graduate Committee.

*Department(s):* School of Languages and Literatures

## Family Relations and Applied Nutrition

The Department of Family Relations and Applied Nutrition offers MSc and PhD level graduate study in three fields: 1) applied human nutrition; 2) family relations and human development; and 3) couple and family therapy.

- **Applied Human Nutrition (MSc, PhD)** This field incorporates both physiological and behavioural aspects of human nutrition and spans all age groups in its focus on the role of nutrition in human health and well-being. Faculty have specific interests in clinical and community nutrition, physical activity, nutrition assessment, education, health services research, inter-professional practice and epidemiology. This field of study provides a strong foundation in research and nutrition methodology through required courses and thesis work.
- **Family Relations and Human Development (MSc, PhD)** This field of study emphasizes a balance between theory, empirical research and practice in graduate training. Students have many options for building an individualized program of study combining coursework and thesis research. Building on core theory and methodology courses, students choose from professional and applied courses as well as courses on specialized topics. The area of study has particular strengths in the following areas: child and adolescent development, parent-child and family relations, human sexuality, culture, adult development and gerontology, well-being, evidence-based practice, and social policy.
- **Couple and Family Therapy (MSc)** This field focuses on theory, research, and practice, and is accredited by the Commission on Accreditation for Marriage and Family Therapy Education of the American Association for Marriage and Family Therapy. The curriculum is designed to produce sophisticated therapists and scholars by integrating contemporary theory, research competence, and systemic approaches to therapy in the understanding and treatment of couples, families, and individuals. This integrated course of study is coupled with high standards of professional and ethical conduct, attention to broader social issues that impact couples and families, and an emphasis on issues of diversity, power, and privilege.

An accredited Master of Applied Nutrition (MAN) professional degree program is also offered. Current and prospective graduate students are also directed to the [department website](#). The inter-disciplinary faculty in the department have expertise in psychology, sociology, sexuality, adult development, education, social work, culture, family therapy, nutrition and physical activity. The overarching theme of the work in the department is enhancing lives through science and practice. The faculty share a common interest in expanding and applying knowledge about family relations and human development, especially in relation to the social, emotional, psychological, nutritional, and economic well-being of families across the life cycle. Graduate programs with an emphasis on nutrition and metabolism are available in the Department of Human Health and Nutritional Sciences; those with an emphasis on animal nutrition are available in the Department of Animal Biosciences.

### Canadian Police Information Check

Various ministries within the Government of Ontario require that current criminal reference checks be completed for all students, volunteers and successful candidates for employment who care for, or provide service to, children or vulnerable adults. Students enrolled in practica or field placement courses will be required to submit to the agency with which they are placed, personal information about any criminal convictions and pending criminal charges. The cost of acquiring this criminal reference check from the student's local police department (Canadian Police Information Check) will be the responsibility of each student. Applicants to the MSc in the field of Couple and Family Therapy must submit the original results of this check to the Department of Family Relations and Applied Nutrition prior to beginning in September.

### Administrative Staff

#### Chair

Clare MacMartin (245 MINS, Ext. 52419)  
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#### Graduate Program Coordinator

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### Graduate Faculty

#### Kim Anderson

BA, MA Toronto, PhD Guelph - Associate Professor

#### Lynda M. Ashbourne

BSc McMaster, MSc, PhD Guelph - Associate Professor

#### John M. Beaton

BA Wilfrid Laurier, MDiv Tyndale Theological Seminary, MSc Guelph, PhD Minnesota - Associate Professor

#### Paula M. Brauer

BHE British Columbia, MS Wisconsin, PhD Toronto - Associate Professor

#### Andrea Breen

BEd McGill, Ed M Harvard, PhD Toronto - Associate Professor

#### Andrea Buchholz

BAA Ryerson, MSc Guelph, PhD Toronto - Professor

#### Gwenneth Chapman

BSHEC Saskatchewan, MSc, PhD Toronto - Professor and Dean, College of Social and Applied Human Sciences

#### Susan S. Chuang

BSc, Toronto, MSc, MSc, PhD Rochester - Associate Professor

#### John Dwyer

BA Western Ontario, BEd Memorial, MA Western Ontario, PhD Saskatchewan - Associate Professor

#### Laura Forbes

BSc Acadia, PhD Alberta - Assistant Professor

#### Jess Haines

BSc Western Ontario, MHS Toronto, PhD Minnesota - Associate Professor

#### Leon Kuczynski

BSc, MA, PhD Toronto - Professor

#### Tuuli M. Kukkonen

BA Concordia, PhD McGill - Associate Professor

#### Clare MacMartin

BSc, MA Toronto, PhD Guelph - Associate Professor and Department Chair

#### Scott B. Maitland

BSc Buffalo State College, MSc, PhD Pennsylvania State - Associate Professor and Graduate Program Coordinator

#### Robin R. Milhausen

BA, MSc Guelph, PhD Indiana - Professor

#### Ruth Neustifter

BA Syracuse, MSSW-MFT Louisville, PhD Georgia - Associate Professor

#### Michele Preyde

BSW Windsor, MSW Wayne State, PhD Toronto - Associate Professor

#### Carla Rice

BA Harvard, MEd Toronto, PhD York - Professor and Canada Research Chair

#### Olga Smoliak

BA, MA Trinity Western, PhD Calgary - Associate Professor

#### Hannah Tait Neufeld

BASc Guelph, MSc, PhD Manitoba - Assistant Professor

#### Tricia van Rhijn

BASc, MSc, PhD Guelph - Associate Professor

#### Kimberley Wilson

BASc Guelph, MSW Toronto, PhD Guelph - Assistant Professor

### Associated Graduate Faculty

#### Dalia El Khoury

BSc American University of Beirut, MSc American University of Beirut, PhD University of Pierre and Marie Curie (Paris VI) - Contractually Limited Faculty, Family Relations and Applied Nutrition, University of Guelph

#### Donna S. Lero

BA SUNY at Stony Brook, NY, MS, PhD Purdue - Retired Faculty, Family Relations and Applied Nutrition, University of Guelph

### MSc Program

The Department of Family Relations and Applied Nutrition offers an MSc graduate program in three fields: 1) applied human nutrition; 2) family relations and human development; and 3) couple and family therapy.

### Admission Requirements

General admission requirements for these fields of study include an honours degree or equivalent with an average at least 75% in the last two years of study (or 20 credits).

### Applied Human Nutrition

Admission requirements for the MSc program in the field of Applied Human Nutrition are most easily satisfied by applicants with honours degrees in human nutrition, and food and nutrition. Applicants with degrees in related fields (e.g., nutritional sciences, psychology, kinesiology, food science) may be considered with suitable make-up work in core areas. Credit in the following undergraduate courses is required by all entering students: 1) a one-semester course in applied statistics (minimum grade of 75%) and 2) a one-semester course in research methods (minimum grade of 75%). MSc AHN students must also have taken prior to beginning the MSc program OR will take during the MSc program, undergraduate and/or graduate courses needed to meet foundational knowledge in applied human nutrition. These courses may include, but are not limited to: introductory to human nutrition, human physiology, psychology, communications/counselling, and human development/sociology. These requirements may be in progress at the time of application. Program offices should be consulted for admission deadlines.

## Family Relations and Human Development

Admission requirements for the MSc program in the field of Family Relations and Human Development can be satisfied by applicants with an honours degree or equivalent, in a related field. Credit in the following undergraduate courses is required of all entering students: 1) a one-semester course in applied statistics (minimum grade of 75%) and 2) a one-semester course in social-science research methods (minimum grade of 75%). Program offices should be consulted for admission deadlines.

NOTE: Department policy does not permit transfer applications from graduate students registered in the MSc in Family Relations and Human Development into the MSc in Couple and Family Therapy.

### Couple and Family Therapy

Admission requirements for the MSc program in the field of Couple and Family Therapy can be satisfied by applicants with an honours degree or equivalent, in a related field. Credit in the following undergraduate courses is required of all entering students: 1) a one-semester course in applied statistics (minimum grade of 70%) and 2) a one-semester course in social-science research methods (minimum grade of 70%). Program offices should be consulted for admission deadlines.

NOTE: Department policy does not permit transfer applications from graduate students registered in the MSc in Family Relations and Human Development into the MSc in Couple and Family Therapy

Relevant work and/or volunteer experience is an asset. The application must include an Overview of Professional Experience and Plans discussing the applicant's motivation for Couple and Family Therapy graduate education (maximum 3 typed pages). There is no need for CFT applicants to choose an advisor prior to making the application. Selected applicants are invited for an interview, and will have the opportunity to speak with potential CFT faculty advisors at that time. Applicants for the thesis stream only must also submit a Statement of Academic/Research Intent - a detailed, referenced, research plan outlining the relevance of the topic, the connection to faculty research interests and the specific research questions. Also for thesis applicants only, research advisors can be CFT faculty or faculty from the broader department. While CFT faculty do not have research discussions with thesis applicants prior to the application and selection process, thesis applicants can make prior contact with a potential research advisor in the Department if this is deemed an appropriate fit to the applicant's research interests.

The American Association of Marriage and Family Therapy (AAMFT) encourages applications from qualified students who are members of identified minorities. Scholarship aid is available to minority students on a competitive basis from AAMFT.

The most qualified applicants will be short-listed and invited to attend a half-day interview with the Couple and Family Therapy faculty. Participation in the interview is required for admission. Applications from outside of Canada are welcome and external interviewing is appropriately explored. Program offices should be consulted for admission deadlines. Prior to beginning graduate studies in CFT, admitted students must submit a current police record check (CPIC - Canadian Police Information Check) from their local police department.

## Degree Requirements

### Applied Human Nutrition

For all students in the MSc program in the field of Applied Human Nutrition, a minimum of 2.25 graduate credits will be chosen in consultation with the student's advisor and advisory committee including:

FRAN*6000	[0.50]	Research Methods
FRAN*6010	[0.50]	Applied Statistics
FRAN*6020	[0.50]	Qualitative Methods
FRAN*6550	[0.25]	Research Seminar

One additional [0.5] graduate elective course such as FRAN\*6610 (Advances in Clinical Nutrition/Assessment I), FRAN\*6510 (Nutrition in the Community or another graduate level elective course related to the student's research specialization. It can be taken within Family Relations and Applied Nutrition or in other academic units of the university.

Students who enter the MSc-AHN program from a non-nutrition undergraduate program will also be required to take those undergraduate and/or graduate courses necessary to meet foundational knowledge in applied human nutrition. In addition, students must complete a research thesis.

## Family Relations and Human Development

For all students in the MSc program in the field of Family Relations and Human Development, a total of 3.75 credits will be chosen in consultation with the student's advisor and advisory committee.

Core courses include:

FRAN*6000	[0.50]	Research Methods
FRAN*6010	[0.50]	Applied Statistics
FRAN*6020	[0.50]	Qualitative Methods
FRAN*6340	[0.50]	Interdisciplinary Perspectives in Family Relations and Human Development
FRAN*6330	[0.25]	Research Seminar

In addition, students must complete a research thesis and are required to take a minimum of three (3) additional elective graduate courses (1.5 credits) related to their program of study.

### Couple and Family Therapy

The intensive curriculum in Couple and Family Therapy has been designed to enable students to achieve an integration of theory, practice, and research. Clinical training in the MSc in CFT is guided by a systemic perspective, with emphasis on narrative, solution oriented, emotionally-focused and dialogic approaches. Attention to issues of gender, race, class, ethnicity, sexual identity, and culture as well as experiences of oppression and abuse are infused through all aspects of the curriculum.

Students are expected to develop competence in research. Students may choose to write a thesis, by conducting a research study, or they may choose the major research paper (non-thesis) option, and write a critical paper on a selected clinical topic. The thesis option is recommended for those students intending to pursue PhD studies at the University of Guelph or elsewhere. Thesis students will take additional courses to support their thesis research project (see the courses in the list below). Students completing the degree by the non-thesis option, take FRAN\*6350, Major Paper.

Clinical training consists of four continuous practica (FRAN\*6090) within the on-site Couple and Family Therapy Centre, plus an externship in a community agency (FRAN\*6095). Each onsite practicum requires roughly 300 hours of student engagement (direct and indirect client service, supervision, and class time) over the semester. The externship is 350-400 hours over the semester and requires students to travel up to 100 km to an agency where they will complete the remaining hours required for completion of the program. Prior to graduation the CFT student must accumulate 500 hours of direct therapy work with clients, with at least 250 hours (of the 500 hours) working with couples and/or families. Each practicum student receives a minimum of one hour of individual supervision for every five hours of client in-session contact. In addition, each student participates in a weekly supervision group with a student to supervisor ratio of no more than 8:1. Supervision modalities include live supervision, live observation, video/audio-observation, and case consultation. All program faculty are Clinical Members and Approved Supervisors or Supervisor Candidates of the American Association for Marriage and Family Therapy (AAMFT).

For all students in the MSc in the field of Couple and Family Therapy, a minimum of 9.25 graduate credits are required, including the following:

FRAN*6070	[0.50]	Sexual Issues and Clinical Interventions Across the Life Span
FRAN*6080	[0.50]	Power Relations and Diversity in CFT
FRAN*6090	[1.00]	Practicum in Couple and Family Therapy* *
FRAN*6095	[1.00]	Externship in Couple and Family Therapy
FRAN*6100	[0.50]	Clinical Issues in Couple and Family Therapy* *
FRAN*6120	[0.50]	Theories and Methods of Family Therapy I
FRAN*6130	[0.50]	Theories and Methods of Family Therapy II
FRAN*6140	[0.50]	Professional Issues
FRAN*6160	[0.50]	Introduction to Systemic Practice in Couple and Family Therapy
FRAN*6180	[0.50]	Research Issues in Couple and Family Therapy

### Note

\* Students take FRAN\*6090 and FRAN\*6100 four times throughout their course of study. As such, each course totals 2.0 credits.

In addition to the above required courses, students take one restricted elective (0.50 credits) in the area of human or lifespan development. Course options for this restricted elective may include:

FRAN*6200	[0.50]	Special Topics in Family Relations and Human Development *
FRAN*6310	[0.50]	Family Relationships Across the Life Span
FRAN*6320	[0.50]	Human Sexuality Across the Life Span
FRAN*6340	[0.50]	Interdisciplinary Perspectives in Family Relations and Human Development
FRAN*6370	[0.50]	Social Development During Childhood and Adolescence

### Note

\* The special topic of FRAN\*6200 must meet the COAMFTE criteria for individual development and family relations.

**In addition, for Quantitative thesis students:** Three additional courses are required:

FRAN*6330	[0.25]	Research Seminar
FRAN*6000	[0.50]	Research Methods
FRAN*6010	[0.50]	Applied Statistics

**For Qualitative thesis students:** Two additional courses are required:

FRAN*6330	[0.25]	Research Seminar
FRAN*6020	[0.50]	Qualitative Methods

**For non-thesis students:** One additional course is required:

FRAN\*6350 [1.00] Major Research Paper

Upon completion of the requirements for the emphasis in Couple and Family Therapy, the student will receive an MSc. The transcript will specify Family Relations and Human Development: Couple and Family Therapy.

## MAN Program

The Master of Applied Nutrition program comprises one year (3 semesters) of graduate course work and competency-based practica. The program is designed to meet the professional practice requirements for becoming a registered dietitian and to foster practice-based research skills development.

Students take graduate courses in the three broad areas of competency required for practice: foodservice management, clinical/assessment and community nutrition. These courses focus on the latest research in these fields and provide strong theoretical underpinnings for professional practice. Students increase their knowledge of the field while enhancing their skills in three areas: the research process, critical appraisal and communication. Assignments in the courses apply theories to practice in real-life situations.

This dietetic education program is an accredited program recognized by the Partnership for Dietetic Education and Practice (PDEP) and prepares students for eligibility for registration with a provincial dietetics regulatory body. Completion of the PDEP integrative competencies qualify a graduate to write the Canadian Dietetic Registration Examination (CDRE). The course work and practicum options permit the pursuit of interests in the various areas of dietetic practice, while meeting the required entry-level dietetic competencies. Students are charged a practicum fee for each semester of the program, in addition to the University academic and non-academic fees.

## Admission Requirements

Students applying to the Master of Applied Nutrition program must have an honours degree within the previous three years from a dietetic program accredited by PDEP. Applicants should have a minimum average of at least 75% in the last two years of their undergraduate program. Credit in the following courses is required prior to beginning the program: 1) a one-semester course in applied statistics (minimum grade of 75%) and 2) a one-semester course in research methods (minimum grade of 75%). These requirements may be in progress at the time of application but must be completed by April 30.

All applications will be reviewed by a selection committee of Applied Human Nutrition (AHN) graduate faculty and staff. An interview committee will meet with the most qualified applicants, rank the candidates and forward recommendations for admission to the Office of Graduate & Postdoctoral Studies. Program offices should be consulted for admission deadlines.

## Degree Requirements

For all students in the MAN program, a minimum of 6.5 graduate credits are required, including the following required courses:

FRAN*6510	[0.50]	Nutrition in the Community
FRAN*6610	[0.50]	Advances in Clinical Nutrition/Assessment I
FRAN*6710	[1.50]	Practicum in Applied Human Nutrition I
FRAN*6720	[1.50]	Practicum in Applied Human Nutrition II
FRAN*6730	[1.50]	Practicum in Applied Human Nutrition III
FRAN*6740	[0.50]	Foodservice Management in Healthcare
FRAN*6750	[0.50]	Final Project in Applied Human Nutrition

Graduates who have completed all required competencies successfully can apply to write the Canadian Dietetic Registration Examination (CDRE) and apply for membership in the College of Dietitians of Ontario (CDO).

## PhD Program

The Department of Family Relations and Applied Nutrition offers a PhD graduate program in two fields: 1) applied human nutrition; and 2) family relations and human development.

The PhD program in the field of Applied Human Nutrition is a course of study with a strong research focus involving biological, epidemiological and/or social-science perspectives, typically completed within four years (12 semesters). Each student works closely with an advisory committee in developing an individualized program of study that provides depth and addresses the student's specific research and professional goals.

The PhD program in the field of Family Relations and Human Development is a course of study with a strong research focus, typically completed within four years (12 semesters). Each student works closely with an advisory committee to develop an individualized course of study that provides depth and addresses the student's specific research and professional goals. Building on core theory and methodology courses, students choose from professional and applied courses as well as courses on specialized topics. The PhD in FRHD has particular strengths in the following areas: child and adolescent development, parent-child and family relations, human sexuality, culture and acculturation, adult development and gerontology, evidence-based practice, well-being, and social policy.

## Admission Requirements

### Applied Human Nutrition

Students applying to the PhD program in the field of Applied Human Nutrition should have an MSc degree (or in progress) in human nutrition or a related field. Credit in the following courses is required prior to beginning the program: 1) a one-semester course in applied statistics (minimum grade of 75%) and 2) a one-semester course in research methods (minimum grade of 75%); PhD-AHN students must also have taken prior to beginning the PhD program OR will take during the PhD program, undergraduate and/or graduate courses needed to meet foundational knowledge in applied human nutrition. These courses may include, but are not limited to: introductory human nutrition, human physiology, psychology, communications/counselling, and human development/ sociology. A master's thesis is normally required for admission. These requirements may be in progress at the time of application.

### Family Relations and Human Development

Students applying to the PhD program in the field of Family Relations and Human Development should have an MSc degree (or in progress) in Family Relations and Human Development or a closely related degree program (e.g., human development, gerontology, psychology, sociology, couple and family therapy, social work). Credit in the following courses is required prior to beginning the program: 1) a one-semester course in applied statistics (minimum grade of 75%) and, 2) a one-semester course in research methods (minimum grade of 75%). A master's thesis is normally required for admission.

Students enrolled in the MSc program in the fields of Applied Human Nutrition or Family Relations and Human Development are not automatically considered for the respective PhD program; a formal application is required for those wishing admission. All applications are evaluated with reference to academic, research, and professional experience with particular emphasis on research background and potential.

## Degree Requirements

### Applied Human Nutrition

PhD students in Applied Human Nutrition are required to take a minimum of 1.75 graduate credits including FRAN\*6550 (0.25) Research Seminar and three additional graduate courses [0.5 credits each] chosen in consultation with the student's advisory committee such as but not limited to:

FRAN*6440	[0.50]	Applied Factor Analysis & Structural Equation Modelling
FRAN*6610	[0.50]	Advances in Clinical Nutrition/Assessment I
FRAN*6510	[0.50]	Nutrition in the Community

and/or other graduate elective courses, which may be taken within Family Relations and Applied Nutrition or in other academic units of the university.

NOTE: Students who do not have a Master's degree awarded by the Department of Family Relations and Applied Nutrition or from another comparable program, will be required to take the relevant methods courses offered by the department as part of their graduate program. Students who enter the PhD-AHN program from a non-nutrition undergraduate or MSc program will also be required to take those undergraduate and/or graduate courses necessary to meet foundational knowledge in applied human nutrition.

In addition, students must complete a research thesis.

### Family Relations and Human Development

PhD students in Family Relations and Human Development are required to take a minimum of 3.25 credits that build a foundation for their research and/or practice:

FRAN*6000	[0.50]	Research Methods
FRAN*6010	[0.50]	Applied Statistics
FRAN*6020	[0.50]	Qualitative Methods
FRAN*6440	[0.50]	Applied Factor Analysis & Structural Equation Modelling
FRAN*6340	[0.50]	Interdisciplinary Perspectives in Family Relations and Human Development
FRAN*6280	[0.50]	Theorizing in Family Relations and Human Development
FRAN*6330	[0.25]	Research Seminar

Most students take additional elective graduate courses related to their program of study. The student's selection of elective courses is primarily determined by research specialization. Each student works closely with an advisory committee in developing an individualized program of study by selecting courses that not only provide for interdisciplinary breadth but also address the student's specific research and professional goals. Each of the emphases also indicates areas of research that reflect current faculty interests and is intended to help students define an area of research and study.

## Collaborative Specializations

### International Development Studies

The Department of Family Relations and Applied Nutrition participates in the MSc and PhD collaborative specialization in International Development Studies (IDS). Please consult the International Development Studies listing for a detailed description of the collaborative specialization including the special additional requirements for each of the participating departments. Applications are part of the general MSc or PhD application and applicants apply directly to the Department of Family Relations and Applied Nutrition. In addition to the FRAN MSc or PhD requirements, IDS applicants are expected to have a strong background in the social sciences, a demonstrable track record of experience in the course-based study of development issues, development research and/or development practice and a stated research interest relating to international or national development. The IDS designation also requires two core courses in international development theory and research methods. IDS graduates hold positions in government in Canada and abroad with NGOs, international organizations and private consultancies.

## Courses

### Applied Human Nutrition

#### FRAN\*6510 Nutrition in the Community W [0.50]

Concepts and knowledge of nutrition as applied in community and public health nutrition. Examination of current programs in applied nutrition.

*Restriction(s):* Consent required for non-FRAN students.

*Department(s):* Department of Family Relations and Applied Nutrition

#### FRAN\*6550 Research Seminar U [0.25]

Research literature in applied nutrition. Registration for this course occurs in semester 5 for MSc students and semester 7 for PhD students. Students attend weekly seminars in each of the Fall and Winter semesters of their program of study.

*Department(s):* Department of Family Relations and Applied Nutrition

#### FRAN\*6560 Special Topics in Applied Human Nutrition U [0.50]

Contemporary research and special topics in applied human nutrition. Course content is unique to each offering.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Family Relations and Applied Nutrition

#### FRAN\*6610 Advances in Clinical Nutrition/Assessment I F [0.50]

An advanced overview of nutritional assessment and clinical nutrition with emphasis on issues relevant to community based and non-acute care settings. Nutrition assessment methods will be discussed in depth along with emerging issues. Emphasis on clinical nutrition will be integration of theory and practice.

*Restriction(s):* For MAN and AHN students only.

*Department(s):* Department of Family Relations and Applied Nutrition

#### FRAN\*6710 Practicum in Applied Human Nutrition I F [1.50]

This course provides a practicum of 3 days per week with a dietetic-related agency or organization to develop and perform dietetic competencies (internship experience). In weekly seminars, students discuss and reflect on theory and dietetic practice issues.

*Restriction(s):* For MAN students only.

*Department(s):* Department of Family Relations and Applied Nutrition

#### FRAN\*6720 Practicum in Applied Human Nutrition II W [1.50]

This course provides a practicum of 3 days per week with a dietetic-related agency or organization to develop and perform dietetic competencies (internship experience). In weekly seminars, students discuss and reflect on theory and dietetic practice issues

*Prerequisite(s):* FRAN\*6710

*Restriction(s):* For MAN students only.

*Department(s):* Department of Family Relations and Applied Nutrition

#### FRAN\*6730 Practicum in Applied Human Nutrition III S [1.50]

This course provides a practicum of 3 days per week with a dietetic-related agency or organization to develop and perform dietetic competencies (internship experience). In weekly seminars, students discuss and reflect on theory and dietetic practice issues.

*Prerequisite(s):* FRAN\*6720

*Restriction(s):* For MAN students only.

*Department(s):* Department of Family Relations and Applied Nutrition

#### FRAN\*6740 Foodservice Management in Healthcare W [0.50]

Students will critically assess and integrate foodservice management literature and theories to address the multifactorial issues in foodservice operations in healthcare. Case studies presented by expert guests and operational projects will support student synthesis and evaluation of the literature.

*Restriction(s):* For MAN and AHN students only.

*Department(s):* Department of Family Relations and Applied Nutrition

#### FRAN\*6750 Final Project in Applied Human Nutrition S,F,W [0.50]

This supervised project includes a written report and oral presentation of an applied research project or a proposal for a research project, consisting of a literature view, purpose, methodology, and analysis plan. Students register in and work on the project for 3 consecutive semesters.

*Restriction(s):* For MAN students only.

*Department(s):* Department of Family Relations and Applied Nutrition

## Family Relations and Human Development

#### FRAN\*6000 Research Methods F [0.50]

This course includes critical appraisal of the research literature. Research ethics, subject selection, measurement issues, survey design, experimental and quasi-experimental designs, cross-sectional and longitudinal designs, scale development, questionnaire development and sampling strategies are discussed.

*Department(s):* Department of Family Relations and Applied Nutrition

#### FRAN\*6010 Applied Statistics F [0.50]

Students will learn conceptual and practical applications of statistical analyses with emphasis on hypothesis formation, data screening, test selection, inferential statistics, univariate and multivariate analysis of variance/covariance (including repeated measures designs), simple and multiple regression, logistic regression, regression diagnostics, model building and path analytic techniques. FRAN\*6000 can be taken before or while taking this course.

*Restriction(s):* Consent required for non- FRAN students.

*Department(s):* Department of Family Relations and Applied Nutrition

#### FRAN\*6020 Qualitative Methods W [0.50]

This course teaches students how to use qualitative methods as a mode of inquiry for understanding issues in human development, nutrition and family relationships. The emphasis is on project design, data collection techniques, analysis strategies and procedures for final write-up.

*Department(s):* Department of Family Relations and Applied Nutrition

#### FRAN\*6070 Sexual Issues and Clinical Interventions Across the Life Span S [0.50]

This course examines sexual issues and clinical interventions from a life span perspective. Focusing upon theory, research and clinical interventions it explores the relationship between issues in sexual development and sexual functioning. This course is offered in a one-week intensive format in coordination with the Guelph Sexuality Conference.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Family Relations and Applied Nutrition

#### FRAN\*6200 Special Topics in Family Relations and Human Development U [0.50]

Contemporary research in family relations and human development. Research topics vary.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Family Relations and Applied Nutrition

#### FRAN\*6210 Program Evaluation U [0.50]

An examination of the theoretical principles and practical applications of evaluation issues and strategies. Special attention is given to services for children and families across the life span. (Offered in alternate years.)

*Offering(s):* Offered in alternate years.

*Department(s):* Department of Family Relations and Applied Nutrition

#### FRAN\*6221 Evidence-Based Practice and Knowledge Translation U [0.50]

The principles of evidence-based practice are examined using various examples of psychosocial, behavioural and health interventions. The levels of evidence, criteria for efficacy and effectiveness, and the importance and limitations of evidence-based practice will be evaluated. The process of moving knowledge derived from high quality evidence into practice will be appraised throughout the course. Students will have the opportunity to build knowledge in their own areas of interest.

*Offering(s):* Offered in alternate years.

*Department(s):* Department of Family Relations and Applied Nutrition

#### FRAN\*6260 Practicum in Family Relations and Human Development U [0.50]

Supervised practicum experience in a variety of agencies or services. Interested students are encouraged to discuss this option with their faculty advisor. Placements are arranged on an individual basis subject to the requirements of students' programs of study and must be negotiated with faculty in advance of registration.

*Offering(s):* Offered in alternate years.

*Restriction(s):* Available to FRAN graduate students only.

*Department(s):* Department of Family Relations and Applied Nutrition

<b>FRAN*6270 Issues in Family-Related Social Policy U [0.50]</b>
This course investigates definitions of social policy, comparative family-related social policy, selected issues in Canadian family policy and frameworks for analysis of social policy. Issues in policy-related research are also explored. <i>Offering(s):</i> Offered in alternate years. <i>Department(s):</i> Department of Family Relations and Applied Nutrition
<b>FRAN*6280 Theorizing in Family Relations and Human Development U [0.50]</b>
An examination of the meaning of science and theory in relation to the study of families and human development. Included is a discussion of the major social science paradigms including positivism, critical theory, social constructionism and post-modernity. This course is designed for doctoral students. <i>Offering(s):</i> Offered in alternate years. <i>Department(s):</i> Department of Family Relations and Applied Nutrition
<b>FRAN*6310 Family Relationships Across the Life Span U [0.50]</b>
Considers theory and research on family and social relationships across the life span. Examples may include: parent-child, sibling, grandparent, couples, etc. <i>Offering(s):</i> Offered in alternate years. <i>Department(s):</i> Department of Family Relations and Applied Nutrition
<b>FRAN*6320 Human Sexuality Across the Life Span U [0.50]</b>
This course covers research, theoretical and substantive issues relevant to studying human sexuality across the life span. Topics include: child and adolescent sexuality, sexual identity, sexuality in adulthood and old age, sexual assault, international research and sex education. <i>Offering(s):</i> Offered in alternate years. <i>Department(s):</i> Department of Family Relations and Applied Nutrition
<b>FRAN*6330 Research Seminar U [0.25]</b>
Research literature in Family Relations and Human Development. Registration for this course occurs in semester 5 for MSc students and semester 7 for PhD students. Thesis students attend weekly seminars in each of the Fall and Winter semesters of their program of study. <i>Restriction(s):</i> Available to FRAN graduate students only. <i>Department(s):</i> Department of Family Relations and Applied Nutrition
<b>FRAN*6340 Interdisciplinary Perspectives in Family Relations and Human Development U [0.50]</b>
This course acquaints students with the diverse disciplinary perspectives used in the study of family relations and human development. Substantive research issues provide a forum for integrating the separate perspectives and understanding the reciprocal relationship between individual and family growth and development. <i>Department(s):</i> Department of Family Relations and Applied Nutrition
<b>FRAN*6370 Social Development During Childhood and Adolescence U [0.50]</b>
A detailed study of factors important to social development and competence from infancy through adolescence. <i>Offering(s):</i> Offered in alternate years. <i>Department(s):</i> Department of Family Relations and Applied Nutrition
<b>FRAN*6440 Applied Factor Analysis &amp; Structural Equation Modelling U [0.50]</b>
This course introduces students to exploratory factor analysis, confirmatory factor analysis, and structural equation modeling. Topics include: model selection and validation, multiple group models, measurement equivalence/invariance and latent mean analyses. This course is data-driven and students will learn through hands-on analytic experiences accompanied by in-class lectures and readings. <i>Offering(s):</i> Offered in alternate years. <i>Prerequisite(s):</i> FRAN*6000, FRAN*6010 <i>Restriction(s):</i> Consent required for non- FRAN students. <i>Department(s):</i> Department of Family Relations and Applied Nutrition

## Couple and Family Therapy

### Note

The following courses are taken primarily by students in the Couple and Family Therapy emphasis. A limited number of spaces are available in some courses for students outside the Couple and Family Therapy area.

<b>FRAN*6080 Power Relations and Diversity in CFT U [0.50]</b>
This course provides a foundational review of current perspectives within and outside of the couple and family therapy literature that relate to the intersection of culture (race, ethnicity, class, gender, sexuality, ability, etc.) and oppression. Attention is given to the translation of knowledge about power relations and diversity into practice when working as a couple and family therapist with clients and professional colleagues. <i>Restriction(s):</i> Instructor consent required for non Couple and Family Therapy students. <i>Department(s):</i> Department of Family Relations and Applied Nutrition
<b>FRAN*6090 Practicum in Couple and Family Therapy* U [1.00]</b>
This course features supervised clinical practice in couple and family therapy. It involves regular clinical work with couples, families, and individuals. Students meet with faculty each week for up to six hours of supervision. Supervision over the semester will involve both group and individual/dyadic meetings. <i>Restriction(s):</i> Available only to students in the Couple and Family Therapy program <i>Department(s):</i> Department of Family Relations and Applied Nutrition
<b>FRAN*6095 Externship in Couple and Family Therapy S [1.00]</b>
This is an advanced clinical practicum in Couple and Family Therapy. Students are placed in a community agency where they accumulate 10-15 hours per week (over 3 days) of direct clinical contact time. All clinical work is supervised by a clinical supervisor on site. Travel to the community agency is usually required. <i>Prerequisite(s):</i> FRAN*6090 <i>Restriction(s):</i> Available only to students in the Couple and Family Therapy field of study <i>Department(s):</i> Department of Family Relations and Applied Nutrition
<b>FRAN*6100 Clinical Issues in Couple and Family Therapy* U [0.50]</b>
This course is taken four times in the two year program of study. Each offering features selected clinical issues; examination of each issue will include the socio-cultural context, theoretical location, and conceptual and practical implications for couple and family therapy. <i>Restriction(s):</i> Available only to students in the Couple and Family Therapy field of study. <i>Department(s):</i> Department of Family Relations and Applied Nutrition
<b>FRAN*6120 Theories and Methods of Family Therapy I W [0.50]</b>
This course will offer an historical perspective on the development of the field of couple and family therapy beginning with family systems therapy, through intergenerational models, to current constructionist approaches. Intervention methods consistent with these conceptual frameworks are examined. <i>Offering(s):</i> Offered in alternate years. <i>Department(s):</i> Department of Family Relations and Applied Nutrition
<b>FRAN*6130 Theories and Methods of Family Therapy II F [0.50]</b>
This course explores clinical theory and methods associated with structural, strategic and solution focused models of couple and family therapy. Feminist perspectives and approaches are used to examine power and gender dynamics in therapy. <i>Offering(s):</i> Offered in alternate years. <i>Department(s):</i> Department of Family Relations and Applied Nutrition
<b>FRAN*6140 Professional Issues U [0.50]</b>
An exploration of ethics in couple and family therapy; legal issues in the practice of family therapy; and professional issues regarding identity, licensure and practice. <i>Restriction(s):</i> Instructor consent required for non Couple and Family Therapy students. <i>Department(s):</i> Department of Family Relations and Applied Nutrition
<b>FRAN*6160 Introduction to Systemic Practice in Couple and Family Therapy F [0.50]</b>
An exploration of family process to understand diversity in family structures and functioning from a systemic conceptual framework. Applied activities in the associated tutorial section focus on developing basic communication, observational, and therapy skills. Student participation in small learning groups supports skill development and integration of theory and practice. <i>Restriction(s):</i> Available only to students in the Couple and Family Therapy field of study <i>Department(s):</i> Department of Family Relations and Applied Nutrition

**FRAN\*6180 Research Issues in Couple and Family Therapy F [0.50]**

The focus of this course is on research in Couple & Family Therapy, including issues related to evidence-based practice, therapeutic outcome, and therapeutic process. A selected review of quantitative and qualitative research methods and exemplary research is included.

*Offering(s):* Offered in alternate years.

*Restriction(s):* Instructor consent required for non FRAN students.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6350 Major Research Paper U [1.00]**

The major research paper is an option open **only** to MSc students within the Couple and Family Therapy area. Students must demonstrate their ability to accurately synthesize and critically evaluate the literature in a specific area of interest. Detailed guidelines are provided.

*Restriction(s):* Available only to students in the Couple and Family Therapy field of study.

*Department(s):* Department of Family Relations and Applied Nutrition

\* Each of FRAN\*6090 and FRAN\*6100 are taken four consecutive semesters

## Food, Agricultural and Resource Economics

The graduate programs in Food, Agricultural and Resource Economics offers opportunities for master of science (MSc), master in food, agricultural and resource economics (MFARE) and doctor of philosophy (PhD). The thesis-based MSc and PhD are research-oriented degrees which require both course work and a thesis. The course-based MFARE degree requires either course work with a major research paper or course work alone.

The MSc, MFARE and PhD program in Food, Agricultural and Resource Economics focuses on two major fields of emphasis:

- Food and agricultural economics
- Natural resource and environmental economics

### Administrative Staff

#### Chair

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### Graduate Faculty

#### Sylvanus Kwaku Afesorghor

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#### Andreas Boecker

MSc, PhD Kiel - Associate Professor

#### John A.L. Cranfield

BSc, MSc Guelph, PhD Purdue - Professor and Chair

#### Brady J. Deaton

BS Missouri, MS Virginia Tech, PhD Michigan State - Professor

#### Glenn C. Fox

BSc (Agr), MSc Guelph, PhD Minnesota - Professor

#### Getu Hailu

BSc, MSc Alemaya, PhD Alberta - Professor

#### Spencer Henson

BSc, PhD Reading - Professor

#### Alan Ker

BA Waterloo, MSc Guelph, PhD North Carolina State - Professor

#### Yu Na Lee

BBA, MA Yonsei University, MS Cornell, MS Univ. of California, PhD Minnesota - Assistant Professor

#### Rakhal C. Sarker

BSc, MSc Bangladesh, PhD Guelph - Associate Professor

#### Mike von Massow

BA Manitoba; BSc, MSc Guelph; PhD McMaster - Associate Professor

#### Richard Vyn

BSc Dordt College, MSc Alberta, PhD Guelph - Associate Professor

#### Alfons J. Weersink

BSc Guelph, MSc Montana State, PhD Cornell - Professor

### Associated Graduate Faculty

#### Stephen Duff

BSc, MSc Guelph - Chief Economist, Strategic Policy Branch, OMAFRA

#### Alexandra Grygorczyk

BSc, MSc McGill; PhD Guelph - Research Scientist, Vineland Research & Innovation Centre

#### Shannon Majowicz

BSc, MSc, PhD, Guelph - Assistant Professor, Waterloo

#### Ken McEwan

BSc, MSc Guelph - College Professor, Ridgetown Campus Director

#### Ying (Jessica) Cao

BA Nankai Univ, MA Tsinghua Univ, PhD Cornell - Assistant Professor, State University of NY at Buffalo

### MFARE Program

The Master of Food, Agricultural and Resource Economics focuses on two major fields of emphasis: 1) food and agricultural economics; and 2) natural resource and environmental economics.

The MFARE program provides an alternative pathway to graduate education related to the economics of food, agriculture, and natural resources, with an emphasis on skills acquisition and development of industry specific expertise. Through expanded course work requirements, students develop a breadth of exposure to empirical methods and analytical approaches to undertaking policy analysis and research, and enhanced communication skills.

### Admission Requirements

All students entering the MFARE program must have achieved the University required minimum 70% (B-) average or equivalent. In addition, they are expected to have already taken, the following basic courses:

- Intermediate level micro- and macro-economic theory (ECON\*2310 and ECON\*2410 or equivalent)
- Calculus and matrix algebra with applications to economics (ECON\*2770 or equivalent)
- Intermediate level statistics (ECON\*3740 or equivalent).

The Graduate Program Committee examines each application before the student is proposed to the Office of Graduate & Postdoctoral Studies for admission into the program. Potential students are strongly encouraged to take an undergraduate course in advanced microeconomic theory as preparation for the course work in the MFARE.

### Degree Requirements

By the end of their first semester, students must choose one of the following two options.

#### Course Work and Major Research Paper

In order to satisfy the degree requirements of the course work and major research paper option, students will complete successfully five required courses, a seminar course (FARE\*6800) and a research project course (FARE\*6140) and two graduate courses approved by the student's advisory committee. The five required courses (assuming all undergraduate background requirements have been met) are:

FARE*6100	[0.50]	The Methodologies of Economics
FARE*6380	[0.50]	Applied Microeconomics for Agricultural Economists
FARE*6400	[0.50]	Advanced Topics in Agricultural Economics
FARE*6910	[0.50]	Applied Policy Analysis I
FARE*6970	[0.50]	Applied Quantitative Methods for Agricultural Economists

Two graduate courses as approved by the student's advisory committee

FARE*6800	[0.00]	Seminar in Agricultural Economics
FARE*6140	[1.00]	Major Paper in Food, Agricultural and Resource Economics

#### Course Work

In order to satisfy the degree requirements of the course work option, students will complete successfully five required courses listed below plus four additional graduate courses approved by the student's advisory committee. Students in this option are restricted from taking FARE\*6140.

FARE*6100	[0.50]	The Methodologies of Economics
FARE*6380	[0.50]	Applied Microeconomics for Agricultural Economists
FARE*6400	[0.50]	Advanced Topics in Agricultural Economics
FARE*6910	[0.50]	Applied Policy Analysis I
FARE*6970	[0.50]	Applied Quantitative Methods for Agricultural Economists

Four additional graduate courses approved by the student's advisory committee

### MSc Program

The MSc program in Food, Agricultural and Resource Economics focuses on two major fields of emphasis: 1) food and agricultural economics; and 2) natural resource and environmental economics.

The aim of the MSc program is to develop in students a fundamental understanding of economic principles and their application in identifying and solving relevant problems related to food, agriculture, and natural resources. The program also strives to develop appropriate analytical, methodological, and communication skills to enable students to analyze agriculture and resource problems effectively and explain their findings.

### Admission Requirements

All students entering the Master of Science program must have achieved the University required minimum 70% (B-) average or equivalent. In addition, they are expected to have already taken, the following basic courses:

- Intermediate level micro- and macro-economic theory (ECON\*2310 and ECON\*2410 or equivalent)
- Calculus and matrix algebra with applications to economics (ECON\*2770 or equivalent)
- Intermediate level statistics (ECON\*3740 or equivalent).

The Graduate Program Committee examines each application before the student is proposed to the Office of Graduate & Postdoctoral Studies for admission into the program. Potential students are strongly encouraged to take an undergraduate course in advanced microeconomic theory as preparation for the course work in the MSc.



## Degree Requirements

In order to satisfy the degree requirements of the MSc, students will complete successfully six courses, a seminar course, and write and defend an original MSc thesis. The minimum course work requirements (assuming all undergraduate background requirements have been met) are:

FARE*6100	[0.50]	The Methodologies of Economics
FARE*6380	[0.50]	Applied Microeconomics for Agricultural Economists
FARE*6910	[0.50]	Applied Policy Analysis I
FARE*6970	[0.50]	Applied Quantitative Methods for Agricultural Economists
Two graduate courses as approved by the student's advisory committee		
FARE*6800	[0.00]	Seminar in Agricultural Economics

## PhD Program

The PhD program in Food, Agricultural and Resource Economics focuses on two major fields of emphasis: 1) food and agricultural economics; and 2) natural resource and environmental economics.

Across these areas there is a focus on both developed and developing countries. Students in the PhD program focus on an area of specialization relevant to their thesis research, plus complete courses in microeconomic theory and economic research methods. All students must complete and defend a thesis in their chosen area of specialization.

## Admission Requirements

Minimum University of Guelph admission requirements for a Doctoral program include: 1) a satisfactory baccalaureate; and 2) at the very minimum a 'B' average in a recognized Master's degree. Students entering the PhD program are expected to have satisfied the requirements, or their equivalents, of the department's MSc degree in Food, Agricultural and Resource Economics. All applicants are required to upload valid GRE (General exam only) scores with their electronic application prior to the departmental application deadline.

In cases where a student's master's degree is not equivalent to that offered by the department, the student may initially be accepted into the MSc program and may then apply for transfer to the PhD program at some time during the first three semesters. Applications for transfer must be supported by the Graduate Program Committee and approved by the Board of Graduate Studies. The student does not have to complete all the requirements of the MSc before transferring to the PhD program, but must achieve high academic standing.

## Degree Requirements

Students enrolled in the PhD program must successfully complete a program of at least ten taught courses that prepare them for the various elements of the qualification examination and thesis research, as outlined below. However, students that are able to demonstrate a satisfactory level of competence in any of these requirements may have these course requirements adjusted accordingly, subsequent to evaluation and the decision of the Graduate Program Committee.

### Microeconomic Theory:

ECON*6000	[0.50]	Microeconomic Theory I
ECON*6010	[0.50]	Microeconomic Theory II

### Economic Research Methods:

ECON*6140	[0.50]	Econometrics I
ECON*6160	[0.50]	Econometrics II
FARE*6100	[0.50]	The Methodologies of Economics
FARE*6970	[0.50]	Applied Quantitative Methods for Agricultural Economists

## Food, Agricultural and Resource Economics

FARE*6920	[0.50]	Applied Policy Analysis II
FARE*6400	[0.50]	Advanced Topics in Agricultural Economics

Plus ONE from the following:

FARE*6940	[0.50]	Food Firms, Consumers and Markets II
FARE*6960	[0.50]	Natural Resource Economics II

Plus ONE other graduate course approved by the student's advisory committee.

Students may also be permitted to take other courses as substitutes for the above, subject to approval by the Departmental Graduate Program Committee.

## Qualifying Examination

It should be noted that successful completion of the above courses is not necessarily sufficient for qualification to PhD candidacy.

Students are expected to complete successfully the qualifying examination in microeconomic theory that aims to assess a student's understanding of key theoretical concepts. Students are allowed two attempts at this qualifying examination. Students are expected to write the first attempt at this exam in the Summer semester of their first year and (i.e. their third semester in the program), if necessary, the second attempt in the Fall semester of their second year (i.e. their fourth semester in the program). Students that fail the examination at the second attempt will not be permitted to continue.

## Collaborative Specializations

### International Development Studies

The Department of Food, Agricultural and Resource Economics participates in the International Development Studies (IDS) collaborative specialization. Please consult the International Development Studies listing for a detailed description of the MFARE/MSc/PhD collaborative specialization including the special additional requirements for each of the participating departments.

## Courses

### Production Economics

<b>FARE*6380 Applied Microeconomics for Agricultural Economists F [0.50]</b>
The objective of this course is to foster a deeper understanding of standard microeconomic concepts and their application to a wide variety of topics in food, agricultural, and resource economics. Emphasis is placed on what tool(s) to use in a wide variety of circumstances to address real life problems. Topics will include decisions by firms and consumers, market equilibrium, and production decisions.
<i>Prerequisite(s):</i> ECON*2770 or equivalent, ECON*2310 or equivalent, ECON*3740 or equivalent
<i>Department(s):</i> Department of Food, Agricultural and Resource Economics
<b>FARE*6970 Applied Quantitative Methods for Agricultural Economists F [0.50]</b>
This course exposes students to the empirical tools agricultural economists use when conducting research. Emphasis is placed on what tool(s) to use in a variety of circumstances. Topics covered will include advanced econometric techniques, optimization and simulation modelling. Students will also be exposed to the different quantitative software packages used in empirical research.
<i>Prerequisite(s):</i> ECON*3740 or equivalent and ECON*2770 or equivalent
<i>Department(s):</i> Department of Food, Agricultural and Resource Economics

### Agricultural Policy and Trade

<b>FARE*6600 Food Security and the Economics of Agri-Food Systems in Developing Countries F [0.50]</b>
The aim of this course is to understand the nature of food security in developing countries and relations with the economic performance of the agri-food system. Towards this aim, the course focuses on both the agri-food system's role in the supply of nutritious food and its importance as a source of livelihood and as a driver of overall processes of economic development.
<i>Prerequisite(s):</i> ECON*1050 or equivalent, ECON*1100 or equivalent
<i>Department(s):</i> Department of Food, Agricultural and Resource Economics
<b>FARE*6910 Applied Policy Analysis I W [0.50]</b>
An overview of domestic and international agri-food policies and an introduction to the concepts and methods used to evaluate domestic trade policies.
<i>Prerequisite(s):</i> FARE*6380
<i>Department(s):</i> Department of Food, Agricultural and Resource Economics
<b>FARE*6920 Applied Policy Analysis II U [0.50]</b>
A presentation and evaluation of advanced quantitative agri-food policy models and selected special topics related to domestic and trade policy evaluation.
<i>Prerequisite(s):</i> AGE*6910 or FARE*6910 or equivalent
<i>Co-requisite(s):</i> ECON*3710
<i>Department(s):</i> Department of Food, Agricultural and Resource Economics
<b>FARE*6980 Agricultural Trade Relations W [0.50]</b>
An examination of the institutional, theoretical and empirical aspects of international agri-food trade.
<i>Prerequisite(s):</i> FARE*6380
<i>Department(s):</i> Department of Food, Agricultural and Resource Economics

### Economics of Food Markets

<b>FARE*6930 Food Firms, Consumers and Market I F [0.50]</b>
This course examines the application of microeconomic theory to food markets. Topics covered include: optimizing behaviour by economic agents, the certainty equivalent profit model and decision making under risk, optimal capital replacement models and their application to food system economics, consumer behaviour with respect to food products and behaviour with respect to food products and behaviour of marketing intermediaries and food processors. New developments in the economic theory of the form are surveyed.
<i>Prerequisite(s):</i> ECON*2310 or equivalent, ECON*3740 or equivalent
<i>Department(s):</i> Department of Food, Agricultural and Resource Economics

**FARE\*6940 Food Firms, Consumers and Markets II U [0.50]**

This course builds on Food Firms, Consumers and Markets I by extending the breadth and depth of student's understanding and scope of economic analysis. Advanced techniques in producer and consumer theory, as well as advance market analysis techniques are presented and utilized. Understanding of the research process and advanced methods is emphasized throughout.

*Prerequisite(s):* AGEC\*6930 or FARE\*6930

*Department(s):* Department of Food, Agricultural and Resource Economics

**Natural Resource Economics****FARE\*6950 Natural Resource Economics I W [0.50]**

Natural Resources I introduces conventional theoretical modeling approaches to renewable resources, e.g. fisheries & forestry. Seminal theoretical literature is discussed. Emphasis is placed on setting up economic models, deriving and interpreting general results. Applied methods include dynamic optimization and regression analysis. Additional topics include Land Economics and the property rights approach.

*Prerequisite(s):* FARE\*6380

*Department(s):* Department of Food, Agricultural and Resource Economics

**FARE\*6960 Natural Resource Economics II U [0.50]**

Natural Resources II reviews & extends conventional theoretical modeling approaches to renewable resources, e.g. fisheries & forestry. Seminal literature is reviewed and contemp. theoretical work and empirical papers discussed. Emphasis on extending economic models addressing natural resource issues - uncertainty, externalities & policy instruments, and derive reduced-form versions of forestry & fishery for empirical estim. & analysis. Primary method of math analysis involves dyn. opt. techniques. Detailed math derivations & proofs expected. Also- extinction, climate change, carb sequest.

*Prerequisite(s):* AGEC\*6950 or FARE\*6950

*Department(s):* Department of Food, Agricultural and Resource Economics

**Other Courses****FARE\*6100 The Methodologies of Economics W [0.50]**

Alternative views on the methodology of economics are reviewed and assessed. The process of problem identification in the development of a research project proposal is investigated.

*Department(s):* Department of Food, Agricultural and Resource Economics

**FARE\*6140 Major Paper in Food, Agricultural and Resource Economics U [1.00]**

The major paper is an option only available to MFARE students registered in the course work master program. An original research project related to the specialization of choice in food, agricultural and resource economics will be undertaken. The project will include preparation of a written paper and an oral presentation of the findings to the faculty.

*Restriction(s):* Restricted to students in the course-based MFARE program in FARE

*Department(s):* Department of Food, Agricultural and Resource Economics

**FARE\*6400 Advanced Topics in Agricultural Economics U [0.50]**

The application of economic theory and various contemporary tools of economic analysis in solving production problems in the agricultural sector of the economy.

*Department(s):* Department of Food, Agricultural and Resource Economics

**FARE\*6720 Readings in Agricultural Economics F,S,W [0.50]**

A reading course on selected topics of special interest. May be offered to individual students or to groups of students in any semester.

*Department(s):* Department of Food, Agricultural and Resource Economics

**FARE\*6800 Seminar in Agricultural Economics U [0.00]**

Students in the MSc and MFARE major research paper option program must give two presentations at the annual research symposium; one in their first year outlining their research plan, and one in their second year on their thesis research results or major research paper.

*Department(s):* Department of Food, Agricultural and Resource Economics

## Food Safety and Quality Assurance

The interdepartmental program is the focal point for graduate teaching and research in food safety and quality assurance. The MSc program in food safety and quality assurance is intended to prepare food scientists, food engineers, veterinarians and others with appropriate scientific backgrounds for participation in food safety monitoring and maintenance in the food industry and in government. Students wishing to undertake graduate studies at the MSc level with emphasis on food safety and quality assurance will enter the program through a participating department. The participating academic units are Biomedical Sciences, Marketing and Consumer Studies, Environmental Biology, Food Science, Pathobiology, Population Medicine, and Engineering.

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Professor, Food Science

#### Keith Warriner

Professor, Food Science

### Associated Graduate Faculty

#### Mansel Griffiths

Food Science

#### Anne Wilcock

Food Science

## MSc Program

### Admission Requirements

The program is most suitable for those with an undergraduate science background or for those currently employed in the food area in government regulatory work or in the processing industry who desire upgrading of skills and knowledge. Applicants for admission to this program must meet the university minimum admission requirement of a baccalaureate in an honours program (or the equivalent) or a DVM from a recognized university or college with an average standing of at least a 'B-' average. Applicants will be expected to have completed undergraduate courses that prepare them for participation in the core graduate courses and electives of the program. Undergraduate upgrading may be necessary to ensure sufficient background in topics such as microbiology, toxicology, statistics, and analytical methods.

### Degree Requirements

Completion of the MSc FSQA program requires a minimum of eight courses (or 4.5 credits) acceptable for graduate credit. This includes the seminar course which has a value of 0.5 credit. All students must complete:

FSQA*6000	[0.50]	Food Safety and Quality Assurance Seminar
FSQA*6500	[1.00]	Food Safety and Quality Assurance Research Project
This project is equal to 1.0 credit and counts as one course of the eight required courses.		
FSQA*6600	[0.50]	Principles of Food Safety and Quality Assurance
FSQA*6150	[0.50]	Food Quality Assurance Management

At least four additional courses, in consultation with the student's advisory committee.

Suitable courses are listed below. Other courses, not listed here, also may be considered. Up to two senior undergraduate courses can be taken. The courses selected will depend upon the student's background, specialty, interest and area of project research. The normal duration of the program will be three to four full-time semesters.

### Graduate Diploma

### Admission Requirements

The program is most suitable for those with an undergraduate science background or for those currently employed in the food area in government regulatory work or in the processing industry who desire upgrading of skills and knowledge. Applicants for admission to this program must meet the university minimum admission requirement of a baccalaureate in an honours program (or the equivalent) or a DVM from a recognized university or college with an average standing of at least a 'B-' average. Applicants will be expected to have completed undergraduate courses that prepare them for participation in the core graduate courses and electives of the program. Undergraduate upgrading may be necessary to ensure sufficient background in topics such as microbiology, toxicology, statistics, and analytical methods.

### Diploma Requirements

All students must complete the following five courses:

FSQA*6100	[0.50]	Food Law and Policy
FSQA*6150	[0.50]	Food Quality Assurance Management
FSQA*6200	[0.50]	Food Safety Systems Management
FSQA*6600	[0.50]	Principles of Food Safety and Quality Assurance
POPM*6350	[0.50]	Safety of Foods of Animal Origins

### Collaborative Specializations

### Toxicology

The MSc in Food Safety and Quality Assurance participates in the collaborative specialization in toxicology. The faculty members' research and teaching expertise includes aspects of toxicology; they may serve as advisors for MSc.

Please consult the Toxicology listing for a detailed description of the MSc collaborative specialization.

### Courses

FSQA*6000 Food Safety and Quality Assurance Seminar F [0.50]	
Provides experiential training in forms of communication that are likely to be required in professional or academic careers in food science and technology.	
<i>Restriction(s):</i>	This course is open only to students in the MSc FSQA program.
<i>Department(s):</i>	Department of Food Science
FSQA*6100 Food Law and Policy F [0.50]	
The fundamentals of food policy development and Canadian and international food law are learned and practiced through online presentations, independent study and online interactions with other students and industry professionals.	
<i>Offering(s):</i>	Offered through Distance Education format only.
<i>Department(s):</i>	Department of Food Science

**FSQA\*6150 Food Quality Assurance Management W [0.50]**

Examination and review of principles and concept of quality assurance and their application to consumer products and services. Topics include applied aspects of total-quality management principles.

*Offering(s):* Offered through Distance Education format only.

*Department(s):* Department of Food Science

**FSQA\*6200 Food Safety Systems Management W [0.50]**

Food safety systems are studied in four modules. (1) A brief review of plant hygiene and HACCP principles. Students with insufficient background will do supplemental study in these areas; (2) HACCP implementation and verification; (3) HACCP-based food safety programs in Canada; and (4) International Food Safety Management Systems.

*Offering(s):* Offered through Distance Education format only.

*Department(s):* Department of Food Science

**FSQA\*6500 Food Safety and Quality Assurance Research Project S,F,W [1.00]**

An original research project related to food safety and quality assurance which includes the preparation of a written report suitable for publication and an oral presentation of the findings to the graduate faculty.

*Department(s):* Department of Food Science

**FSQA\*6600 Principles of Food Safety and Quality Assurance F [0.50]**

An integrated approach to factors affecting food safety and quality including microbial and chemical contamination is provided. Major food-borne disease outbreaks are studied as examples. Modern methods of quality management to minimize contamination of processed foods is discussed.

*Offering(s):* Offered through Distance Education format only.

*Department(s):* Department of Food Science

**Other Graduate Courses Suitable for Credit in this Program****Food Science**

FOOD*6190	[0.50]	Advances in Food Science
FOOD*6710	[0.25]	Special Topics in Food Chemistry
FOOD*6720	[0.25]	Special Topics in Food Microbiology
FOOD*6730	[0.25]	Special Topics in Food Physics
FOOD*6740	[0.25]	Special Topics in Food Processing
FOOD*6750	[0.25]	Special Topics in Food for Health
FOOD*6760	[0.25]	Special Topics in Food Quality

**Human Health and Nutritional Sciences**

HHNS*6400	[0.50]	Functional Foods and Nutraceuticals
HHNS*6410	[1.00]	Applied Functional Foods and Nutraceuticals

**Pathobiology**

PABI*6000	[0.50]	Bacterial Pathogenesis
PABI*6550	[0.50]	Epidemiology of Zoonoses

**Population Medicine**

POPM*6200	[0.50]	Epidemiology I
POPM*6210	[0.50]	Epidemiology II
POPM*6350	[0.50]	Safety of Foods of Animal Origins

**Plant Agriculture**

PLNT*6110	[0.50]	Fruit and Vegetable Technology
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**Undergraduate Courses Suitable for Credit in this Program****Food Science**

FOOD*3030	[0.50]	Food Chemistry I
FOOD*4120	[0.50]	Food Analysis
FOOD*4090	[0.50]	Functional Foods and Nutraceuticals

**Human Health and Nutritional Sciences**

NUTR*4510	[0.50]	Toxicological Aspects of Nutrition
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**Population Medicine**

POPM*4040	[0.50]	Epidemiology of Food-Borne Diseases
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## Food Science

Food Science is the study of scientific and technological principles applied to the processing, preservation, packaging, distribution, handling, storage and evaluation of food products. It is an applied science, drawing heavily upon the principles of chemistry, engineering and microbiology. Research-based MSc and PhD thesis programs have existed in the Department of Food Science since its creation from the Department of Dairy Science in 1967 and are offered in the fields of:

- Food Chemistry
- Food Processing
- Food Microbiology

The Food Science program at Guelph is the only one of its kind in Ontario and over the years has trained a large percentage of the Food Scientists currently employed in the Ontario food industry. In 1992, a course-based MSc in Food Safety and Quality Assurance was developed by Food Science with several other departments at the University of Guelph. In 2010, a Graduate Diploma in Food Safety and Quality Assurance was introduced. The diploma is available only online. For more details please consult the FSQA program

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#### Paul Spagnuolo

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#### Keith Warriner

BSc Nottingham, PhD Aberystwyth - Professor

### MSc Program

The objective of this program is to provide graduates with general scientific knowledge as well as a more in-depth understanding of particular aspects of Food Science. The MSc program is offered in the fields of: 1) food chemistry; 2) food processing; and 3) food microbiology.

This objective is accomplished through course work and departmental research seminars. Extensive laboratory and technical training is obtained by performing experiments under the supervision of a professor and advisory committee. A mandatory communication course also teaches effective oral and written communication. All these training aspects culminate through the writing of the MSc thesis. With this background, MSc graduates will be qualified to obtain positions with responsibility in government and the research, development and production sectors of the food and beverage industry.

### Admission Requirements

To be considered for admission, applicants should hold an honours baccalaureate degree with at least a 'B' average during the last two years of study. Supportive letters of reference are essential and should outline the applicant's strengths and weaknesses. Students whose first language is not English require a TOEFL score of at least 550 (paper-based), 213 (computer-based), or 89 (internet-based). To assist in identifying a suitable thesis advisor, applicants should submit a short statement of research interests. Admission into the department is contingent on the student obtaining a scholarship or Graduate Research Assistantship. Students may be admitted into the Fall, Winter or Summer semesters.

### Degree Requirements

MSc students are required to register in at least three graduate courses, plus seminar (a minimum of 2.0 credits) and prepare an acceptable thesis. A graduate degree program form signed by the student and approved by the student's advisory committee will be submitted during the first semester for approval of the departmental Graduate Program Committee. The student must maintain a minimum 'B-' average to remain in the program. Each student is required to take a compulsory seminar course which provides training in technical communications. The thesis research is planned by the student in consultation with the advisor and approved by the advisory committee during the first semester of the program. The program is completed by the successful defense of the thesis.

### PhD Program

The objective of this program is to develop highly competent scientists who will provide leadership in academic institutions, or as managers in Food Science research and development institutes in industry or government. The PhD program is offered in the fields of: 1) food chemistry; 2) food processing; and 3) food microbiology. Creativity and the ability to perform independent research is fostered by requiring PhD students to submit a written research proposal and defend it orally. Having obtained research skills during their MSc studies, PhD students are expected to conduct autonomous research. The preparation of a PhD thesis and scientific publications ensures that graduates have attained prowess in research and communication.

### Admission Requirements

The usual requirement for admission into the PhD program is a research-based MSc degree with a minimum 'B' average and supportive letters of reference. Students whose first language is not English require a TOEFL score of at least 550 (paper-based), 213 (computer-based), or 89 (internet-based).

To assist in identifying a suitable thesis advisor, applicants should submit a short statement of research interests. Admission into the department is contingent on the student obtaining a scholarship or GRA. It is also possible for a student to transfer from the MSc program without completing a master's thesis if the student has an excellent academic record and shows a strong aptitude for research which can be expanded to the doctoral level. Students may be admitted into the Fall, Winter or Summer semesters.

### Degree Requirements

The major emphasis in the PhD program is research and the preparation of an acceptable thesis. There are no specific course requirements except for a course which is designed to ensure that the PhD candidates have adequate background knowledge in Food Science (food chemistry, food microbiology and food processing/engineering), as well as adequate written and oral communication skills. It is usual however for most students, in consultation with their advisory committee, to select prescribed studies and additional courses in preparation for the qualifying examination and thesis research. The qualifying examination is in two parts: (1) submission of research proposal; and (2) oral examination that evaluates the student's ability to communicate effectively the scientific principles and put the proposed research to submit a written evaluation of the student's performance to date in research and the student's potential as a researcher. The PhD program is completed by the submission and successful defense of an acceptable thesis.

### Courses

#### Note

Course content for "Special Topics" will vary according to the research interests of the faculty involved in offering the course. Specific course descriptions are posted on the Department of Food Science website.

## General

### **FOOD\*6190 Advances in Food Science U [0.50]**

Topics of current research interest and importance are examined. A project supervised by a faculty member is undertaken, the topic of which is chosen after considering the interests of the student.

*Department(s):* Department of Food Science

### **FOOD\*6300 Food Science Communication U [0.50]**

This course provides experiential training in forms of communication that are likely to be required in professional or academic careers in food science and technology.

*Restriction(s):* This course is only open to students in the MSc Food program.

*Department(s):* Department of Food Science

### **FOOD\*6710 Special Topics in Food Chemistry U [0.25]**

This is a modular course in which several faculty members lecture and/or lead discussions in current topics in food chemistry. Students will complete an independent review in the area of food chemistry, participate in discussions, complete case studies, and present talks related to food chemistry.

*Department(s):* Department of Food Science

### **FOOD\*6720 Special Topics in Food Microbiology U [0.25]**

This is a modular course in which several faculty members lecture and/or lead discussions in current topics in food microbiology. Students will complete an independent review in the area of food microbiology, participate in discussions, complete case studies, and present talks related to food microbiology.

*Department(s):* Department of Food Science

### **FOOD\*6730 Special Topics in Food Physics U [0.25]**

This is a modular course in which several faculty members lecture and/or lead discussions in current topics in food physics. Students will complete an independent review in the area of food physics, participate in discussions, complete case studies, and present talks related to physics in foods.

*Department(s):* Department of Food Science

### **FOOD\*6740 Special Topics in Food Processing U [0.25]**

This is a modular course in which several faculty members lecture and/or lead discussions in current topics in food processing. Students will complete an independent review in the area of food processing, participate in discussions, complete case studies, and present talks related to conventional and emerging methodologies for the processing of foods.

*Department(s):* Department of Food Science

### **FOOD\*6750 Special Topics in Food for Health U [0.25]**

This is a modular course in which several faculty members lecture and/or lead discussions in current topics in food for health. Students will complete an independent review in the area of food and health, participate in discussions, complete case studies, and present talks related to the impact of food for health.

*Department(s):* Department of Food Science

### **FOOD\*6760 Special Topics in Food Quality U [0.25]**

This is a modular course in which several faculty members lecture and/or lead discussions in current topics in food quality. Students will complete an independent review in the area of food quality, participate in discussions, complete case studies, and present talks related to quality of foods.

*Department(s):* Department of Food Science

### **FOOD\*6770 PhD Research Writing in Food Science F,W [0.50]**

PhD Research Writing in Food Science provides experiential training in forms of communication that are likely to be required in professional or academic careers, helps PhD students position their research in the broader context of Food Science and Technology, and helps prepare students for the qualifying examination.

*Restriction(s):* Only for Ph.D. students in Food Science Instructor consent required.

*Department(s):* Department of Food Science

#### **Other Graduate Courses:**

HHNS\*6410 Applied Functional Foods and Nutraceuticals

PLNT\*6110 Fruit and Vegetable Technology

## French

The French MA program is designed for students who wish to pursue careers in post-secondary teaching, research, administration, federal and provincial government service, national and international organisations, and other areas in which advanced bilingual and multicultural skills are required. This program highlights the converging and diverging historical and linguistic forces at play in cultural environments that share French as a common language.

Research and teaching fall within two main fields:

- Language in Context
- Politics and Aesthetics of Literatures

### Administrative Staff

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#### Clive Thomson

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### MA Program

The MA program is offered in two main fields 1) language in context; and 2) politics and aesthetics of literatures. Students may take a range of courses in Quebec, continental French, African and Caribbean literatures, as well as in intermediality, literary translation and the pedagogy of French as a second language.

This program offers an experiential service-learning practicum which takes place outside the classroom. Students choose from a list of volunteer activities approved by the School of Languages and Literatures. This practicum normally takes place in a Francophone milieu and is the equivalent of one academic course (0.5 credit).

### Admission Requirements

The normal requirement for admission to the French MA program is the equivalent of an Honours degree in French studies from a recognized post-secondary institution with an overall average of B+ or equivalent. Applicants who do not have an Honours BA in French from a Canadian university may be required to take a short competence test and/or qualifying undergraduate courses prior to beginning graduate study. Students enter the program in September with full-time status.

### Degree Regulations

Students are required to take a minimum of six semester courses (3.0 credits), with the service-learning placement counting as one of these courses. They are also required to write a 40 page MRP (major research paper). Courses must be approved by the Graduate Program Coordinator and will normally be completed in three semesters on a full-time basis. The minimum average required for graduation from the program is a B or equivalent. All work is written in French.

Required courses:

FREN*6000	[0.50]	Research Methods Seminar
FREN*6042	[0.50]	Topics in FSL Pedagogy

### Courses

The content of the courses listed below will vary according to the research interests of the faculty involved in offering the course. Specific course descriptions for a particular offering of the course will be available from the Graduate Program Coordinator in advance of the course being offered.

#### FREN\*6000 Research Methods Seminar F [0.50]

This course will introduce students to the field and research methods of various disciplines and of interdisciplinary studies, and it will familiarize them with field-relevant research skills and methodologies.

*Department(s):* School of Languages and Literatures

#### FREN\*6020 Topics in French Literature U [0.50]

This course will focus on European French literature in relation to thematic approaches including: gender and feminism, transgression, (post)colonialisms, identity and alterity.

*Department(s):* School of Languages and Literatures

#### FREN\*6021 Topics in Quebec and French-Canadian Literatures U [0.50]

This course will focus on how literature functions as a socio-political institution in Quebec and in French Canada. It will also deal with elements that relate more broadly to identity, reception theory and semiotics.

*Department(s):* School of Languages and Literatures

#### FREN\*6022 Topics in Caribbean and African Literatures U [0.50]

This course focuses on the works of major Francophone African and Caribbean fictional and theoretical works with particular attention being given to links between notions of cultural hierarchies, identity, métissage and creolization.

*Department(s):* School of Languages and Literatures

#### FREN\*6030 Topics in Translation U [0.50]

This course deals with various aspects of literary translation, including theories of translation, the role of reading in translation, the active translation of a text from English into French, and the reflection upon the influence of each of these categories on the others.

*Department(s):* School of Languages and Literatures

#### FREN\*6031 Topics in Intermediality U [0.50]

An investigation of the intersection of artistic expression taking place in literature, theatre, film, television and new media and the various effects produced by the interaction of two or more media.

*Department(s):* School of Languages and Literatures

#### FREN\*6041 Topics in French and French-Canadian Sociolinguistics U [0.50]

This course will allow students to explore, within the framework of sociolinguistics and applied linguistics, the relationship between language and society, with particular reference to French and the French-speaking world.

*Department(s):* School of Languages and Literatures

#### FREN\*6042 Topics in FSL Pedagogy U [0.50]

This compulsory course covers theories, methods, and real-life applications of the teaching/learning of a second language, specifically French.

*Department(s):* School of Languages and Literatures

#### FREN\*6050 Reading Course S [0.50]

An independent study course, the nature and content of which is agreed upon between the student and the professor offering the course. Subject to the approval of the graduate program coordinator.

*Department(s):* School of Languages and Literatures

#### FREN\*6051 Major Research Paper U [0.50]

This independent, required course allows students to pursue research in an area of particular interest to them in the field of French Studies. A compulsory major paper 40 pages in length will be required.

*Prerequisite(s):* FREN\*6000

*Department(s):* School of Languages and Literatures

#### FREN\*6053 Practicum in French Studies S [0.50]

This course will allow students to engage in volunteer service in a francophone community. Students will be asked to forge links between knowledge acquired in the academic setting and problem-based learning in a real-world context. A list of authorized community partners will be provided.

*Prerequisite(s):* FREN\*6000 and FREN\*6042

*Department(s):* School of Languages and Literatures

## Geography

The Department of Geography, Environment and Geomatics offers programs of study leading to the degrees of MA, MSc and PhD in Geography in the following fields:

- Environmental Management and Governance
- Biophysical Systems and Processes
- Socio-Economic Spaces and Change

Details regarding faculty, areas of research, current research opportunities are provided on the Department's web site <http://www.uoguelph.ca/geography/>

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#### Robin Roth

BA Victoria, PhD Clark - Associate Professor

#### Jennifer Silver

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#### John A. Smithers

BA Western Ontario, MA, PhD Guelph - Professor and Chair

#### Wanhong Yang

BSc Hubei, MSc Chinese Academy of Sciences, PhD Illinois - Professor and Graduate Program Coordinator

### MA and MSc Programs

The Department of Geography offers MA and MSc degrees in Geography, by thesis and by project. The Master's program offers opportunities for research in the fields of 1) environmental management and governance; 2) biophysical systems and processes; and 3) socio-economic spaces and change. The program is distinctive in that it emphasizes interrelationships among biophysical and human systems. Scales of inquiry range from the local to the global, and students conduct research in both developed and developing countries.

### Admission Requirements

To be considered for admission, applicants should meet the minimum requirements of a four-year honours degree with a 75% ('B') average during the final two years of study. Applicants must submit a statement of their research interests with their application. It is essential that applicants contact potential advisors in the department prior to submission of an application. Students are admitted in September. Program offices should be consulted for admission deadlines.

### Degree Requirements

Students enrol in one of two study options: 1) thesis, or 2) course work and major research project.

#### Thesis

Students taking the thesis option are required to complete an acceptable thesis and the Research Methods courses (GEOG\*6090 and GEOG\*6091). In addition, students must take three courses (1.5 credits), from the Department of Geography.

For the MA degree, students must complete two courses identified as social science courses. For the MSc degree, students must complete two courses identified as natural science courses.

### Course Work and Major Research Project (MRP)

Students taking the course work option must complete the Research Methods courses (GEOG\*6090 and GEOG\*6091) and the Research Project course. In addition, five other courses (2.5 credits) are required, at least four of which must be from the Department of Geography. MA students must complete three courses identified as social science courses. MSc students must complete three courses identified as natural science courses.

### PhD Program

The PhD program is offered in three fields 1) environmental management and governance; 2) biophysical systems and processes; and 3) socio-economic spaces and change. Doctoral students conduct research relating to these areas at various geographic scales, from the local to the global.

### Admission Requirements

Applicants for the PhD program should have a recognized master's degree with an 80% ('A-') average in their postgraduate studies. Applicants must submit a statement of their research interests including some evidence of experience in their chosen research area. It is essential that applicants contact potential advisors in the department prior to submission of an application. Students are admitted in September. Program offices should be consulted for admission deadlines.

### Degree Requirements

All students in the PhD program are required to complete the Geographic Scholarship and Research course during the first two semesters of study. The advisory committee may prescribe additional courses to help the student prepare for the qualifying examination and thesis research. All students in the PhD program must complete a qualifying examination and submit a satisfactory research proposal by the end of the fourth semester of study.

The qualifying examination has written and oral components and evaluates the student's knowledge of the broader scholarly field as well as the specific theoretical and empirical content of the intended research area. Submission and defence of an acceptable thesis on an approved topic completes the requirements of the PhD.

### Collaborative Specializations

#### International Development Studies

The Department of Geography participates in the MA, MSc and PhD collaborative specialization in International Development Studies (IDS). Consult the International Development Studies listing for a detailed description of the requirements of the collaborative specialization.

### Courses

#### Environmental Management and Governance

##### GEOG\*6281 Environmental Management and Governance F [0.50]

Analysis and evaluation of environmental management and governance using geographical approaches. Emphasis is on socio-economic theories, concepts and methods which offer a more comprehensive and integrative basis for understanding environmental decisions.

*Restriction(s):* Signature required for non-geography students.

*Department(s):* Department of Geography

##### GEOG\*6340 Human-Environment Relations W [0.50]

A critical review of philosophies, concepts and analytical methods for analysis and management of systems involving the interaction of environmental processes and human spatial activity.

*Department(s):* Department of Geography



## Biophysical Systems and Processes

### **GEOG\*6330 Biotic Processes and Biophysical Systems U [0.50]**

Investigation of biotic processes influencing the composition, structure and distribution of plant and animal communities and of approaches to biophysical systems analysis, focusing on environmental system interaction at the landscape scale.

*Department(s):* Department of Geography

### **GEOG\*6550 Environmental Modelling W [0.50]**

This course aims to provide students with an understanding of the processes and techniques involved in environmental modeling practice and will focus on the power and limitations of existing models.

*Department(s):* Department of Geography

### **GEOG\*6610 Global Hydrology F [0.50]**

An examination of global environmental hydrology including precipitation, evaporation, subsurface water and runoff. Physical processes, measurement, analytical techniques and modelling strategies will be considered in the context of global change.

*Department(s):* Department of Geography

## Socio-Economic Spaces and Changes

### **GEOG\*6450 Development Geography U [0.50]**

Group identities at various scales in relation to concepts of territory and territoriality, and their changing impact on the world's political map.

*Offering(s):* Offered in alternate years.

*Department(s):* Department of Geography

## General

### **GEOG\*6060 Special Topics in Geography S,F,W [0.50]**

A course on some specific topic not covered by the regular graduate courses for which there are both available faculty and sufficient interest among students.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Geography

### **GEOG\*6090 Geographical Research Methods I F [0.50]**

A review of philosophies and research methods in geography. The development and presentation of a context paper for the thesis or research project.

*Department(s):* Department of Geography

### **GEOG\*6091 Geographical Research Methods II W [0.50]**

A review of philosophies and research methods in geography. The development and presentation of a research proposal for the thesis or research project.

*Prerequisite(s):* GEOG\*6090

*Department(s):* Department of Geography

### **GEOG\*6100 Geographic Scholarship and Research F-W [0.50]**

A review of geographic scholarship including conceptual, theoretical and methodological issues in resource assessment, biophysical resources and rural socio-economic resources.

*Offering(s):* The course extends over two semesters (Fall and Winter).

*Department(s):* Department of Geography

### **GEOG\*6180 Research Project in Geography S,F,W [1.00]**

The preparation and presentation of a report on the research project approved in GEOG\*6090.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Geography

## History - Tri-University Program

The Departments of History of the University of Guelph, the University of Waterloo and Wilfrid Laurier University offer a joint program leading to the MA and PhD degrees. The PhD program is offered in the following fields:

- Canadian History
- Scottish History
- War and Society
- World History
- Medieval History
- Early Modern European History
- Modern European History
- Cold War History
- Indigenous Histories of Turtle Island

The Tri-University Graduate Program in History includes members from all three departments covering a wide range of research interests. It is a semi-autonomous program responsible directly to the three graduate schools. It looks after admissions, arranges courses of instruction, names students' advisory committees, and monitors student progress generally. Students in the Tri-University Graduate Program in History register either at Guelph, Waterloo or Wilfrid Laurier (depending on where their advisor is located) but undertake their course work jointly at all three universities. Students in the program are governed by the general regulations of the university in which they are registered and their degree is granted by that university.

The department at Guelph also participates in the Centre for Scottish Studies and the Historical Data Research Unit. Students are encouraged to begin their studies in the Fall or Winter semesters. Program offices should be consulted for submission deadlines.

### Administrative Staff - Tri-University Program

#### Director

Adam Crerar (4-149 DAWB - Laurier, Ext. 3292)  
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#### Tri-University Secretary

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### Graduate Faculty

#### Note

(\*indicates approved PhD Advisors)

#### Tara H. Abraham \*

BSc McMaster, MA, PhD, IHPST Toronto - Associate Professor

#### Catherine Carstairs \*

AB Harvard, Dip Ed McGill, MA, PhD Toronto - Professor and Chair

#### Bill Cormack \*

BA Calgary, MA Carleton, PhD Queen's - Associate Professor

#### Elizabeth L. Ewan \*

BA Queen's, PhD Edinburgh - Professor and University Research Chair

#### James Fraser \*

BA Toronto, MA Guelph, Ph.D. Edinburgh - Associate Professor and Scottish Studies Foundation Chair

#### Peter A. Goddard \*

BA, UBC, DPhil Oxford - Associate Professor

#### Alan Gordon \*

BA Toronto, MA, PhD Queen's - Professor

#### Susannah C. Humble Ferreira \*

BA Trent, BEd Queen's, MA, PhD Johns Hopkins - Associate Professor

#### Kris E. Inwood \*

BA Trent, MA, PhD Toronto - Professor (Joint appointment with Department of Economics and Finance)

#### Kevin J. James \*

BA, MA McGill, PhD Edinburgh - Professor

#### Femi Kolapo \*

BA, MA Ahmadu Bello, PhD York - Associate Professor

#### Sofie Lachapelle \*

BSc, Montreal, PhD Notre Dame - Professor

#### Brittany Luby \*

BA Queen's, MA, PhD York - Assistant Professor

#### Linda L. Mahood \*

BA Saskatchewan, M Litt, PhD Glasgow - Professor

#### Stuart G. McCook \*

BA Toronto, MS Rensselaer PI, MA, PhD Princeton - Associate Professor

#### Alan McDougall \*

BA, MSt, DPhil Oxford - Professor

#### Jacqueline Murray \*

BA British Columbia, MA, PhD Toronto - Professor

#### Susan Nance \*

BA, MA Simon Fraser, PhD California (Berkeley) - Professor and Graduate Program Coordinator

#### Jesse S. Palsetia \*

BA, MA, PhD Toronto - Associate Professor

#### Karen Racine \*

BA Saskatchewan, MA, PhD Tulane - Associate Professor

#### Norman D. Smith \*

BA, MA, PhD British Columbia - Professor

#### Catharine A. Wilson \*

BA Guelph, MA, PhD Queen's - Francis and Ruth Redelmeier Professor of Rural History

#### Renée Worringer \*

BA St. Olaf College, MA, PhD Chicago - Associate Professor

### Graduate Faculty from Wilfrid Laurier University

#### Kim Anderson

PhD Guelph

#### Gavin Brockett

PhD Chicago

#### Tarah Brookfield

PhD York

#### Blaine Chiasson

PhD Toronto

#### Cynthia Comacchio

PhD Guelph

#### Adam Crerar

PhD Toronto

#### Darryl Dee

PhD Emory

#### Peter Farrugia

DPhil Oxon

#### Judith Fletcher

PhD Bryn Mawr

#### Leonard G. Friesen

PhD Toronto

#### Jeff Grischow

PhD Queen's

#### Erich Haberer

PhD Toronto

#### Christina Han

PhD Toronto

#### Mark Humphries

PhD Western University

#### Robert Kristofferson

PhD York

#### Lianne Leddy

PhD Wilfrid Laurier University

#### Amy Milne-Smith

PhD Toronto

#### David Monod

PhD Toronto

**Darren Mulloy**

PhD East Anglia

**Susan Neylan**

PhD UBC

**Chris Nighman**

PhD Toronto

**Eva Plach**

PhD Toronto

**Roger Sarty**

PhD Toronto

**Michael D. Sibal**

PhD Concordia

**David Smith**

PhD Harvard

**Kevin Spooner**

PhD Carleton

**Gary Warrick**

PhD McGill

**Dana Weiner**

PhD Northwestern

**Suzanne Zeller**

PhD Toronto

**Graduate Faculty from the University of Waterloo****Steven Bednarski**

BA Glendon/York, MA Toronto, PhD Québec à Montréal

**James Blight**

BA Michigan, MA, PhD New Hampshire

**Gary Bruce**

BA Queen's, MA New Brunswick, PhD McGill

**Marlene Epp**

BA Manitoba, MA Waterloo, PhD Toronto

**Daniel Gorman**

BA St. Francis Xavier, MA Queen's, PhD McMaster

**Kimie Hara**

BA Kobe City, MA Hawaii, PhD Australian National University

**Geoff W. Hayes**

BA, MA Laurier, PhD Western Ontario

**Andrew Hunt**

BA, PhD Utah

**Greta Kroeker**

BA Bethel College, MA Missouri, PhD California at Berkley

**Whitney Lackenbauer**

BA Waterloo, MA, PhD Calgary

**Heather A. MacDougall**

BA, MA, PhD Toronto

**Ian Milligan**

MA, PhD (York)

**Wendy L. Mitchinson**

BA, MA, PhD York

**Bruce Muirhead**

BA Queen's, MA Toronto, PhD York

**Troy Osborne**

BA Goshen, MA Mennonite Biblical Seminary, PhD Minnesota

**Douglas Peers**

BA, MA Calgary, PhD London, King's College

**Julia Roberts**

BA Laurier, MA Waterloo, PhD Toronto

**Susan Roy**

MA Simon Fraser, PhD UBC

**John Sbardellati**

BA California at Riverside, MA, PhD California at Santa Barbara

**Alex Statiev**

BSc Moscow, MA, PhD Calgary

**Lynne Taylor**

BA Western Ontario, MA London, PhD Michigan

**Ryan Touhey**

BA, MA Ottawa, PhD Waterloo

**James W. Walker**

BA Toronto, MA Waterloo, PhD Dalhousie

**MA Program**

The MA program provides for emphasis on the Atlantic world, the history of crime, culture and entertainment, family and youth, gender and sexuality, health and nutrition, imperialism, indigenous history, military history, politics and international relations, religious history, rural history urban history, the history of science and the environment and tourism history.

**Admission Requirements**

An applicant must have a recognized honours degree in history, or its equivalent, with at least a 'B' average. Applicants are required to include with their application a separate statement describing their proposed area of study and, where possible, the suggested thesis topic.

**Degree Requirements**

Students enrol in one of two study options 1) thesis, or 2) course work and major research paper or course work.

**Thesis**

Students must complete four courses (at least 2.0 credits) and submit a satisfactory thesis on an approved topic (25,000 words).

**Course Work and Major Paper**

Students must satisfactorily complete six courses (at least 3.0 credits) and submit a major paper on an approved topic (10,000 to 12,000 words).

**Course Work**

Students must complete 8 courses (at least 4 credits) three of which must require a research paper.

It is recommended but not required that students take HIST\*6000 and HIST\*6020. The remaining courses are subject to the approval of the Department of History. A reading knowledge of French is highly recommended and a student's advisory committee may require a second language for research purposes. MA students generally register for up to three courses per semester, or two if they hold a graduate teaching assistantship.

Graduate students are encouraged to consider including, as part of their program, appropriate graduate course offerings from other departments.

**Interdepartmental Programs****Scottish Studies Interdepartmental Group**

The Department of History participates in the activities of the Centre for Scottish Studies. Those faculty members whose research and teaching expertise includes aspects of Scottish studies may serve as advisors and examiners of MA students specializing in Scottish studies areas and who are registered in the Department of History.

**PhD Program**

The Tri-University Doctoral Program generally limits thesis preparation to nine fields of study: 1) Canadian history; 2) Scottish history; 3) early modern European history; 4) modern European history; 5) Medieval history; 6) Cold War Era history; 7) war and society; 8) World history, and 9) Indigenous Histories of Turtle Island. The Tri-University History doctoral program is committed to the pursuit of excellence in graduate research and teaching. Students enter the doctoral program for a variety of reasons, but all are motivated by a strong desire to pursue the most advanced education for history teaching and research. In the first year of the program, students normally complete their three PhD fields. As PhD field preparation provides a wide intellectual basis for scholarship and teaching, the fields are designed in such a way as to encourage reading complementary to a student's proposed area of doctoral research. Field seminar discussions are intended to develop skills in critical analysis and historical synthesis. Through the process of completing required research papers and a doctoral thesis, students acquire the capacity to conduct independent research and to produce written work of a sufficient standard to be acceptable for scholarly publication.

As students are required to demonstrate competence in one major field and two minor fields, in first year they register in a major field seminar and two minor field seminars. One minor field must be in an area of study distinct from the major field and one minor field may be in another discipline. The distinction between a major field and an area of concentration is the depth and required range of reading rather than geographical or chronological span.

The PhD fields, written major field examination, and oral qualifying examination must be completed by the end of the fourth semester. No extensions will be permitted, except in cases where approval has been given by the Tri-University Program co-ordinating committee. Continuation in the program requires at least a B+ average, based on all courses taken in the program to that point (with their proportionate weighting).

All students have an advisory committee that meets regularly. Following successful completion of the qualifying process, the student must complete, under the supervision of a Tri-University Doctoral Program in History faculty member, an original research project on an advanced topic. Students present a thesis proposal and colloquium which are appraised by their advisory committees. A thesis embodying the results of that research is presented and defended before an examining committee.

## Admission Requirements

Applications are considered by the Tri-University co-ordinating committee. Only students who are graduates of accredited universities and colleges are eligible for admission. Direct admission following a BA degree is permissible for outstanding applicants, but normally students will be admitted after they have obtained an MA in which they have received at least an A- standing. Since not all applicants can be admitted, close attention is paid to samples of applicants' written work, to applicants' transcripts and past records as a whole, and to their statements of research interests. Applicants from outside Canada whose previous education cannot be assessed readily may be required to demonstrate their knowledge by other means, such as the Graduate Record Examination. Non-Canadian applicants whose first language is not French or English are required to submit evidence of proficiency in the English language or pass the Test of English as a Foreign Language (TOEFL). A net score of 600 is required. Registration at one university for three degrees (BA, MA, PhD) is discouraged.

## Degree Requirements

1. Professional Development Seminar (HIST\*7000). All doctoral students attend the professional development seminar in their first year of the program. The seminar is designed to prepare students for success as a PhD student and for their future careers. A pass/fail grade will be assigned for the seminar.
2. Language requirement. If no specific language is required for the student's research (as authorized by the student's advisory committee), the second language will be French. The determination of the second language will be made by the student's advisory committee during the first semester of the student's registration in the program. The language exam will be offered every Fall and Winter semester and it is expected that a student will successfully complete the test of reading comprehension no later than the 6th semester following admission into the program.
3. PhD fields. Each student is required to demonstrate competency in one major and two minor areas. In the minor fields, competency is demonstrated by successful completion of two minor field seminars. In the major field, students must successfully complete a major field seminar and the qualifying written and oral examinations (HIST\*7040 and HIST\*7010). See the Tri-University History doctoral handbook. Students enrolled in the PhD collaborative specialization in International Development may substitute the two core IDS PhD courses (IDEV\*6800 and IDEV\*6850) for one of their minor field seminars.
4. Colloquium (HIST\*7080). The colloquium is a public presentation of a chapter, significant portion, or summary of the student's thesis within three semesters of the completion of the thesis proposal. Grades will be SAT/UNS.
5. Thesis proposal (HIST\*7070). The thesis proposal is a written (The expected length is approximately 3,000 words, excluding notes and the bibliography) and oral demonstration for dissertation research. The proposal will include a statement of the overall thesis of the dissertation, a description/discussion of the major research question(s), a review of the principal primary/archival sources being used, a chapter or topic outline, and a clear explanation of the originality of the thesis. Grades will be SAT/UNS.
6. PhD thesis (HIST\*7990). All students must complete, under the supervision of a tri-university doctoral program faculty member, an original research project on an advanced topic. Each student will be required to write and successfully defend a thesis of such cogency and originality as will represent a significant contribution to knowledge. The thesis will normally be between 50,000 and 90,000 words in length. University of Guelph regulations and procedures govern this process (see Degree Regulations).

## Collaborative Specializations

### International Development Studies

The Department of History participates in the International Development Studies (IDS) collaborative specialization. Please consult the International Development Studies listing for a detailed description of the MA/PhD collaborative specialization including the special additional requirements for each of the participating departments.

## Courses - MA

### Note

For the courses offered in a particular year, see the listing published by the Office of Registrarial Services.

## Canadian History

### HIST\*6230 Canada: Culture and Society U [0.50]

A course that examines the current historiography of selected aspects of Canadian history. Topics will vary with the expertise of individual instructors.

*Department(s):* Department of History

### HIST\*6231 Canada: Culture and Society Research U [0.50]

Continuation of HIST\*6230 in which students prepare an indepth research paper based on primary sources.

*Department(s):* Department of History

### HIST\*6280 Canada: Community and Identity U [0.50]

A course that examines the current historiography of selected aspects of Canadian history. Topics will vary with the expertise of individual instructors.

*Department(s):* Department of History

### HIST\*6281 Canada: Community and Identity Research U [0.50]

Continuation of HIST\*6280 in which students prepare an indepth research paper based on primary sources.

*Department(s):* Department of History

### HIST\*6290 Topics in North American History U [0.50]

Depending on the expertise of the instructor, this course may concentrate on either the United States or Canada, or it may select an historical theme or themes common to the larger continent.

*Department(s):* Department of History

### HIST\*6291 North American History Research U [0.50]

Continuation of HIST\*6290 in which students prepare an indepth research paper based on primary sources.

*Department(s):* Department of History

## Scottish History

### HIST\*6150 Scottish Archival Research U [0.50]

This course will comprise of classroom teaching, practical instruction and work-placement within the Scottish Collection of the University of Guelph's Archives. It will introduce students to basic skills in the digitization of sources and teach competence in conservation, record creation and archival research.

*Restriction(s):* Student numbers are limited by the number of placements available in the University Archives.

*Department(s):* Department of History

### HIST\*6190 Topics in Scottish History I U [0.50]

This course will introduce students to selected aspects of medieval and early modern Scottish history and historiography, including the use of source materials, and practical training involving manuscripts in the University Archives.

*Department(s):* Department of History

### HIST\*6191 Scottish History I Research U [0.50]

Continuation of HIST\*6190 in which students prepare an in-depth research paper based on primary sources.

*Department(s):* Department of History

### HIST\*6200 Scottish Highland and Lowland History U [0.50]

This course will introduce students to selected aspects of Scottish history and historiography considered from a Highlands perspective and a (sometimes significantly different) Lowlands perspective, including issues surrounding the selection and use of source materials, and provide practical training involving manuscripts in the University Archives.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of History

### HIST\*6201 Scottish Highland and Lowland Research U [0.50]

Continuation of HIST\*6200 in which students prepare an in-depth research paper based on primary sources.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of History

## European History

### HIST\*6300 Topics in Modern European History I U [0.50]

This seminar course will focus on selected aspects of the political and social history of Europe between 1789 and 1989. Topics to be examined will vary according to the expertise of the faculty and the interest of the students.

*Department(s):* Department of History

### HIST\*6301 Modern European History Research I U [0.50]

Continuation of HIST\*6300 in which students prepare an in-depth research paper based on primary sources.

*Department(s):* Department of History

**HIST\*6310 Topics in Modern European History II U [0.50]**

This seminar course will focus on selected aspects of the political and social history of Europe between 1789 and 1989. Topics to be examined will vary according to the expertise of the faculty and the interest of the students.

*Department(s):* Department of History

**HIST\*6311 Modern Europe II Research U [0.50]**

Continuation of HIST\*6310 in which students prepare an in-depth research paper based on primary sources.

*Department(s):* Department of History

**HIST\*6380 Topics in Early Modern European History U [0.50]**

This seminar course examines current issues in early modern European history as selected by the instructor(s). Participants review current research and historiography, discuss the principal debates, and develop their own perspectives through encounters with primary source materials.

*Department(s):* Department of History

**HIST\*6381 Early Modern European History Research U [0.50]**

Continuation of HIST\*6380 in which students prepare an in-depth research paper based on primary sources.

*Department(s):* Department of History

**World History****HIST\*6500 Topics in Global History U [0.50]**

This is a topical course, that explores the history of processes that take place on a worldwide scale. These may include social, cultural, economic, or environmental processes.

*Department(s):* Department of History

**HIST\*6501 Global History Research U [0.50]**

Continuation of HIST\*6500 in which students prepare an in-depth research paper based on primary sources.

*Department(s):* Department of History

**HIST\*6520 Topics in Latin American History U [0.50]**

In-depth study of a particular event or process in Latin American history. Topics may include: religions, women, race and ethnicity, environment issues, intellectual history, or have a regional or temporal focus.

*Department(s):* Department of History

**HIST\*6521 Latin American History Research U [0.50]**

Continuation of HIST\*6520 in which students prepare an in-depth research paper based on primary sources.

*Department(s):* Department of History

**Thematic****HIST\*6000 Historiography I F [0.50]**

This course will introduce students to some of the essential components of the historical process as exemplified by the literature produced prior to 1914. It will also assess history as a cognitive discipline in contemporary society. While the scope of the course will extend from ancient times to the eve of World War I, emphasis will be placed on 19th-century historiography.

*Department(s):* Department of History

**HIST\*6020 Historiography II W [0.50]**

An examination of major examples of recent historical methodology, including works in cultural and social history. The student is also expected to develop and present a thesis proposal.

*Department(s):* Department of History

**HIST\*6040 Special Reading Course U [0.50]**

Students selecting this course should speak to individual instructors to arrive at appropriate topics.

*Department(s):* Department of History

**HIST\*6360 History of Sexuality and Gender U [0.50]**

This course will examine the history of gender and/or sexuality in different cultures, paying close attention to various theoretical approaches to understanding the history of gender and/or sexuality. The chronological and geographic focus of the course may vary according to the interests and expertise of the instructor.

*Department(s):* Department of History

**HIST\*6361 Sexuality History Research U [0.50]**

Continuation of HIST\*6360 in which students prepare an in-depth research paper based on primary sources.

*Department(s):* Department of History

**HIST\*6370 Topics in Cultural History U [0.50]**

History 6370 investigates the practices of cultural history and the utility of the cultural history paradigm in the investigation of topics including politics and power, religion, war, empire, gender, class, 'race', ethnicity, the environment, and consumption.

*Department(s):* Department of History

**HIST\*6371 Cultural History Research U [0.50]**

Continuation of HIST\*6370 in which students prepare an in-depth research paper based on primary sources.

*Department(s):* Department of History

**HIST\*6400 Major Paper U [1.00]**

This is to be a major piece of research, based on the extensive use of primary sources. An oral examination of this work is required.

*Department(s):* Department of History

**HIST\*6450 Quantitative Evidence and Historical Methods U [0.50]**

An overview of the use for historical research of quantitative evidence and methodologies.

*Department(s):* Department of History

**HIST\*6550 Rural History U [0.50]**

The countryside was not the city in overalls; it had its own complex trajectory intersecting with the rest of society in interesting and surprising ways. This seminar course introduces students to the economic, social, and cultural themes of rural history. Readings come from a variety of disciplines and explore the environment, agriculture, other resource-based activities, gender, cultural traditions, material artifacts and consumption. These themes will be related to community, identity and the countryside's relationship to the larger society.

*Department(s):* Department of History

**HIST\*6560 Rural History Research U [0.50]**

Continuation of HIST\*6550 in which students prepare an in-depth research paper based on primary sources.

*Prerequisite(s):* HIST\*6550

*Restriction(s):* Instructor consent required.

*Department(s):* Department of History

**HIST\*6570 Health, Science, Medicine U [0.50]**

This course will examine the history of health, science, and medicine. Topics may include the histories of mental illness, epidemic diseases, disability, public health, or alternative medicine. It will address expert and popular constructions of health, illness and science.

*Department(s):* Department of History

**HIST\*6580 Health, Science, Medicine Research U [0.50]**

Continuation of HIST\*6570 in which students prepare an in-depth research paper based on primary sources.

*Prerequisite(s):* HIST\*6570

*Restriction(s):* Instructor consent required.

*Department(s):* Department of History

**HIST\*6590 Public History, Heritage, and Historical Consciousness U [0.50]**

This seminar course will examine how history is displayed in public and the formation of historical consciousness. Areas of public history to be discussed may include digital history, museum exhibits, television and film productions, historical re-enactments, commemorations, celebrations, public holidays, monuments and historic sites.

*Department(s):* Department of History

**HIST\*6600 Public History Research U [0.50]**

Continuation of HIST\*6590 in which students prepare an in-depth research paper based on primary sources.

*Prerequisite(s):* HIST\*6590

*Restriction(s):* Instructor consent required.

*Department(s):* Department of History

**HIST\*6610 Histories of Tourism and Travel U [0.50]**

This seminar course will explore the history of modern tourism, examining the distinctions between travel and tourism in historical discourses and historiography, and engaging extensively with primary source material to examine the sector's evolution in trans-national perspective. Emphasis is placed on the development of key institutions, the influence of political environments, intercultural encounters, environmental impacts and global citizenship.

*Department(s):* Department of History

**HIST\*6620 Tourism, and Travel Histories Research U [0.50]**

Continuation of HIST\*6610 in which students prepare an in-depth research paper based on primary sources.

*Department(s):* Department of History

## Courses - PhD

<b>HIST*7000 Professional Development Seminar U [0.00]</b>
All doctoral students attend the professional development seminar in their first year of the program. The seminar is designed to prepare students for success as a PhD student for their future careers. <i>Department(s):</i> Department of History
<b>HIST*7010 Qualifying Examination U [0.50]</b>
This oral examination is designed to assess 1) the student's knowledge of the subject matter and ability to integrate the material read and 2) the student's ability and promise in research. <i>Department(s):</i> Department of History
<b>HIST*7030 Language Requirement U [0.00]</b>
A written demonstration of the student's knowledge of written French (or other appropriate second language). <i>Department(s):</i> Department of History
<b>HIST*7040 Major Field U [0.50]</b>
The examination written following completion of the major field seminar and before the oral qualifying examination. <i>Department(s):</i> Department of History
<b>HIST*7070 Thesis Proposal U [0.00]</b>
A written (up to 2,000 words, including citations) and oral demonstration of the proposed dissertation. The proposal will include a statement of the overall thesis of the dissertation, a description/discussion of the major research question(s), a review of the principal primary/archival sources being used, a chapter or topic outline, and a clear explanation of the originality of the thesis. Graded SAT/UNS. <i>Restriction(s):</i> For PhD students only. <i>Department(s):</i> Department of History
<b>HIST*7080 Colloquium U [0.00]</b>
The colloquium is a public presentation of original research, normally a chapter, significant portion, or summary of the student's thesis. Graded SAT/UNS. <i>Restriction(s):</i> For PhD students only. <i>Department(s):</i> Department of History
The following courses are designed to study the central issues, ideas and historiography of the designated major field, within certain geographical and temporal limits. All seminar courses extend over two semesters. Students must register for the courses in each semester.
<b>HIST*7100 Canadian History Major Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7120 Scottish History Major Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7140 Early Modern European History Major Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7150 Modern European History Major Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7170 Race, Slavery, and Imperialism Major Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7190 War and Society Major Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7250 Cold War Era History Major Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7260 Medieval History Major Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7270 World History Major Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7590 War and Society Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7600 Canadian History Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7610 British History Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7620 Scottish History Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History

<b>HIST*7630 Community Studies Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7640 Early Modern European History Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7650 Modern European History Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7660 Gender, Women and Family Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7670 Race, Slavery, and Imperialism Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7680 United States History Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7690 International History Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7700 Science, Medicine and Technology Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7710 Other Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7750 Cold War Era History Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7760 Medieval History Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7770 World History Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7990 Doctoral Thesis U [0.00]</b>
Students are required to write and successfully defend a thesis of such cogency and originality as will represent a significant contribution to knowledge. The thesis will normally be between 50,000 and 90,000 words in length. University of Guelph regulations and procedures govern this process. <i>Department(s):</i> Department of History

The requirements for an MA student taking a 7000-level course are substantially different from those for a PhD student. Therefore a PhD student who has previously taken any of these 7000-level courses may, with the permission of the department, repeat any of those 7000-level for credit in the Tri-University Doctoral Program.

## Human Health and Nutritional Sciences

The Human Health and Nutritional Sciences Graduate Program offers MSc degrees by thesis, MSc degrees by course work and project, and PhD degrees. The three fields are listed below.

- **Biomechanics**
- **Nutrition, Exercise and Metabolism**
- **Nutritional and Nutraceutical Sciences**

See the [department website](#) for additional information.

### Administrative Staff

#### Chair

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TBD (, Ext. )

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### Graduate Faculty

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#### Leah R. Bent

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BS, PhD Missouri - Associate Professor

#### Stephen Brown

BHK, MHK Windsor, PhD Waterloo - Associate Professor

#### Jamie Burr

BA Western, MSc, PhD York - Assistant Professor

#### Andrea Clark

BSc Loughborough, PhD Calgary - Assistant Professor

#### Alison M. Duncan

BASc Guelph, MSc Toronto, PhD Minnesota - Professor

#### David J. Dyck

BSc, MSc, PhD Guelph - Professor

#### Graham P. Holloway

BA McMaster, MSc Waterloo, PhD Guelph - Associate Professor

#### Lorraine C. Jadeski

BSc Guelph, MSc Waterloo, PhD Western - Associate Professor

#### David W.L. Ma

BSc, PhD Alberta - Professor

#### Kelly A. Meckling

BSc Calgary, PhD Toronto - Professor

#### Philip J. Millar

BSc, MSc, PhD McMaster - Assistant Professor

#### Coral L. Murrant

BSc, PhD Guelph - Professor and Associate Chair

#### David M. Mutch

BSc Queen's, PhD Lausanne - Associate Professor

#### Genevieve Newton

Doctor of Chiropractic Nat'l U of Health Sciences (Chicago), MSc, PhD Guelph - Associate Professor

#### Geoffrey Power

BKin, MSc Memorial, PhD Western - Assistant Professor

#### Kerry Ritchie

BSc, PhD Guelph - Assistant Professor

#### Lindsay E. Robinson

BSc Acadia, PhD Alberta - Associate Professor

#### Jeremy Simpson

BSc, Guelph, PhD Queen's - Associate Professor

#### Lawrence L. Spriet

BSc Waterloo, MSc York, PhD McMaster - Professor and Chair

#### John Z. Srbely

BSc Toronto, DC Canadian Memorial Chiropractic College, PhD Guelph - Assistant Professor

#### Lori A. Vallis

BSc, MA Ottawa, PhD Waterloo - Associate Professor

#### Amanda Wright

BSc, PhD Guelph - Associate Professor

#### David Wright

BPE Calgary, MSc Arizona State, PhD Ball State - Associate Professor

#### John L. Zettel

BS Waterloo, MSc, PhD Toronto - Assistant Professor

### Associated Graduate Faculty

#### Jennifer Monk

BSc, PhD Guelph - Biologist, Guelph Research and Development Centre, Agriculture and Agri-Food Canada

#### Krista Power

BSc Memorial, MSc, PhD Toronto - Research Scientist, Guelph Food Research Centre, Agriculture and Agri-Food Canada

#### Dan Ramdath

BSc Toronto, MSc, PhD West Indies - Manager/Clinical Research Scientist (Human Nutrition), Guelph Food Research Centre, Agriculture and Agri-Food Canada

### MSc Program

The MSc program is offered in: 1) biomechanics; 2) nutrition, exercise and metabolism; and 3) nutritional and nutraceutical sciences. The focus is on physical activity and diet as powerful lifestyle determinants of human health. The interaction between genetics and environmental factors determines human health and lifestyle is a major component of our environment.

Our graduate programs offer advanced experiential learning experiences in the broad areas of nutritional and nutraceutical sciences, general and exercise physiology and biomechanics within the focus of lifestyle, genetics and human health. Within these broad fields, the Department of Human Health and Nutritional Sciences addresses the issues at the level of the individual, not community or populations. The research efforts are focused on understanding the basic underlying biological aspects of health, which are further applied to understanding aging, neurological/sensory disorders and osteoarthritis, and chronic diseases such as cancer, cardiovascular disease, obesity, and type II diabetes

The Department offers programs of study leading to an MSc by thesis and an MSc by coursework and project. Within the MSc thesis program students must complete a minimum of 1.5 graduate credits and defend an acceptable thesis which comprises an account of the student's research. Within the MSc coursework program students must complete a minimum of 4.0 graduate credits which include credits for research experience.

### Admission Requirements

To be considered, applicants must meet the requirements of a four-year honours science degree with a minimum 75% average during the final two years or 4 semesters of undergraduate study. Applicants should have completed a course in statistics. Each applicant must obtain the support of a faculty member willing to serve as his/her advisor.

Admission may be granted in September, January or May. Completed applications should be uploaded at least one full semester (four months) before the expected date of admission. Applications from international students should be uploaded at least eight months prior to the expected date of admission.

All components of the application, including transcript(s), graduate certificate(s), grading scale(s), language test results, assessment forms, a statement of interest and the name of the faculty advisor must be uploaded no later than two months after an application is submitted through the OUAC portal. Applications that are incomplete after this time period will be closed.

### Admission Process

Graduate student applications to programs in the College of Biological Science are handled by the Office of the Associate Dean, Research (ADR). Before submitting an application, applicants are strongly encouraged to view the "[Before you Apply](#)" and "[Admission Process](#)" webpages on the ADR Future Student's site.

Complete application submission instructions may also be found on the [Office of Graduate Studies](#) webpage or in the [Graduate Calendar](#).

### Degree Requirements

Students enrol in one of two study options: 1) thesis, or 2) course work and major research project.

## Thesis

Students must complete and defend an acceptable thesis which comprises a scientifically defensible account of the student's research on a particular, well-defined research problem or hypothesis. Such research should begin with the practical expectation that it could be completed and the thesis defended in not more than 5 semesters. Paramount to the notion of acceptability of the thesis is its quality with respect to problem identification, the approach used to address the problem, and the evaluation of the results.

In addition they must successfully complete courses totalling not fewer than 1.5 graduate credits. The graduate credits of course work will consist of:

a) at least one of:

HHNS*6040	[0.50]	Research Fronts in Nutritional and Nutraceutical Sciences
HHNS*6500	[0.50]	Cardiovascular and Respiratory Physiology
HHNS*6700	[0.50]	Nutrition, Exercise and Metabolism
HHNS*6800	[0.50]	Research Frontiers in Integrative Biomechanics and Neurophysiology

b) at least 1.0 credits of electives as determined with the Advisory Committee

## Course Work and Major Research Project (MRP)

Students must complete at least 4.0 graduate credits as follows:

HHNS*6010	[0.50]	Seminar in Human Health and Nutritional Sciences
HHNS*6320	[0.50]	Advances in Human Health and Nutritional Sciences Research

at least one of:

HHNS*6910	[0.50]	Basic Research Techniques and Processes
HHNS*6920	[0.50]	Applied Research Techniques and Processes
HHNS*6930	[0.50]	Research Project

at least one of:

HHNS*6040	[0.50]	Research Fronts in Nutritional and Nutraceutical Sciences
HHNS*6500	[0.50]	Cardiovascular and Respiratory Physiology
HHNS*6700	[0.50]	Nutrition, Exercise and Metabolism
HHNS*6800	[0.50]	Research Frontiers in Integrative Biomechanics and Neurophysiology

at least 1.0 to 2.0 graduate credits of electives.

## PhD Program

The PhD program is offered in: 1) biomechanics; 2) nutrition, exercise and metabolism; and 3) nutritional and nutraceutical sciences. The focus is on physical activity and diet as powerful lifestyle determinants of human health. The interaction between genetics and environmental factors determines human health and lifestyle is a major component of our environment.

Our graduate programs offer advanced experiential learning experiences in the broad areas of nutritional and nutraceutical sciences, general and exercise physiology and biomechanics within the focus of lifestyle, genetics and human health. Within these broad fields, the Department of Human Health and Nutritional Sciences addresses the issues at the level of the individual, not community or populations. The research efforts are focused on understanding the basic underlying biological aspects of health, which are further applied to understanding aging, neurological/sensory disorders and osteoarthritis, and chronic diseases such as cancer, cardiovascular disease, obesity, and type II diabetes.

## Admission Requirements

Applicants must have a recognized Master's degree in a related field obtained with a minimum academic standing of 80% in their postgraduate studies, and the endorsement of a potential thesis advisor. Applicants should have completed a course in statistics. Under exceptional circumstances admission directly to a PhD program with an appropriate honours degree alone, or transfer from MSc to PhD program without completing the MSc thesis requirements, is also possible.

Admission may be granted in September, January or May. Completed applications should be uploaded at least one full semester (four months) before the expected date of admission. Applications from international students should be uploaded at least eight months prior to the expected date of admission.

Each applicant must obtain the support of a faculty member willing to serve as his/her advisor.

All components of the application, including transcript(s), graduate certificate(s), grading scale(s), language test results, assessment forms, a statement of interest and the name of the faculty advisor must be uploaded no later than two months after an application is submitted through the OUAC portal. Applications that are incomplete after this time period will be closed.

## Admission Process

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Complete application instructions may also be found on the [Office of Graduate Studies](#) webpage or in the [Graduate Calendar](#).

## Degree Requirements

The major part of a student's time will be devoted to research in fulfilment of the dissertation requirement. Course work would be established through discussion with the student's Advisory Committee.

PhD students will become candidates for the PhD degree upon completion of a qualifying examination, which must be conducted not later than the fifth semester of the PhD program. The examination will be primarily research focused.

## Thesis Requirements

Submission and defence of an acceptable dissertation complete the requirements for a PhD. An acceptable dissertation comprises a report of the candidate's research on a particular and well-defined research problem or hypothesis. It should represent a significant contribution to knowledge in that field. Emphasis is placed on the quality of the work judged by the expression of mature scholarship and critical judgment in the dissertation. Dissertation approval implies that it could be published in reputable, refereed journals in its field.

## Interdepartmental Programs

Students may wish to participate in the interdepartmental programs in Bioinformatics or Biophysics

## Collaborative Specializations

Students may wish to participate in the collaborative specializations in Neuroscience or Toxicology

## Courses

<b>HHNS*6000 Students Promoting Awareness of Research Knowledge S,F,W [0.25]</b>	
This course will explore research communication through practical experience. The course will be part of the SPARK program in which students write, edit and coordinate a variety of news publications that highlight University of Guelph research activities for a wide range of audiences.	
<i>Restriction(s):</i>	Limited to HHNS MSc course work and project students only. Instructor consent required.
<i>Department(s):</i>	Department of Human Health and Nutritional Sciences
<b>HHNS*6010 Seminar in Human Health and Nutritional Sciences S [0.50]</b>	
Students will develop their scientific communication skills by translating a specific body of knowledge on a chosen topic into a seminar. The class will also explore scientific process-oriented concepts and issues such as effective scientific communication and dissemination of results.	
<i>Restriction(s):</i>	Limited to HHNS MSc course work and project students only.
<i>Department(s):</i>	Department of Human Health and Nutritional Sciences
<b>HHNS*6040 Research Fronts in Nutritional and Nutraceutical Sciences F [0.50]</b>	
Building on an information base in nutrition, biochemistry and physiology, the course comprises selected research topics pertaining to the importance of nutrition as a determinant of health throughout the life span. Distinction will be drawn between the metabolic basis of nutrient essentiality and the health protectant effects of nutraceuticals.	
<i>Department(s):</i>	Department of Human Health and Nutritional Sciences
<b>HHNS*6130 Advanced Skeletal Muscle Metabolism in Humans W [0.50]</b>	
This course examines how the energy provision pathways in human skeletal muscle and associated organs meet the energy demands of the muscle cell during a variety of metabolically demanding situations.	
<i>Department(s):</i>	Department of Human Health and Nutritional Sciences
<b>HHNS*6320 Advances in Human Health and Nutritional Sciences Research S,F,W [0.50]</b>	
This course provides the student with an opportunity to study a topic of choice and involves literature research on a chosen topic. The course may stand alone (MSc thesis and PhD students) or provide the background information for an experimental approach to the topic (MSc course work and project students).	
<i>Restriction(s):</i>	Instructor consent required.
<i>Department(s):</i>	Department of Human Health and Nutritional Sciences
<b>HHNS*6400 Functional Foods and Nutraceuticals F [0.50]</b>	
This course considers the relation of nutraceuticals, functional foods, designer foods, medical foods and food additives to foods and drugs. The course emphasizes the development and commercialization of nutraceuticals.	
<i>Department(s):</i>	Department of Human Health and Nutritional Sciences
<b>HHNS*6410 Applied Functional Foods and Nutraceuticals W [1.00]</b>	
This course prepares students to develop an innovative product or service from conceptualization to market entry considering regulatory, product development, safety/efficacy and market readiness issues. The course applies and integrates the concepts defined in HHNS*6400	
<i>Department(s):</i>	Department of Human Health and Nutritional Sciences



**HHNS\*6440 Nutrition, Gene Expression and Cell Signalling W [0.50]**

This course emphasizes the role nutrients play as modulators of gene expression at the molecular level. The mechanisms by which nutrients modulate gene expression through specific cell signalling cascades are examined. (offered annually)

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6500 Cardiovascular and Respiratory Physiology F [0.50]**

This course will use both review articles and the primary literature to build a broad base of understanding of the cardiovascular and respiratory systems as well as explore current research in specific areas in this knowledge paradigm. Further, this course will build research skills through by strengthening critical analysis skills and both oral and written communication skills through learning about the cardiovascular and respiratory system and how they integrate.

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6700 Nutrition, Exercise and Metabolism F [0.50]**

A discussion of recent concepts in the relationships among nutrition, exercise and metabolism. Information from the molecular to the whole-body level will be presented with a focus on understanding nutrition and exercise in the human. Emphasis is placed on the development and testing of experimental hypotheses in these areas of research.

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6710 Advanced Topics in Nutrition and Exercise F [0.50]**

Advanced topics will be presented to establish an in-depth understanding of current investigations in nutrition and exercise. Based on the integrated understanding of nutrition and exercise developed in HHNS\*6700, the focus of this course will be to develop the student's ability to independently analyze original research investigations.

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6800 Research Frontiers in Integrative Biomechanics and Neurophysiology F [0.50]**

This course will provide students with a breadth of knowledge and understanding across the research frontiers pursued by the integrative biomechanics and neurophysiology group. Students will be given opportunity to practice and improve oral and written communication skills and provide constructive feedback to their peers. Additionally, this class will engage students in dialogue around topics pertinent to designing and conducting successful experiments such as hypothesis generation and ethical and practical considerations.

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6810 Research Methods in Integrative Biomechanics and Neurophysiology I F [0.50]**

This course develops a comprehensive understanding of methods and analysis related to research in biomechanics & neuroscience. Critical evaluation and application of basic signal to noise processing and electromyography is a priority. The course uses labs, assignments, and critical review of primary literature articles to develop a strong research foundation. Scientific writing and oral communication skills are emphasized via written reports and presentations, and numeracy throughout the course in data and lab assignments.

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6820 Research Methods in Integrative Biomechanics and Neurophysiology II W [0.50]**

This course develops a comprehensive understanding of methods and analysis related to research in biomechanics & neuroscience. Critical evaluation and application of 3D kinematics and programming/modelling is a priority. The course uses labs, assignments, and critical review of primary literature articles to develop a strong research foundation. Scientific writing and oral communication skills are emphasized via written reports and presentations, and numeracy throughout the course in data and lab assignments.

*Prerequisite(s):* HHNS\*6810

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6910 Basic Research Techniques and Processes S,F,W [0.50]**

Working with a faculty advisor, students will gain experience in basic aspects of scientific research. This will be accomplished through experience of one or more components of the scientific method in a laboratory setting. Objective outcomes will be evaluated and will include documentation of the experience in a written report.

*Restriction(s):* Restricted to HHNS MSc. course work and project students. Instructor consent required.

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6920 Applied Research Techniques and Processes S,F,W [0.50]**

Under the supervision of a faculty advisor, students will gain practical experience in discipline-specific aspects of research. This will be accomplished through experience in a pre-arranged practicum in an applied setting. Objective outcomes will be evaluated and will include documentation of the experience in a written report.

*Restriction(s):* Restricted to HHNS MSc. course work and project students. Instructor consent required.

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6930 Research Project S,F,W [0.50]**

Under the supervision of a faculty advisor and building on knowledge gained from Basic or Applied Research Techniques and Processes, students will carry out a specific research project to its completion. Results will be documented in a written report and communicated through a scientific poster.

*Prerequisite(s):* HHNS\*6910 or HHNS\*6920

*Restriction(s):* Restricted to HHNS MSc. course work and project students. Instructor consent required.

*Department(s):* Department of Human Health and Nutritional Sciences

## Integrative Biology

The Department of Integrative Biology is comprised of faculty members in three overlapping fields and offers MSc and PhD degrees in:

- **Ecology**
- **Evolutionary Biology**
- **Comparative Physiology**

Research is focused on a wide variety of organisms (from microbes to plants to animals) at multiple levels of organization (from molecules and cells through to entire ecosystems). Basic research is being used as a foundation to address some of the most important regional and global issues.

See the [department website](#) for additional information.

### Administrative Staff

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### Graduate Faculty

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#### Elizabeth G. Boulding

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#### Christina M. Caruso

BA Oberlin College, PhD Illinois - Associate Professor

#### Karl A. Cottenie

MSc, MS, PhD K.U. Leuven - Associate Professor and Graduate Program Coordinator

#### Stephen S. Crawford

BSc Guelph, MSc Queen's, PhD Guelph - Associate Professor

#### Teresa J.D. Crease

BSc, MSc Windsor, PhD Washington - Professor and Associate Dean, Graduate Studies

#### Roy G. Danzmann

BSc, MSc Guelph, PhD Montana - Professor

#### Moiria M. Ferguson

BSc, MSc Guelph, PhD Montana - Professor

#### John M. Fryxell

BSc, PhD British Columbia - Professor and Chair of Integrative Biology

#### Jinzhong Fu

BSc Nankai, MSc Chinese Academy of Sciences, PhD Toronto - Associate Professor

#### Todd E. Gillis

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#### Ryan Gregory

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#### Cortland K. Griswold

BSc Wisconsin, MSc Toronto, PhD British Columbia - Associate Professor

#### Mehrdad Hajibabaei

BSc Tehran Azad, PhD Ottawa - Associate Professor

#### Robert Hanner

BSc Eastern Michigan, PhD Oregon - Associate Professor

#### Paul D.N. Hebert

BSc Queen's, PhD Cambridge, FRSC - Professor

#### Andreas Heyland

BSc, MSc Zurich, PhD Florida - Associate Professor

#### Brian C. Husband

BSc, MSc Alberta, PhD Toronto - Professor and Associate Dean Academic, College of Biological Science

#### Frederic Labege

BSc, MSc Laval, PhD Manitoba - Associate Professor

#### Andrew MacDougall

BA Dalhousie, MSc York, PhD British Columbia - Associate Professor

#### Hafiz Maherali

BSc McGill, MSc, PhD Illinois - Associate Professor

#### Andrew G. McAdam

BSc McGill, MSc Western, PhD Alberta - Associate Professor

#### Kevin S. McCann

BA Dartmouth, MSc, PhD Guelph - Professor

#### Robert L. McLaughlin

BSc Windsor, MSc Queen's, PhD McGill - Associate Professor

#### Amy Newman

BSc Queen's; PhD British Columbia - Assistant Professor

#### Jonathan A. Newman

BA, PhD State Univ. of New York - Professor and Dean, College of Biological Sciences

#### Steven G. Newmaster

BSc Guelph, PhD Alberta - Professor

#### Ryan Norris

BES Waterloo, MSc York, PhD Queen's - Associate Professor

#### Beren W. Robinson

BSc, MSc Dalhousie, PhD Binghamton - Associate Professor

#### M. Alexander Smith

BSc Trent, MSc Trent, PhD McGill - Associate Professor

#### Merritt R. Turetsky

BSc Villanova, PhD Alberta - Associate Professor

#### Glen J. Van Der Kraak

BSc, MSc Manitoba, PhD British Columbia - Professor and Associate Dean of Research, College of Biological Science

#### Patricia A. Wright

BSc McMaster, PhD British Columbia - Professor

### Associated Graduate Faculty

#### James Bogart

BSc Toronto, MSc PhD Texas - Professor Emeritus, University of Guelph

#### Eldon Eveleigh

BSc, MSc Newfoundland, PhD Toronto - Entomologist, Natural Resources Canada, Fredericton

#### Douglas S. Fudge

BA, MAT Cornell, MSc Guelph, PhD British Columbia - Associate Professor

#### Shoshanah Jacobs

BSc MSc New Brunswick, PhD Ottawa - Contractually Limited Faculty, Integrative Biology, University of Guelph

#### Tom Nudds

BSc MSc Windsor; PhD Western Ontario - Professor Emeritus, Integrative Biology, University of Guelph

#### Astrid Schwalb

BSc Konstanz, MSc Potsdam, PhD Guelph - Assistant Professor. Texas State University

#### Dirk Steinke

BSc MSC University of Konstanz, PhD Goethe University Frankfurt - Associate Director Centre for Biodiversity and Adjunct Professor, University of Guelph

### MSc Program

The Integrative Biology Graduate Program offers MSc degrees in each of three major fields of emphasis: 1) ecology; 2) evolutionary biology; and 3) comparative physiology. The three areas of interest focus on (but are not restricted to) experimental approaches in field and laboratory settings and a strong linkage between theoretical and applied investigations. The department encourages students to pursue interdisciplinary research and, where appropriate, utilize faculty expertise from across campus on their advisory committees.

### Admissions Requirements

To be considered, applicants must meet the requirements of a four-year honours science degree with a minimum 'B' (75%) average during the final two years (4 semesters) of undergraduate study. Each applicant must obtain the support of a faculty member willing to serve as his/her thesis advisor.

Admission may be granted in September, January or May. Completed applications should be uploaded at least one full semester (four months) before the expected date of admission. Applications from international students should be uploaded at least eight months prior to the expected date of admission.

All components of the application, including transcript(s), graduate certificate(s), grading scale(s), language test results, assessment forms, a statement of interest and the name of the faculty advisor must be uploaded no later than two months after an application is submitted through the OUAC portal. Applications that are incomplete after this time period will be closed.

### Admission Process

Graduate student applications to programs in the College of Biological Science are handled by the Office of the Associate Dean, Research (ADR). Before submitting an application, applicants are strongly encouraged to view the "[Before you Apply](#)" and "[Admission Process](#)" webpage on the ADR Future Student's site.

Complete application submission instructions may also be found on the [Office of Graduate Studies](#) webpage or in the Graduate Calendar.

### Degree Requirements

Students must complete and defend an acceptable thesis. In addition, they must successfully complete courses totaling not fewer than 1.5 credits. These credits must include the mandatory course IBIO\*6630, Scientific Communication (0.50 credit)

An acceptable MSc thesis comprises a scientifically defensible account of the student's research on a particular, well-defined research problem or hypothesis. Such research should begin with the practical expectation that it could be completed and the thesis defended in not more than six semesters. Paramount to the notion of acceptability of the thesis is its quality with respect to the underlying rationale (problem identification), the approach used to address the problem, and the evaluation of the results. Final acceptance of the MSc thesis need not imply that the work is sufficiently meritorious to warrant publication in scholarly media, though the majority of MSc research in the department is published.

The Department endorses the idea that graduate students in the Integrative Biology program should benefit from exposure to recent developments both within and between the major areas of emphasis. To that end, students may enrol in any of the regularly offered courses entitled "Special Topics in ..." Details of course content, format and evaluation will be available in the Office of the Chair of the Department one semester prior to the semester in which the course is offered.

In addition, the Department offers two "Advances in Integrative Biology" courses to provide students with the opportunity to study with individual faculty on specific topics in the faculty member's area of expertise. These courses may be taken by groups as either reading/seminar courses, or on an individual research-project basis. Students should approach individual faculty members to request supervision on individual research project courses. In addition, a student can register in an "Advances in Integrative Biology" course to combine a senior-level undergraduate course in ecology, evolutionary biology, or comparative physiology with an additional component – typically a major paper or research project. Students should approach individual faculty members that teach the senior-level undergraduate course, and in consultation with their thesis advisor.

### PhD Program

The Integrative Biology Graduate Program offers PhD degrees for studies in each of the three major fields of emphasis: 1) ecology; 2) evolutionary biology; and 3) comparative physiology. The 3 three areas of emphasis focus on (but are not restricted to), experimental approaches in field and laboratory settings and a strong linkage between theoretical and applied investigations. The Department encourages students to pursue interdisciplinary research and, where appropriate, utilize faculty expertise from across campus on their advisory committees.

### Admissions Requirements

The admission and degree requirements of the PhD program are essentially those of the university. Most applicants will have a recognized Master's degree in a related field obtained with minimum academic standing of 'A-' (80%) in their postgraduate studies, and the endorsement of a potential thesis advisor. Under exceptional circumstances admission directly to a PhD program with an appropriate honours degree alone, or transfer from MSc to PhD program without completing the MSc thesis requirements, is also possible. Applications should be uploaded at least one full semester (four months) prior to the expected date of admission. Applications from international students should be uploaded at least eight months prior to the expected date of admission.

Each applicant must obtain the support of a faculty member willing to serve as his/her thesis advisor.

All components of the application, including transcript(s), graduate certificate(s), grading scale(s), language test results, assessment forms, a statement of interest and the name of the faculty advisor must be uploaded no later than two months after an application is submitted through the OUAC portal. Applications that are incomplete after this time period will be closed.

### Admissions Process

Graduate student applications to programs in the College of Biological Science are handled by the Office of the Associate Dean, Research (ADR). Before submitting an application, applicants are strongly encouraged to view the "[Before you Apply](#)" "[Admission Process](#)" webpage on the ADR Future Student's site.

Complete application instructions may also be found on the [Office of Graduate Studies](#) webpage or in the Graduate Calendar

### Degree Requirements

The Integrative Biology program expects that the major part of the student's time will be devoted to research in fulfillment of the thesis requirement. For that reason, the Department does not require that PhD students with an MSc degree take any courses. Students entering directly into the PhD program are required to take 1.0 course credits, which must include IBIO\*6630, Scientific Communication (0.50 credit) in their first or second semester. Furthermore, advisory committees may, from time to time, require that a student take some prescribed or additional courses. Regardless, PhD students are expected to contribute and participate actively in the full academic life of the department, including regular attendance at departmental and inter-departmental seminars, and to provide leadership and counseling to undergraduate and MSc students.

PhD students will become candidates for the PhD degree upon successful completion of a qualifying examination with oral and written components, which should be conducted not later than the third semester of the PhD program. The exam evaluates students' knowledge in the general area of the intended research.

Submission and defence of an acceptable thesis complete the requirements for a PhD. An acceptable thesis comprises a report of the candidate's research on a particular and well-defined research problem or hypothesis. It should represent a significant contribution to knowledge in that field. Emphasis is placed on the quality of the work as judged by the expression of mature scholarship, critical judgment, and satisfactory literary style in the thesis. Thesis approval implies that the research is judged sufficiently meritorious to warrant publication in reputable, refereed journals in its field.

### Interdepartmental Programs

Faculty in Integrative Biology also participate in the interdepartmental programs in Bioinformatics or Biophysics

### Collaborative Specializations

Faculty in Integrative Biology also participate in the collaborative specializations in Neuroscience or Toxicology

### Courses

#### Ecology

##### IBIO\*6000 Special Topics in Ecology and Behaviour U [0.50]

This is a course in which several faculty lecture and/or lead discussion groups in tutorials about advances in their broad areas, or related areas, of ecology and behaviour. Topics may include animal communication, optimal foraging, life-history evolution, mating systems, population dynamics, niche theory and food-web dynamics, and will depend on who is co-ordinating the course for that particular offering. The course includes lectures and seminars in which the students actively participate.

*Department(s):* Department of Integrative Biology

#### Evolutionary Biology

##### IBIO\*6020 Special Topics in Evolutionary Biology U [0.50]

This modular course reviews books and/or other publications in the field of evolutionary biology, providing knowledge of progress in this area of biology. Topics may include epigenetics, phylogenetics, developmental basis of evolutionary change, and molecular evolution. The course includes lectures and seminars in which the students participate. Offered annually.

*Department(s):* Department of Integrative Biology

#### Comparative Physiology

##### IBIO\*6010 Special Topics in Physiology U [0.50]

This is a course in which several faculty lecture and/or lead discussion groups in tutorials about advances in their broad areas, or related areas, of physiology. Topics may include metabolic adaptation to extreme environments, behavioural and molecular endocrinology, and exercise and muscle physiology, and will depend on who is co-ordinating the course for that particular offering. The course includes lectures and seminars in which the students actively participate.

*Department(s):* Department of Integrative Biology

#### General

##### IBIO\*6070 Advances in Integrative Biology I U [0.50]

This course provides graduate students, either individually or in groups, with the opportunity to pursue topics in specialized fields of integrative biology under the guidance of graduate faculty. Courses may be offered in any of lecture, reading/seminar, or individual project formats. A minimum enrolment may be required for some course offerings.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Integrative Biology

**IBIO\*6080 Advances in Integrative Biology II U [0.50]**

This course provides graduate students, either individually or in groups, with the opportunity to pursue topics in specialized fields of integrative biology under the guidance of graduate faculty. Courses may be offered in any of lecture, reading/seminar, or individual project formats. A minimum enrolment may be required for some course offerings.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Integrative Biology

**IBIO\*6630 Scientific Communication U [0.50]**

This course involves development and refinement of the skills of scientific communication, with emphasis on writing skills, in the context of developing a thesis proposal. This course is mandatory for MSc AND DIRECT ENTRY PhD students in the Department of Integrative Biology.

*Department(s):* Department of Integrative Biology

## Landscape Architecture

The Landscape Architecture program offers courses of study leading to the Master of Landscape Architecture (MLA) degree. The MLA program is designed for students with a previous degree in a field unrelated to landscape architecture; for students who hold other professional degrees in architecture, planning and engineering; and for students who have received a BLA degree and are interested in advanced education in a particular area of landscape architecture. The MLA program emphasizes research, analysis, planning, design and management of landscapes ranging in scale from individual sites to entire communities and regions. The MLA program is accredited by the Canadian Society of Landscape Architects. This accreditation is also recognized by the American Society of Landscape Architects.

### Administrative Staff

#### Director, SEDRD

Sean Kelly (101 Landscape Architecture, Ext. 56870)  
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#### Graduate Program Coordinator

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#### Graduate Program Assistant

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### Graduate Faculty

#### Nadia Amoroso

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#### Robert Corry

BLA Guelph, MLA Minnesota, PhD Michigan, CSLA, OALA - Associate Professor

#### John E. FitzGibbon

BA McMaster, MSc Wales, PhD McGill, MCIP, RPP - Professor

#### Larry B. Harder

BES Manitoba, MLA Harvard - Associate Professor

#### Martin Holland

BA Dalhousie, MLA Virginia, PhD Illinois at Urbana-Champaign - Assistant Professor

#### Sean Kelly

BLA Guelph, MSc (Planning) Guelph, CSLA, OALA, ASLA - Associate Professor

#### Karen Landman

BLA, MSc Guelph, PhD Queen's, OPPI - Professor

#### Cecelia Paine

BLA Illinois, MLA Michigan, FCSLA, FASLA, OALA - Professor

#### Nathan H. Perkins

BLA, MLA Illinois, PhD Wisconsin, FASLA - Associate Professor

#### Brendan Stewart

BLA Guelph, MLA California at Berkeley - Assistant Professor

### Associated Graduate Faculty

#### James R. Taylor

BSLA Iowa State, MLA California-Berkeley, FCSLA, FASLA, FCELA, OALA - Professor Emeritus, School of Environmental Design and Rural Development

#### Robert D. Brown

BSc, Saskatchewan, MLA, PhD Guelph - Professor, School of Landscape Architecture - Texas A&M University

### MLA Program

### Admission Requirements

Admission to the MLA program is not restricted to holders of the BLA degree. Strongly motivated graduates of honours programs in a variety of disciplines may be admissible under the normal Faculty of Graduate Studies admission requirements. Well prepared applicants will have studied as broadly as possible in their undergraduate programs.

Application deadline and additional information on the MLA program at the University of Guelph can be obtained from our internet address at: <http://www.uoguelph.ca/sedrd/>

### Degree Requirements

Students are encouraged to relate their major emphasis in the MLA to their undergraduate discipline through course work and thesis.

### Required Core

#### For the holder of a BLA with several subsequent years of significant professional experience:

LARC*6380	[0.25]	Research Seminar
LARC*6600	[0.50]	Critical Inquiry & Research Analysis
LARC*6610	[0.50]	Research Methods
LARC*6710	[0.50]	Special Study
1 Elective		
Thesis		

March 1, 2019

#### For the holder of a BLA without such professional experience

LARC*6380	[0.25]	Research Seminar
LARC*6470	[0.50]	Integrative Environmental Planning
LARC*6600	[0.50]	Critical Inquiry & Research Analysis
LARC*6610	[0.50]	Research Methods
LARC*6710	[0.50]	Special Study
2 Electives		
Thesis		

#### For holders of degrees other than the BLA:

LARC*2240	0.50	Plants in the Landscape
LARC*6010	[0.50]	Landscape Architecture Studio I
LARC*6020	[0.50]	Landscape Architecture Studio II
LARC*6030	[0.50]	Landscape Architecture Studio III
LARC*6040	[0.50]	Landscape Architecture Studio IV
LARC*6120	[0.50]	Community Design
LARC*6340	[0.25]	Landscape History Seminar
LARC*6360	[0.25]	Professional Practice Seminar
LARC*6380	[0.25]	Research Seminar
LARC*6430	[0.50]	Landscape Resource Analysis
LARC*6470	[0.50]	Integrative Environmental Planning
LARC*6440	[0.50]	Environmental Design
LARC*6600	[0.50]	Critical Inquiry & Research Analysis
LARC*6610	[0.50]	Research Methods
LARC*6710	[0.50]	Special Study
Thesis		

### Courses

#### Theory and Practice

##### LARC\*6010 Landscape Architecture Studio I F [0.50]

Studio and field instruction introduces the student to landscape architecture through acquisition of basic professional skills and knowledge. Topics include design theory, landscape inventory and analysis, application of the design process to projects at the site scale, graphic and oral communication.

*Restriction(s):* Available only to students registered in the MLA program.

*Department(s):* School of Environmental Design and Rural Development

##### LARC\*6020 Landscape Architecture Studio II F [0.50]

Studio and field instruction introduces the student to basic knowledge and skills of site engineering as it relates to landscape architecture. Topics include surveying, principles of site grading and drainage, introduction to materials and methods of construction, and graphic communication.

*Restriction(s):* Available only to students registered in the MLA program.

*Department(s):* School of Environmental Design and Rural Development

##### LARC\*6030 Landscape Architecture Studio III W [0.50]

Studio and field instruction continues the student's development of professional knowledge and skills at the site scale. Topics include site planning principles, social factors in design, introduction to principles of planting design and architectural structures, facilitation and computer applications in design.

*Restriction(s):* Available only to students registered in the MLA program.

*Department(s):* School of Environmental Design and Rural Development

##### LARC\*6040 Landscape Architecture Studio IV W [0.50]

Studio instruction emphasizes design implementation, materials and methods of construction, principles of stormwater management, construction specifications and graphic communication using computer applications.

*Restriction(s):* Available only to students registered in the MLA program.

*Department(s):* School of Environmental Design and Rural Development

##### LARC\*6120 Community Design W [0.50]

Studio and field instruction emphasizes integration of ecological, social, cultural and historical factors in the comprehensive design of urban and special use landscapes at the neighbourhood and community scale.

*Restriction(s):* Available only to students registered in the MLA program.

*Department(s):* School of Environmental Design and Rural Development

##### LARC\*6340 Landscape History Seminar F [0.25]

A lecture/seminar course focussed on the history of Landscape Architecture. Skills emphasize the development of oral and writing skills.

*Restriction(s):* Available only to students registered in the MLA program.

*Department(s):* School of Environmental Design and Rural Development

**LARC\*6360 Professional Practice Seminar F [0.25]**

A lecture/seminar course focussed on the legal, business, ethical and professional practices of Landscape Architecture professionals. Skills emphasize the development of oral and writing skills.

*Restriction(s):* Available only to students registered in the MLA program.

*Department(s):* School of Environmental Design and Rural Development

**Landscape Analysis and Planning****LARC\*6430 Landscape Resource Analysis F [0.50]**

Integrated field and classroom instruction introduces the student to inventory and analysis of biological, physical, social and cultural elements of the landscape. Projects will incorporate principles of landscape ecology and landscape planning. Field study will require some travel at student's expense.

*Restriction(s):* Available only to students registered in the MLA program.

*Department(s):* School of Environmental Design and Rural Development

**LARC\*6440 Environmental Design F [0.50]**

This course integrates field and classroom study to apply landscape ecology to current landscape problems, including analysis of regional landscapes, restoration of degraded landscapes, and application of aesthetic and ecological principles across scales in site to regional settings. Case studies component will require some travel at students' expense.

*Restriction(s):* Available only to students registered in the MLA program.

*Department(s):* School of Environmental Design and Rural Development

**LARC\*6470 Integrative Environmental Planning W [0.50]**

Landscape planning emphasizing the integration and interrelationships between biophysical and cultural resources, with application at a regional landscape planning scale. This course typically incorporates community-outreach projects.

*Restriction(s):* Available only to students registered in the MLA program.

*Department(s):* School of Environmental Design and Rural Development

**Research Techniques and Practice**

EDRD\*6000 [0.50] Qualitative Analysis in Rural Development

**LARC\*6380 Research Seminar W [0.25]**

A seminar course focussed on the process and communication of research, influenced by the current research of the participants. Participants organize a conference to present their research results.

*Restriction(s):* Available only to students registered in the MLA program.

*Department(s):* School of Environmental Design and Rural Development

**LARC\*6600 Critical Inquiry & Research Analysis W [0.50]**

Students are introduced to critical inquiry as a method of evaluating information, design, and planning. The focus of the course is on the quantification and analysis of research data. Modelling and simulation are introduced and discussed in the context of planning, design, and research.

*Restriction(s):* Available only to students registered in the MLA program.

*Department(s):* School of Environmental Design and Rural Development

**LARC\*6610 Research Methods F [0.50]**

An introduction to a broad array of research methods as they apply to landscape planning and design, with a focus on the connections between research and design. Emphasis is on developing foundations for the creation of appropriate research questions.

*Restriction(s):* Available only to students registered in the MLA program.

*Department(s):* School of Environmental Design and Rural Development

RPD\*6170 [0.50] Rural Research Methods

**Independent Study****LARC\*6710 Special Study S,F,W [0.50]**

Independent study. A proposal for the content and product required for this course must be developed in conjunction with the student's Advisory Committee.

*Restriction(s):* Instructor consent required.

*Department(s):* School of Environmental Design and Rural Development

## Latin American and Caribbean Studies

This is the only Latin American and Caribbean Studies Master's program in Canada to bridge the social sciences and the humanities. The program is particularly innovative with its participation in the collaborative specialization in International Development. In addition to being able to finish the program in three semesters, students also have the benefit of studying in a community with the largest concentration of Latin American scholars internationally renowned for their major collaborative and individual research projects. Study Abroad gives students an opportunity to study and/or participate in projects at partner institutions in Latin America and the Caribbean. LACS program does not train students for specific careers, but prepares them for a variety of jobs that require analytical skills, an international perspective, and the ability to communicate in both English and Spanish. The program prepares students for further study and research at the doctoral level, either in a related core discipline or in an interdisciplinary program.

### Administrative Staff

#### Acting Director

Sandra Parmegiani (267 MacKinnon, Ext. 53167)  
sparmegi@uoguelph.ca

#### Graduate Program Coordinator

Gordana Yovanovich (277 MacKinnon, Ext. 53883 / 53180)  
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#### Graduate Program Assistant

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### Graduate Faculty

#### Kurt Annen

PhD University of Fribourg, Switzerland - Associate Professor, Economics

#### Jordi Díez

BA Toronto, MA Essex, PhD Toronto - Professor, Political Science

#### Susan Douglas

BA Western Ontario, MA Carleton, PhD Concordia - Assistant Professor, Art History, SOFAM

#### Rosario Gómez

BA, MA, PhD Toronto - Associate Professor, Linguistics, SOLAL

#### Spencer Henson

BSc, PhD University of Reading - Professor, Food Economics and Safety

#### Stephen Henighan

BA Swathmore College, MA Concordia, D Phil Oxford - Professor, Latin American Literature and Culture, SOLAL

#### Sally Humphries

BA, MA, PhD York - Associate Professor, Sociology

#### Kris Inwood

BA Trent, MA, PhD Toronto - Professor, Joint appointment History and Economics

#### Candace Johnson

BA Toronto, MA, PhD Dalhousie - Associate Professor, Political Science

#### Lisa Kowalchuk

BA McMaster, MA McGill, PhD York - Associate Professor, Sociology

#### Stuart McCook

BA Toronto, MS Rensselaer, MA, PhD Princeton - Associate Professor, History

#### Alan McDougall

BA MST, DPhil Oxford - Professor, History

#### Kate Parizeau

PhD, University of Toronto - Associate Professor, Geography

#### Karen Racine

BA Saskatchewan, MA, PhD Tulane - Associate Professor, History

#### Pablo Ramirez

BA Yale, MFA Miami, MA, PhD Michigan - Associate Professor, Latina/o Studies, SETS

#### Joubert Satyre

BA State University, Port-au-Prince, MA, PhD Montréal - Associate Professor, French Caribbean

#### Howard Spring

BFA, MFA York, PhD Illinois - Associate Professor, Caribbean Music, SOFAM

#### Tony Winson

BA Western Ontario, MA, PhD Toronto - Professor, Sociology

#### Gordana Yovanovich

BA Carleton, MA, PhD Toronto - Professor, Latin American Literature and Culture, SOLAL

### Associated Graduate Faculty

#### Pascal Lupien

BA McGill, MA, PhD University of Guelph - Adjunct Professor, LACS and Political Science

## MA Program

### Admission Requirements

The normal requirement for admission to the LACS MA program is the equivalent of an Honours degree from a recognized institution with at least 78% or higher in the last two years of study. Preference will be given to students who have taken upper-level undergraduate courses in areas such as Latin American and Caribbean history, society, politics, development, literature, art, languages, and music. A reading knowledge of Spanish will be required. Students wishing to enter the program normally do so in September.

### Degree Requirements

LACS students will enroll in one of two study options, course work and major research paper or thesis. Study Abroad is not mandatory but strongly recommended to all students.

#### Thesis

Students take the following 4 required courses (2.0 credits) and write a thesis:

LACS*6000	[0.50]	Research Methods Seminar
LACS*6010	[0.50]	Latin American Identity & Culture
LACS*6020	[0.50]	Re-Imagining Community in Latin America
LACS*6030	[0.50]	Globalization & Insecurity in the Americas

#### Course Work and Major Research Paper

Students take 4 required courses (2.0 credits), 2 electives (1.0 credits) and write a major research paper (1.0 credit). This option is recommended because it gives students breadth in their study.

Required courses:

LACS*6000	[0.50]	Research Methods Seminar
LACS*6010	[0.50]	Latin American Identity & Culture
LACS*6020	[0.50]	Re-Imagining Community in Latin America
LACS*6030	[0.50]	Globalization & Insecurity in the Americas

In addition, students will also take two electives in the area of culture or society. Students who choose to go on an exchange in semester 2 of the program will not need to take LACS\*6020. They can replace the winter portion of the course with a comparable course taken at the host university. While abroad, students will have the opportunity to develop language proficiency, and to conduct research or take courses for their major project. The major paper LACS\*6100 Research Project (1.0 credits) consists of approximately 12,000 words and will be researched and written under the direction of one or two faculty members, one of whom could be from an exchange Latin American partner university.

Students who choose to write their major paper or thesis from a social science perspective may replace LACS\*6000 with SOC\*6140 (F) or SOC\*6140 (W) or SOC\*6130 (W).

### Collaborative Specializations

#### International Development Studies

Latin American and Caribbean Studies graduate students have the opportunity to pursue the MA in Latin American and Caribbean Studies with the designation "International Development Studies." Students wishing to take MA in Latin American and Caribbean Studies (LACS) in conjunction with the International Development Studies (IDS) collaborative specialization must enter the LACS program and satisfy both the LACS admission requirements and the IDS admission requirements. Please consult the International Development Studies listing for a detailed description of the MA collaborative specialization including the special additional requirements for each of the participating departments or programs.

### Courses

LACS*6000 Research Methods Seminar U [0.50]
This course will introduce students to the field and research methods of various disciplines and of interdisciplinary studies, and it will familiarize them with field-relevant research skills and methodologies.
<i>Department(s):</i> School of Languages and Literatures
LACS*6010 Latin American Identity & Culture F [0.50]
This is the first of the two required LACS culture core courses. They will address theoretical issues relevant to Latin American identities and cultures, and will use these as heuristic devices in the study of major and marginalized cultural events, narratives, and visual and musical expressions. In LACS*6010 students will analyze the concept of "hybridity" and study how hybrid culture has been incorporating past with the present, and how it is and has been incorporating local and African forms and themes with European and US derived high culture.
<i>Department(s):</i> School of Languages and Literatures
LACS*6020 Re-Imagining Community in Latin America W [0.50]
This graduate seminar examines recent developments in community theory, studying representative works of literature, film, and music that re-imagine the ideas and formations of Latino, Latin American and Caribbean communities. Students going an exchange may replace this course with a similar course taken at the exchange university.
<i>Department(s):</i> School of Languages and Literatures

**LACS\*6030 Globalization & Insecurity in the Americas F [0.50]**

An analytical, critical and interdisciplinary introductory overview of Latin America and the Caribbean in the larger context of the Americas, from the point of view of the security and insecurity of its people. It will concentrate on the interplay of environmental, economic, social, political, and cultural factors upon such security in an era of globalization.

*Department(s):* School of Languages and Literatures

**LACS\*6040 Novel & Nation in Spanish America W [0.50]**

This course will study the constitution of Spanish American nation in the novel since 1900 from a variety of theoretical perspectives. Particular attention will be paid to the novel's appropriation of foreign artistic and cultural influences to articulate Spanish American history. Offered in conjunction with SPAN\*4100 or SPAN\*4410. Extra work is required of graduate students.

*Restriction(s):* Credit may be obtained for only one of LACS\*6040 or SPAN\*4100/SPAN\*4410.

*Department(s):* School of Languages and Literatures

**LACS\*6070 Civil Society and Activism in Latin America U [0.50]**

This graduate seminar will provide an analytical, critical and interdisciplinary overview of relevant sociopolitical topics in contemporary Latin America, with a focus on the role of civil society and collective action in reshaping the social and political landscape of the region.

*Department(s):* School of Languages and Literatures

**LACS\*6100 Research Project U [1.00]**

This research project will result in a major paper of about 15,000 words. The student chooses a topic and writes a paper on the topic with the guidance of a faculty member. The topic must be approved by the Graduate Program Committee.

*Department(s):* School of Languages and Literatures

**LACS\*6200 Topics in Latin American and Caribbean Studies U [0.50]**

An independent study course, the nature and content of which is agreed upon between the individual student and the person offering the course.

*Restriction(s):* Instructor and Graduate Program Coordinator signatures required.

*Department(s):* School of Languages and Literatures

ECON*6350	[0.50]	Economic Development
ECON*6370	[0.50]	Economic Development in Historical Perspective
ENGL*6811	[0.50]	Special Topics in English
FREN*6022	[0.50]	Topics in Caribbean and African Literatures
HIST*6500	[0.50]	Topics in Global History
HIST*6520	[0.50]	Topics in Latin American History
HIST*6521	[0.50]	Latin American History Research
POLS*6050	[0.50]	The Politics of Identity
SOC*6270	[0.50]	Diversity and Social Equality
SOC*6420	[0.50]	Global Agro-Food Systems, Communities and Rural Change
SOC*6460	[0.50]	Gender and Development



## Leadership

The MA (Leadership) focuses on the challenges facing leaders in the public, private and not-for-profit sectors, with an emphasis on the interaction between, and interdependency of, these spheres. Successful completion of the MA (Leadership) degree involves a comprehensive program of theoretical study backed by significant practical experience and analysis. Participants will also undertake a formal self-assessment process to gain insight into their own strengths and weaknesses and their ultimate leadership potential.

### Administrative Staff

#### Assistant Dean and Executive Director, Executive Programs

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#### Manager, Executive Programs

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#### Graduate Program Coordinator

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### Graduate Faculty

#### Joe Barth

BSc Guelph, MBA Wilfrid Laurier, MPS, PhD Cornell - Associate Professor

#### Julia Christensen-Hughes

BComm Guelph, MBA, PhD York - Professor and Dean, College of Business & Economics

#### Elliott Currie

BA, MBA McMaster, CPA, CMA - Associate Professor

#### Rumina Dhalla

MBA, PhD York - Associate Professor

#### Kerry Godfrey

BSc Victoria, MSc Surrey, PhD Oxford Brookes - Associate Professor

#### Jamie A. Gruman

BA Concordia, MA Lakehead, PhD Windsor - Associate Professor - Associate Professor

#### Peter Hausdorf

BSc McMaster, MA Guelph, PhD McMaster - Associate Professor

#### Louise Hayes

BSc, MBA British Columbia, PhD Waterloo, CPA, CA - Assistant Professor

#### Kalinga Jagoda

BSc Moratuwa, PhD Western Sydney, CPA, CMA - Assistant Professor

#### Elizabeth Kurucz

BA McMaster, MIR Toronto, PhD York - Associate Professor

#### Sean Lyons

BPA Windsor, MA, PhD Carleton - Associate Professor

#### Sara Mann

B.Comm, MBA McMaster, PhD Toronto - Associate Professor

#### Norm O'Reilly

BSc Waterloo, MBA Ottawa, PhD Carleton - Assistant Dean, Executive Programs

#### Davar Rezania

MSc Utrecht, MBA Derby, PhD Ramon LLULL, CPA, CMA - Associate Professor

#### Sandra Scott

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#### Trent Tucker

BSc Alberta, MBA Toronto, PhD Waterloo - Assistant Professor

#### Erna van Duren

BA Waterloo, MSc, PhD Guelph - Professor

#### Agnes Zdaniuk

BA, MAsC, PhD Waterloo - Assistant Professor

### MA Leadership

The MA (Leadership) is designed to enable mid-career professionals to complete a graduate degree without interrupting their careers. Web-based distance courses are combined with brief sessions in Guelph and the completion of a major research project. Students may also complete the MA (Leadership) degree by taking two additional courses in place of the Major Research Project with a course-work option.

### Admission Requirements

Minimum admission requirements are:

A four year undergraduate degree or its equivalent (from a recognized university or college) with an average of at least a "B-" (70-72%) in the last two years of study AND having completed at least three years of relevant work experience

OR

Alternate admission may be offered to applicants with a three year General degree, diploma and/or an acceptable professional designation AND having completed at least five years of relevant work experience.

Meeting the minimum criteria for admission does not guarantee acceptance into the program. Limitations of funds, space, facilities or personnel may make it necessary for the University, at its discretion, to refuse admission to an otherwise qualified applicant.

### Degree Requirements

On average participants allot 20 to 25 hours per week to study and participate in the program. This is an approximate number of hours and may vary depending on personal learning style. Participants normally complete the MA (Leadership) within 20-24 months. Normally, course modules are eight weeks in length and are completed in a pre-determined sequence, but some variations exist. Students may choose one of two options.

### Course Work and Major Research Project

Students must complete six web-based courses (3.0 credits), two residency courses (1.0 credit) plus the major research project (1.0 credit) or by taking two additional courses (1.0 credit). The project requires a literature review, data collection, and data analysis, which culminates in a major research project.

### Course Work

Students must complete six web-based courses (3.0 credits), two residency courses (1.0 credit) and two additional courses (1.0 credit).

### Courses

<b>LEAD*6000 Foundations of Leadership U [0.50]</b>
The course will enhance participants' interpersonal competency, as well as their knowledge and understanding of the theory and research underlying the impact of team management and collaboration on the organization.
<i>Restriction(s):</i> CBE Executive Programs students only <i>Department(s):</i> Executive Programs
<b>LEAD*6100 Theories of Leadership U [0.50]</b>
This course traces the development of the concept of leadership. Through the interplay of theory and practical application, participants will gain a deeper appreciation for the requirements, responsibilities, and consequences of effective leadership.
<i>Restriction(s):</i> CBE Executive Programs students only <i>Department(s):</i> Executive Programs
<b>LEAD*6200 Leadership of Organizational Change U [0.50]</b>
This course studies the role of leadership in the management of change within an organization and the changes required of management. The course examines the development of trust, the building of organizational loyalty, and motivation and inspiring of high performance teams.
<i>Restriction(s):</i> CBE Executive Programs students only <i>Department(s):</i> Executive Programs
<b>LEAD*6220 Strategic Leadership and Management U [0.50]</b>
As a research intensive course in the MA Leadership, this course examines the conceptual and practical dimensions of strategic leadership and management in a variety of organizational, external and individual contexts using a selection of readings, discussions, case analyses and a final paper.
<i>Department(s):</i> Executive Programs
<b>LEAD*6300 Role of the Leader in Decision-Making U [0.50]</b>
The role of the leader in decision-making is explored through the study of the rational model for decision-making, human biases, creativity, and risk and uncertainty in decision-making. The course will also examine ethical issues and group decision-making.
<i>Restriction(s):</i> CBE Executive Programs students only <i>Department(s):</i> Executive Programs
<b>LEAD*6350 The Role of the Leader as Reflective Practitioner U [0.50]</b>
This course will enhance the leader's ability to navigate the complexity of organizational life and contribute to building a more sustainable society by developing skills in reflective practice. Reflective practice is divided into four areas that stretch over eight modules: Rethinking, Relating, Responding and Reinventing.
<i>Restriction(s):</i> CBE Executive Programs students only <i>Department(s):</i> Executive Programs
<b>LEAD*6400 Research Methods for Decision-Making U [0.50]</b>
The course will explore both quantitative and qualitative techniques used in the analysis of research results from a variety of sources (surveys, government statistics, in-depth interview, focus groups and program evaluation results). Case studies will be used to demonstrate the application of multiple research methods.
<i>Restriction(s):</i> CBE Executive Programs students only <i>Department(s):</i> Executive Programs

**LEAD\*6500 Ethics in Leadership U [0.50]**

Issues in the use and application of ethical standards by leaders are explored through examples from history, current events, novels, films and television. Relevant theory is applied to leadership examples to help students develop an ethical framework for the exercise of leadership skills.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**LEAD\*6600 Foundations of Leadership for Retirement and Senior Living U [0.50]**

Leadership in the senior living sector requires unique skills, competencies and practice. The purpose of this course is to explore leadership theories and concepts in this context. Understanding the rights and choices of seniors, the future of the aging population, care and support services available and legislative requirements is essential to individuals interested in pursuing career growth in senior living.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Leadership Program

**LEAD\*6720 Politics of Organizations U [0.50]**

This course reviews a variety of theories and models that help to explain the behavioural underpinnings that influence and shape management and leadership processes within organizations. Examples from history and current events are explored to illustrate theory.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**LEAD\*6740 Coaching and Developing Others U [0.50]**

This course will provide student with an opportunity to design developmental plans for direct reports, assess their coaching skills, and develop their coaching skills to support the development of others.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**LEAD\*6800 Personal Skill Self-Assessment U [0.50]**

Using the "Basis of Competence" model, this course examines personal skills in four areas: Managing Self, Communicating, Managing People and Tasks, and Mobilizing Innovation and Change. The skills required to make smooth transitions from one job to another in a dynamic workplace will be explored.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**LEAD\*6900 Major Research Project U [1.00]**

This course involves a directed research project leading to a referenced, professional report on a leadership problem or issue.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

BUS\*6400

## Literary Studies/Theatre Studies in English

The PhD Program in Literary Studies/Theatre Studies in English at the University of Guelph presents an opportunity for doctoral study that is unique in Canada. Although students might choose to focus on either literary studies or theatre studies, the special opportunity provided by the PhD Program is its contribution to the evolution of interdisciplinary work in the humanities. This bridging of disciplines allows for opportunities not available in more traditional doctoral programs, especially in inter-discursive and theoretical work across the boundaries of literary and theatre studies. Students can choose to undertake research in one or more of six fields of specialization:

- Studies in Canadian Literatures
- Colonial, Postcolonial and Diasporic Studies
- Early Modern Studies
- Studies in the History and Politics of Performance and Theatre
- Sexuality and Gender Studies
- Transnational Nineteenth-Century Studies

### Administrative Staff

#### Director

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BA, MA Toronto - Professor

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#### Julie Cairnie

BA Brock, MA, PhD York - Associate Professor

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BA, MA, PhD Toronto - Assistant Professor

#### Elaine Chang

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#### Martha J. Nandorfy

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#### Daniel O'Quinn

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#### Sandra Singer

BA Trent, MA Queen's, PhD Cambridge - Associate Professor

#### J.R. (Tim) Struthers

BA, MA, PhD Western Ontario - Associate Professor

#### Ann Wilson

BA, MA, PhD York - Associate Professor and Director

### PhD Program

The PhD Program in Literary Studies/Theatre Studies in English is offered in six fields of specialization: 1) studies in Canadian literatures; 2) colonial, postcolonial and diasporic studies; 3) early modern studies; 4) studies in the history and politics of performance and theatre; 5) sexuality and gender studies; and 6) transnational nineteenth-century studies.

### Admission Requirements

Admission to the PhD Program normally requires an MA in English, and MA in Drama/Theatre, or an equivalent degree with at least an A- average in graduate work. In certain exceptional circumstances, students will be considered directly out of the undergraduate degree. Applications are considered by the Graduate Program Committee and a recommendation to admit or decline is forwarded to the Assistant VP of Graduate Studies.

### Program Requirements

#### Graduate Course Work (2.5 credits)

Students are required to take 5 graduate courses in the initial phase of their degree. The standard practice is to take two courses in the Fall semester of Year 1, two courses in the Winter semester of Year 1, and one course in the Fall semester of Year 2. This arrangement of courses is recommended, but remains flexible: any combination of 5 courses over these semesters is acceptable. In unusual circumstances, students may petition to do one course in the Winter semester of Year 2 in order to meet particular demands in their program of study. Courses are advertised on a two-year cycle to maximize choice and facilitate planning in the program.

Graduate courses allow students to develop their knowledge of key theoretical, historical and critical concerns for the analysis of culture. It is during coursework that students hone their skills in writing and research so that they will be prepared for the challenges posed by their Primary and Secondary Area Qualifications. Students are encouraged to choose their courses in order to maximize their critical and historical repertoire, and to take advantage of the opportunity afforded by the program to work across the disciplines of English and Theatre Studies.

#### Language Requirement--LTS\*7770 (0.0 credit)

Doctoral students are required to demonstrate reading proficiency in at least one language other than modern English, as approved by the Graduate Study Committee. Typically the language requirement will be completed by the end of the student's fifth semester in the program.

The language should normally have direct relevance to the student's program of study. In certain cases, students' research may require demonstrable competency in a non-written or technical language such as a programming language. The selection of the language(s) will be determined by the student in consultation with the dissertation advisor, and must be submitted for approval by the Graduate Program Committee.

The language requirement may be fulfilled through one of the following:

- A three-hour examination, which consists of the student's translation (with the help of a dictionary) of one passage in prose of not more than 1000 words.
- A faculty member with expertise in the language grades the examination on a pass/fail basis. A student who fails the language examination twice will normally be required to withdraw from the program.
- Equivalent language requirement through an MA-level examination.
- An undergraduate-level language course or above whose completion demonstrates reading proficiency in the language (as determined by the student's committee and approved by the Graduate Program Committee).

The student's advisory committee may submit a rationale, no later than the end of the third semester of study, to the Graduate Program Committee explaining why a second language is not necessary to the course of study. In order to promote equity across the program, the Graduate Program Committee will be charged with approving or rejecting that rationale or requesting further clarification.

### Secondary Area Qualification

The SAQ takes place in the Summer of Year One and provides an opportunity for students to quickly develop the repertoire needed to potentially teach in a field without necessarily committing to that field as an area of specialization. The objective here is to gain working knowledge of the major texts and statements relating to a field of scholarly enquiry. Upon completion of this exercise, students should have both the range and the depth to confidently teach in a secondary area.

As the name implies, this is a qualification exercise. The student is responsible for a reading list comprised of 60 texts, (the definition of what constitutes a standard text is internal to the design of the lists) selected from standard department reading lists; 30% of the list may be altered to suit particular interests. Students are assessed on a pass/fail basis on the following:

1. The student will write a three-hour examination composed of four questions, from which the student chooses two. These questions give the student an opportunity to demonstrate the range and depth of their reading. The questions will ask the student to place a range of primary texts in relation to key critical debates in the field.
2. This written examination is followed one week later by a one-hour oral examination on questions arising from both elements of the written work.

### Primary Area Qualification (Year 2)

After the completion of the SAQ, the student progresses to his or her Primary Area Qualification. The objective here is to develop sufficient expertise in a field of scholarly enquiry to be able to make original contributions to that field through the writing of a doctoral dissertation. Through discussion with his or her advisory committee, the student develops a reading list of approximately 120 works divided roughly into two parts. The first comprises a Field Survey that is aimed at sketching the broad contours of an area of scholarly enquiry. The second is a more specific articulation of the works, called the Topic Readings, that will immediately impinge on the dissertation. The PAQ Examination, intended to determine whether the student is prepared to write and capable of writing the PhD thesis, is usually taken 12 months after the completion of the SAQ:

1. A three-hour examination on the primary material to be studied in the thesis and on scholarship concerning that primary material-i.e. this is directed specifically to the Topic Readings. The student will be asked to answer two questions from a choice of three.
2. A three-hour examination on the immediate background--the literary, cultural and intellectual milieu of the subject being studied-i.e. this is directed specifically at the Field Survey. The student will be asked to answer two questions from a choice of three.
3. A two-hour oral examination in which the examining committee usually follows up on material in the written examinations and questions the student on plans for the doctoral thesis. While the examination is likely to focus on the student's main area of interest, examiners also have the lee-way to ask questions pertaining to the overall list of texts.

Students are assessed on a pass/fail basis.

### Dissertation Prospectus

Immediately following the Primary Area Qualification, the student develops, in consultation with his or her advisory committee, a full prospectus for their dissertation. The prospectus states the overall objective of the thesis, lays out the chapter structure, and summarizes the issues and concerns to be addressed in each chapter. If and when the Dissertation Committee ratifies the Prospectus, it is forwarded to the Graduate Program Committee for formal approval.

### PhD Dissertation

Following successful completion of the two Area Qualifications, the student must complete an original research project on an advanced topic. The advisory committee for the dissertation will consist of three members of the graduate faculty, one of whom assumes the primary advisory role. Ideally, the dissertation supervisor has worked with the student, in an advisory capacity, from her/his first semester in the program.

Each candidate shall submit a thesis, written by the candidate, on the research carried out by the candidate on an approved topic. The thesis is expected to be a significant contribution to knowledge in its field and the candidate must indicate in what ways it is a contribution. The thesis must demonstrate mature scholarship and critical judgement on the part of the candidate and it must indicate an ability to express oneself in a satisfactory literary style. Approval of the thesis is taken to imply that it is judged to be sufficiently meritorious to warrant publication in reputable scholarly media in the field.

The dissertation should normally be between 50,000 and 75,000 words in length. The regulations for submission, examination and publication are outlined in Chapter IV PhD Degree Regulations.

### Courses

#### LTS\*7770 Language Requirement U [0.00]

A written demonstration of a student's reading knowledge of one language other than English, as approved by the Graduate Studies Committee.

*Department(s):* School of English and Theatre Studies

#### LTS\*7900 Directed Studies U [0.50]

The study of a special topic under the guidance of a member of the graduate faculty.

*Department(s):* School of English and Theatre Studies

THST*6150	[0.50]	Theatre Historiography
THST*6210	[0.50]	Devising
THST*6220	[0.50]	Theatre Theory
THST*6230	[0.50]	Performance and Difference
THST*6250	[0.50]	Bodies and Space in Performance
THST*6801	[0.50]	Reading Course I
THST*6802	[0.50]	Reading Course II
ENGL*6002	[0.50]	Topics in the History of Criticism
ENGL*6003	[0.50]	Problems of Literary Analysis
ENGL*6201	[0.50]	Topics in Canadian Literature

ENGL*6209	[0.50]	Topics in Colonial, Postcolonial and Diasporic Literature
ENGL*6412	[0.50]	Topics in Medieval/Renaissance Literature
ENGL*6421	[0.50]	Topics in Eighteenth Century and Romantic Literature
ENGL*6431	[0.50]	Topics in Nineteenth Century Literature
ENGL*6441	[0.50]	Topics in Modern British Literature
ENGL*6451	[0.50]	Topics in American Literature
ENGL*6611	[0.50]	Topics in Women's Writing
ENGL*6621	[0.50]	Topics in Children's Literature
ENGL*6641	[0.50]	Topics in Scottish Literature
ENGL*6691	[0.50]	Interdisciplinary Studies
ENGL*6811	[0.50]	Special Topics in English
ENGL*6801	[0.50]	Reading Course I
ENGL*6802	[0.50]	Reading Course II

## Management

The MA in Management program provides an awareness to theories of management, research methods, data analysis and other core management topics. It also requires a Major Research Project (MRP) completion with the guidance and supervision of a member of the graduate faculty.

The MA in Management offers opportunities for study in the fields of:

- Management Research
- Accounting

The objective of the PhD in Management is to prepare individuals who already have a strong background in a management area such as marketing, organizational behaviour, leadership, hospitality / tourism, quality management, economics, finance, or human resources to be academic scholars. This program prepares individuals with solid, formal foundations in theory and practice.

The PhD in Management is a thesis-based program that is offered through the College of Business and Economics. The participating academic units are the Department of Marketing and Consumer Studies (MCS), the Department of Management (DoM) and the School of Hospitality, Food and Tourism Management (HFTM). The PhD in Management has three fields:

- Marketing and Consumer Behaviour
- Organizational Leadership
- Services Management

which are offered jointly by the three academic units.

### Administrative Staff - MA Program

#### Chair

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#### Philippe Lassou

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#### Jing Lu

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#### Sean Lyons

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#### Sandra Scott

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#### Agnes Zdaniuk

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### Graduate Faculty - PhD Program

### From the Department of Marketing and Consumer Studies

#### Paul M. Anglin

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#### Sandra Scott

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### MA Program

The Master of Arts in Management focuses on the challenges that face leaders in the public, private and, not-for-profit sectors while emphasizing the important of evidence-based decision-making. Successful completion of the MA degree involves a comprehensive program of theoretical study, backed by significant practical experience and analysis.

The MA in Management has two fields:

1. Management Research: with emphasis on evidence-based decision-making, is designed to equip students with the necessary skills to support managerial decision, with evidence-based reasoning. Courses are designed in a hybrid format with a mix of face-to-face meetings, seminars and lectures as well as online learning. The completion of a major research project will also be undertaken during the course of the degree.
2. Accounting: combines the conceptual and quantitative elements of accounting, while promoting the integration of theory and practice. It provides graduates with a systemic understanding of knowledge of financial accounting and managerial accounting while fulfilling the requirements of the professional accounting standards defined by CPA Canada Competency Map for the first four modules of the Professional Education Program. Students will develop the technical, analytical, evaluative, leadership and, communication skills needed for a successful career in accounting and the related management areas in the field/profession.

### Admission Requirements

To be considered, applicants must have completed a four-year honours undergraduate degree with a minimum 2nd class (70%) (or its equivalent), from a recognized post-secondary institution. For the specialization in Accounting, subject area coverage should be equivalent to that required for entry into the CPA Professional Education Program.

For applicants who do not hold an honours degree with a major in or possess an undergraduate degree with a strong emphasis in either the accounting and/or management fields, additional prerequisites or academic upgrading may be required.

Applications will be assessed comprehensively, based on transcripts, referee assessment, statement of intent, and resume/CV. In cases where English is a second language, the applicant must also submit International English Language Testing System (Academic) (IELTS) (minimum 6.5) or Test of English as a Foreign Language (TOEFL Internet-based test (iBT)) (minimum 89 overall with no component score lower than 21). Applicants may also be formally interviewed.

### Degree Requirements

Overall Requirements (5.0 credits)

- 1.0 credits – core courses
- 2.5 credits -field specific electives
- 0.5 credit – restricted electives
- 1.0 credit – Major Research Project (MRP)
- 0.0 credit – Seminar Series course (Fall and Winter Semester)

### Core Courses:

MGMT*6100	[0.50]	Evidence Based Management Research
MGMT*6200	[0.50]	Leadership Assessment and Development

### Fields

#### Management Research

MGMT*6130	[0.50]	Creative Process of Innovation
MGMT*6300	[0.50]	Business Consulting
MGMT*6400	[0.50]	Project Management
BUS*6800	[0.50]	Readings in Leadership I
BUS*6810	[0.50]	Readings in Leadership II
BUS*6820	[0.50]	Readings in Management
BUS*6840	[0.50]	Foundational Theories of Management

#### Accounting

ACCT*6100	[0.50]	Integrated Cases I
ACCT*6200	[0.50]	Integrated Cases II
ACCT*6300	[0.50]	Taxation
ACCT*6400	[0.50]	Performance Management

ACCT*6500	[0.50]	Assurance
ACCT*6600	[0.50]	Financial Management

Students may be permitted to take other courses from the Department of Management with written permission from the Graduate Program Coordinator.

### Restricted Electives

One quantitative or qualitative research methods course (0.5 credits) with permission:

MGMT*6120	[0.50]	Quantitative Methods for Evidence Based Management
MGMT*6830	[0.50]	Applied Univariate Statistical Analysis for Management
MGMT*6840	[0.50]	Quantitative Research Methods: Multivariate Techniques
SOC*6130	[0.50]	Quantitative Research Methods
PSYC*6060	[0.50]	Research Design and Statistics
ANTH*6140	[0.50]	Qualitative Research Methods
FRAN*6020	[0.50]	Qualitative Methods
MGMT*6850	[0.50]	Qualitative Research Methods
SOC*6140	[0.50]	Qualitative Research Methods

### Major Research Project

MGMT*6500	[1.00]	Major Research Project
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### PhD Program

The PhD in Management is offered in three fields: 1) marketing and consumer behaviour; 2) organizational leadership; and 3) services management.

### Admission Requirements

There are three means of entry:

1. An applicant who holds a recognized master's degree in a management related discipline with an average standing of at least "B+" may be admitted to PhD studies as a regular or provisional student
2. An applicant who holds a recognized master's degree with high standing in a field other than management and who wishes to proceed to doctoral study in a management field should consult with the Graduate Program Coordinator about eligibility.
3. An applicant who has achieved excellent standing at the honours baccalaureate level in a management field and who wishes to proceed to doctoral study may enroll in a related master's degree. If the student achieves a superior academic record and shows a particular aptitude for research, the Board of Graduate Studies, on the recommendation of the Department/School admissions committee, may authorize transfer to the PhD program without requiring the student to complete the master's degree.

All applicants are required to submit GRE (Graduate Records Exam) or GMAT (Graduate Management Admission Test) results when applying.

### Degree Requirements

The goal of the PhD program in Management is to produce graduates with both a breadth of knowledge about management theories in general, and a depth of knowledge such that they will be competent researchers and/or teachers in their chosen field. Since most courses will be common to the current three fields in this program as well as to any future fields, the key indicator of the student's area of specialization will be his or her thesis topic. Students should select all courses in consultation with the Graduate Program Coordinator and their supervisor. Students with an existing Master's degree awarded by the College of Business and Economics, who have already taken some of the required courses as part of their graduate program, will be exempted from those course requirements.

Students in all fields of the program will take five core courses that will ensure that each student has a breadth of knowledge about management and research. Of the five core courses, one will cover the theories and practice of management, another provides an understanding of the philosophy of research and design, two courses cover quantitative research and the fifth covers qualitative research methodologies. In addition to the five core courses, there are two required field courses in the first year specific to each field. In the second year students select two additional required courses and two elective courses in their field in consultation with the program coordinator. All students must take the University teaching course in the fall of the second year, bringing the total number of 0.5 credit courses to twelve. In addition, all students must write a paper in a non-credit course the summer of the first year and attend every year a non-credit seminar series course that introduces students to the diversity of research projects undertaken by Guelph faculty, graduate students and by visitors to the University. Following their coursework, students will complete a comprehensive exam designed to test their knowledge in the general area of management and in their field of specialization. Students are to present and defend a doctoral research proposal in the semester after completion of the qualifying examination. Overall, the proposed program consists of five semesters of coursework (five core courses, four required field courses, two electives and the teaching course), followed by the qualifying exam, presentation and defense of a research proposal, and finally, the completion and defense of a full doctoral dissertation.

Students are required to take a total of 6.0 credits (12 courses), the PhD Research Project Seminar course in the third (summer) semester (0.0 credit) and the Marketing & Consumer Studies Seminar course (0.0 credit) each fall and winter semester the student is registered.

### Year 1

#### Semester 1

MGMT*6950	[0.00]	Doctoral Research Seminar
MGMT*6820	[0.50]	Theory of Management
MGMT*6830	[0.50]	Applied Univariate Statistical Analysis for Management
Required field course		
Marketing and Consumer Behaviour: one of		
MCS*6000	[0.50]	Consumption Behaviour Theory I
MCS*6100	[0.50]	Marketing Theory
Organizational Leadership		
BUS*6830	[0.50]	Foundational Theories of Leadership
Services Management		
HTM*6710	[0.50]	Services Management Theory I

### Note

MGMT\*6830 can be substituted with PSYC\*6060 Research Design and Statistics or with STAT\*6950 Statistical Methods for Life Sciences, upon recommendation from the Graduate Program Coordinator.

#### Semester 2

MGMT*6950	[0.00]	Doctoral Research Seminar
MGMT*6840	[0.50]	Quantitative Research Methods: Multivariate Techniques
MGMT*6850	[0.50]	Qualitative Research Methods
Required field course		
Marketing and Consumer Behaviour: one of		
MCS*6010	[0.50]	Consumption Behaviour Theory II
MCS*6120	[0.50]	Marketing Management
Organizational Leadership		
BUS*6840	[0.50]	Foundational Theories of Management
Services Management		
HTM*6720	[0.50]	Services Management Theory II

#### Semester 3

MGMT*6800	[0.50]	Philosophy of Social Science Research
MGMT*6900	[0.00]	PhD Research Seminar Project

### Year 2

#### Semester 4

MGMT*6950	[0.00]	Doctoral Research Seminar
UNIV*6800	[0.50]	University Teaching: Theory and Practice
Required field course		
Marketing and Consumer Behaviour: one of		
ECON*6600	[0.50]	Labour Economics
MCS*6070	[0.50]	Introduction to Structural Equation Modeling
MCS*6810	[0.50]	Experimental Design and Analysis for Behavioural Research in Management Studies

### Note

The field course can be replaced by a course in Psychological Methods or Marketing Models upon agreement from program coordinator.

Organizational Leadership: one of

BUS*6800	[0.50]	Readings in Leadership I
BUS*6820	[0.50]	Readings in Management
Services Management: One of theory or methods courses:		
ECON*6000	[0.50]	Microeconomic Theory I
ECON*6140	[0.50]	Econometrics I
FARE*6380	[0.50]	Applied Microeconomics for Agricultural Economists
MCS*6000	[0.50]	Consumption Behaviour Theory I
MCS*6070	[0.50]	Introduction to Structural Equation Modeling
MCS*6100	[0.50]	Marketing Theory

**All fields: One elective course [0.50] from Elective Course List below.**

#### Semester 5

MGMT*6950	[0.00]	Doctoral Research Seminar
Qualifying Examination		
Required field course		
Marketing and Consumer Behaviour: one of		
ECON*6160	[0.50]	Econometrics II
ECON*6610	[0.50]	Topics in Labour Economics
One course in Psychology/ Sociology/ Microeconomics/Econometrics/ Economics/Marketing/Consumer Behaviour/ upon agreement with program co-ordinator		
Organizational Leadership: one of		
BUS*6810	[0.50]	Readings in Leadership II
Services Management: One of theory or methods courses:		

ANTH*6140	[0.50]	Qualitative Research Methods
BUS*6810	[0.50]	Readings in Leadership II
ECON*6010	[0.50]	Microeconomic Theory II
ECON*6100	[0.50]	Experimental Economics
FARE*6970	[0.50]	Applied Quantitative Methods for Agricultural Economists
MCS*6010	[0.50]	Consumption Behaviour Theory II

**All fields: One elective course [0.50] from Elective Course List below.**

#### Semester 6

Thesis Proposal Defence

#### Year 3

#### Semester 7, 8 & 9

MGMT\*6950 [0.00] Doctoral Research Seminar

Thesis Research

#### Year 4

#### Semester 10, 11 & 12

MGMT\*6950 [0.00] Doctoral Research Seminar

Doctoral Thesis

#### Elective Course List

All fields: Two elective courses [1.00]

The elective courses can be one from the required courses list or another course from the list below. Other electives from other University of Guelph academic units can be considered if agreed to by the Graduate Program Coordinator.

HTM*6730	[0.50]	Cases in Management
MCS*6800	[0.50]	Best Worst Scaling and Discrete Choice Analysis
TRMH*6100	[0.50]	Foundations of Tourism and Hospitality
TRMH*6200	[0.50]	Contemporary Issues in Tourism
TRMH*6250	[0.50]	Tourism and Sustainable Development
TRMH*6310	[0.50]	Research Applications in Tourism and Hospitality
BU*842	[0.50]	Consumer Behavior, Marketing, Wilfrid Laurier
BU*862	[0.50]	Research in Brand and Product Management, Marketing, Wilfrid Laurier
SOC*760	[0.50]	Social Networks, Department of Sociology and Legal Studies, University of Waterloo

### Graduate Diploma in Accounting

By combining the conceptual and quantitative elements of accounting while promoting the integration of theory and practice, the graduate diploma in accounting provides graduates with a systemic understanding of knowledge of financial accounting and managerial accounting, fulfilling the requirements of professional accounting standards defined by CPA Canada Competency Map for the first four modules of the Professional Education Program. Students will develop the technical, analytical, evaluative and leadership and communication skills needed for a successful career in accounting and related management areas.

#### Admission Requirements

Applicants for this admission to this program must have an overall average of at least 70% from an undergraduate degree program, plus subject area coverage equivalent to that required for entry into the CPA Professional Education Program.

#### Diploma Requirements

Students must complete four courses, two core and two electives for a total of 2.0 credits. Students pursuing a professional accounting designation should visit the Department of Management website for links to the requirements for each designation. The program is offered during the summer term

#### Core Courses:

ACCT*6100	[0.50]	Integrated Cases I
ACCT*6200	[0.50]	Integrated Cases II

#### Electives

ACCT*6300	[0.50]	Taxation
ACCT*6400	[0.50]	Performance Management
ACCT*6500	[0.50]	Assurance
ACCT*6600	[0.50]	Financial Management

### Collaborative Specializations

#### International Development Studies

The Department of Management participates in the International Development Studies (IDS) MA collaborative specialization. Please consult the International Development Studies listing for a detailed description of the collaborative specialization including the special additional requirements for each of the participating departments.

### MA Courses

#### Core Courses

##### MGMT\*6000 Management Seminar Series F,W [0.00]

This seminar provides students with exposure to current and emerging research topics in the field of management. Academic speakers (faculty and students) present their work in weekly meetings. Students are encouraged to be engaged and participate actively during the presentations.

*Restriction(s):* Students in MA.MGMT

*Department(s):* Department of Management

##### MGMT\*6100 Evidence Based Management Research U [0.50]

This course provides a conceptual overview of the management research and its functions for academic and practitioner audiences. Students will explore the purpose of research, its relationship to theory, the benefits of various epistemological approaches and the notion of research impact. Topics include research problem definition and objectives, hypothesis development, research design, ethics approval, measurement, sampling methods, analysis, interpretation of results, and report writing.

*Restriction(s):* Students in MA.MGMT

*Department(s):* Department of Management

##### MGMT\*6120 Quantitative Methods for Evidence Based Management U [0.50]

This course provides a practical overview of statistical methods for evidence-based management applications. Students will work with quantitative data to conduct a variety of statistical analysis, including descriptive statistics, visualization of data, null hypothesis significance testing, univariate and multivariate analysis of variance and covariance, correlation, linear and logistic regression and exploratory factor analysis. The course puts an emphasis on the interpretation of results in terms of their practical managerial implications.

*Prerequisite(s):* MGMT\*6100

*Restriction(s):* Students in MA.MGMT

*Department(s):* Department of Management

##### MGMT\*6200 Leadership Assessment and Development U [0.50]

This course provides a conceptual overview of the leadership competencies that lead to leadership performance. Students will explore and learn a method for assessing their own leadership competencies. The will learn a process for developing in themselves those knowledge and skills relevant to effective leadership. Topics include managerial competencies models, assessment models, learning styles, intentional change process, and personal development plan. This course emphasizes those techniques most frequently used in personal development and coaching individuals and teams.

*Restriction(s):* Students in the MA in Management program only.

*Department(s):* Department of Management

##### MGMT\*6500 Major Research Project U [1.00]

This course is available to individuals or groups of graduate students. Students will complete a set of readings and an associated paper as approved by designated faculty. Specific learning objectives consistent with the University's will be developed each time the course is offered.

*Prerequisite(s):* MGMT\*6100 and MGMT\*6200

*Restriction(s):* Students in the MA in Management program.

*Department(s):* Department of Management

### Management Research

##### MGMT\*6130 Creative Process of Innovation U [0.50]

This course is focused on the creative process of innovation required to effectively engage in problem solving and opportunity creation toward organizational and societal flourishing. Students will develop both a theoretical understanding and the practical skills to engage in creative experimentation for novel idea generation.

*Department(s):* Department of Management

##### MGMT\*6300 Business Consulting U [0.50]

This course provides students with an understanding of the concepts, principles, and practices for management consulting. Students will be exposed to the various components of the consulting process, consulting approaches and styles, client- consultant relationships, issue and problem diagnosis, reporting of results, and professional codes of conduct and ethics. The emphasis is on techniques most frequently used in the context of both internal and external organizational roles and as a career choice.

*Restriction(s):* Students in the MA in Management program only.

*Department(s):* Department of Management



**MGMT\*6400 Project Management U [0.50]**

This course provides students with an understanding of the concepts, principles, and practices for project management. It introduces an understanding and appreciation of the importance of managing projects, project teams, the project management systems and tools, the various components of the project management process, and professional codes of conduct and ethics. The emphasis is on the techniques most frequently used in the context of, both internal and external organizational roles of a project manager.

*Restriction(s):* Students in the MA in Management program only.

*Department(s):* Department of Management

**BUS\*6800 Readings in Leadership I U [0.50]**

This course is available to individuals or groups of graduate students. Students will complete a set of readings and an associated paper as approved by designated faculty. Specific learning objectives consistent with the University's will be developed each time the course is offered.

*Department(s):* Executive Programs

**BUS\*6810 Readings in Leadership II U [0.50]**

This course is available to individuals or groups of graduate students. Students will complete a set of readings and an associated paper as approved by designated faculty. Specific learning objectives consistent with the University's will be developed each time the course is offered.

*Prerequisite(s):* BUS\*6800 (or may be taken concurrently)

*Department(s):* Department of Management

**BUS\*6820 Readings in Management U [0.50]**

This course is available to individuals or groups of graduate students. Students will complete a set of readings and an associated paper as approved by designated faculty. Specific learning objectives consistent with the University's will be developed each time the course is offered.

*Department(s):* Department of Management

**BUS\*6840 Foundational Theories of Management W [0.50]**

This doctoral seminar provides a survey of classic and contemporary management thought. The objective of this course is to explore foundational and emerging areas of inquiry that are influential in the realm of management theory and practice.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Management

**Accounting****ACCT\*6100 Integrated Cases I U [0.50]**

"Integrated Cases I" is a required course for students pursuing a Chartered Professional Accountant (CPA) designation and will provide students with an in-depth knowledge of financial reporting and auditing. The course will integrate topics from both the finance and taxation areas of the CPA competency map. The course will also assist students in developing their problem solving and decision making abilities and communication skills, which are part of the enabling competencies of the CPA competency map.

*Restriction(s):* Students in MA.MGMT and GDip.ACCT

*Department(s):* Department of Management

**ACCT\*6200 Integrated Cases II U [0.50]**

"Integrated Cases II" is a required course for students pursuing a Chartered Professional Accountant (CPA) designation and will provide students with an in-depth knowledge of management accounting. The course will integrate topics from both the strategy and governance and the finance areas of the CPA competency map. The course will also assist students in developing their problem solving and decision-making abilities and communication skills, which are part of the enabling competencies of the CPA competency map.

*Restriction(s):* Students in MA.MGMT and GDip.ACCT

*Department(s):* Department of Management

**ACCT\*6300 Taxation F [0.50]**

This course is intended to help students achieve the competencies related to Elective Module 4 (E4) – Taxation in the CPA Competency Map. It covers the competencies necessary to provide taxation services and guidance. Topics include: compliance and tax-planning issues for both individuals and corporate entities, as well as, partnerships and trusts, risk tolerance of all stakeholders involved, tax governance, controls, and risk management, and the importance of taking taxes into account when making business and investment decisions..

*Prerequisite(s):* ACCT\* 6100 and ACCT\*6200

*Restriction(s):* Students in MA.MGMT and GDip.ACCT

*Department(s):* Department of Management

**ACCT\*6400 Performance Management U [0.50]**

Performance Management is an elective course for students pursuing a Chartered Professional Accountant (CPA) designation and will build on student's management accounting knowledge from both their undergraduate courses as well as "Integrated Cases II". The course will also assist students in further developing their problem solving and decision-making abilities and communication skills, which are part of the enabling competencies of the CPA competency map.

*Prerequisite(s):* ACCT\*6200

*Restriction(s):* Students in MA.MGMT and GDip.ACCT

*Department(s):* Department of Management

**ACCT\*6500 Assurance U [0.50]**

This course develops the competencies necessary to assess an entity's assurance needs and perform both internal audit projects and external assurance engagements. The CPA Competency Map describes in detail the two types of competencies - technical and enabling - that employers in public practice, industry, and government require of accounting professionals. As such, the CPA Competency Map will be utilized in this course to help ensure that students meet the course learning objectives.

*Restriction(s):* Students in MA.MGMT and GDip.ACCT

*Department(s):* Department of Management

**ACCT\*6600 Financial Management U [0.50]**

The course will build upon the conceptual foundation developed in undergraduate introductory finance courses. The focus of the course is on the development of competencies in identifying, analyzing, evaluating and making appropriate recommendations for investing and financing decisions in a variety of professional contexts, particularly in the areas of treasury management, valuation, and risk management. There will be a strong emphasis on applying the body of knowledge in integrated case problems.

*Restriction(s):* Students in MA.MGMT and GDip.ACCT

*Department(s):* Department of Management

**PhD Core Courses****Required Courses****MGMT\*6800 Philosophy of Social Science Research S [0.50]**

This course introduces students to the underlying philosophical assumptions that support empirical research methods within social science disciplines. The aim of this course is to examine the philosophy of knowledge generation and claims, particularly in the context of management phenomena.

*Department(s):* Department of Marketing and Consumer Studies

**MGMT\*6820 Theory of Management F [0.50]**

This course examines the evolution of management thought and the overarching theories that have been successfully applied to multiple functional areas of the organization. Examples of theories that apply to such disparate areas as operations, marketing, and organizational behaviour include agency theory, transaction cost analysis, and contingency theory.

*Department(s):* Department of Management

**MGMT\*6830 Applied Univariate Statistical Analysis for Management F [0.50]**

This course focuses on the use of univariate statistics as applied to social and behavioural research within the fields of organizational, management, and consumer studies. Emphasis will be place on providing a solid understanding of descriptive statistics, mean difference testing, analysis of variance and covariance, linear and logistic regression, and power and effect size. Laboratory sessions will focus on analysis application using statistical packages such as SPSS, R, SAS, Stata, and Mplus.

*Department(s):* Department of Management

**MGMT\*6840 Quantitative Research Methods: Multivariate Techniques W [0.50]**

This course provides a review of selected multivariate analysis techniques with applications to management. Students will learn to determine which multivariate technique is appropriate for a specific research problem and how to apply multivariate quantitative techniques to research questions. Topics include regression analysis, anova, principal components, factor and discriminant analysis, nonmetric scaling and trade-off analysis. The course uses a hands-on approach and requires computer-program analysis.

*Department(s):* Department of Management

**MGMT\*6850 Qualitative Research Methods W [0.50]**

This doctoral seminar provides students with the historical roots, underlying theoretical frameworks, and methods of qualitative research for consumer and management studies. Students will develop their capacity to conduct qualitative research through the development of an original qualitative research project.

*Department(s):* Department of Management

**MGMT\*6900 PhD Research Seminar Project S [0.00]**

The summer project seminar has the objective to start familiarizing students with the research process. Students will prepare and submit a research piece drawing on techniques acquired in the research methods courses.

*Department(s):* Department of Management

**MGMT\*6950 Doctoral Research Seminar F,W [0.00]**

This is a seminar course attended by graduate students and faculty. Academic guest speakers present their work in weekly meetings. Students are encouraged to be engaged and participate actively during the presentations.

*Restriction(s):* Must be registered in the PhD Management program

*Department(s):* Department of Management

**Field Courses**

BUS*6830	[0.50]	Foundational Theories of Leadership
BUS*6840	[0.50]	Foundational Theories of Management
HTM*6710	[0.50]	Services Management Theory I
HTM*6720	[0.50]	Services Management Theory II
HTM*6730	[0.50]	Cases in Management
MCS*6800	[0.50]	Best Worst Scaling and Discrete Choice Analysis
MCS*6810	[0.50]	Experimental Design and Analysis for Behavioural Research in Management Studies

**Graduate Diploma Courses****ACCT\*6100 Integrated Cases I U [0.50]**

“Integrated Cases I” is a required course for students pursuing a Chartered Professional Accountant (CPA) designation and will provide students with an in-depth knowledge of financial reporting and auditing. The course will integrate topics from both the finance and taxation areas of the CPA competency map. The course will also assist students in developing their problem solving and decision making abilities and communication skills, which are part of the enabling competencies of the CPA competency map.

*Restriction(s):* Students in MA.MGMT and GDip.ACCT

*Department(s):* Department of Management

**ACCT\*6200 Integrated Cases II U [0.50]**

“Integrated Cases II” is a required course for students pursuing a Chartered Professional Accountant (CPA) designation and will provide students with an in-depth knowledge of management accounting. The course will integrate topics from both the strategy and governance and the finance areas of the CPA competency map. The course will also assist students in developing their problem solving and decision-making abilities and communication skills, which are part of the enabling competencies of the CPA competency map.

*Restriction(s):* Students in MA.MGMT and GDip.ACCT

*Department(s):* Department of Management

**ACCT\*6300 Taxation F [0.50]**

This course is intended to help students achieve the competencies related to Elective Module 4 (E4) – Taxation in the CPA Competency Map. It covers the competencies necessary to provide taxation services and guidance. Topics include: compliance and tax-planning issues for both individuals and corporate entities, as well as, partnerships and trusts, risk tolerance of all stakeholders involved, tax governance, controls, and risk management, and the importance of taking taxes into account when making business and investment decisions..

*Prerequisite(s):* ACCT\* 6100 and ACCT\*6200

*Restriction(s):* Students in MA.MGMT and GDip.ACCT

*Department(s):* Department of Management

**ACCT\*6400 Performance Management U [0.50]**

Performance Management is an elective course for students pursuing a Chartered Professional Accountant (CPA) designation and will build on student’s management accounting knowledge from both their undergraduate courses as well as “Integrated Cases II”. The course will also assist students in further developing their problem solving and decision-making abilities and communication skills, which are part of the enabling competencies of the CPA competency map.

*Prerequisite(s):* ACCT\*6200

*Restriction(s):* Students in MA.MGMT and GDip.ACCT

*Department(s):* Department of Management

**ACCT\*6500 Assurance U [0.50]**

This course develops the competencies necessary to assess an entity's assurance needs and perform both internal audit projects and external assurance engagements. The CPA Competency Map describes in detail the two types of competencies - technical and enabling - that employers in public practice, industry, and government require of accounting professionals. As such, the CPA Competency Map will be utilized in this course to help ensure that students meet the course learning objectives.

*Restriction(s):* Students in MA.MGMT and GDip.ACCT

*Department(s):* Department of Management

**ACCT\*6600 Financial Management U [0.50]**

The course will build upon the conceptual foundation developed in undergraduate introductory finance courses. The focus of the course is on the development of competencies in identifying, analyzing, evaluating and making appropriate recommendations for investing and financing decisions in a variety of professional contexts, particularly in the areas of treasury management, valuation, and risk management. There will be a strong emphasis on applying the body of knowledge in integrated case problems.

*Restriction(s):* Students in MA.MGMT and GDip.ACCT

*Department(s):* Department of Management

## Marketing and Consumer Studies

Faculty and graduate students in the Department of Marketing and Consumer Studies share a focus on the multi-disciplinary examination of consumer behaviour and marketplace phenomena. The fields of emphasis are:

- Consumer Behaviour
- Marketing

Central to the department's research and graduate teaching program is to help key stakeholders (businesses and policy makers) make informed decisions, formulate effective strategies and policies, improve economic welfare, and facilitate sustainable development by advancing their understanding of consumer decision making and consumer well-being. The department's graduate program leads to the master of science degree in marketing and consumer studies with a strong focus on theory and advanced methodologies.

### Administrative Staff

#### Chair

Tirtha Dhar (203 Macdonald Institute, Ext. 52023)  
tdhar@uoguelph.ca

#### Graduate Program Coordinator

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### Graduate Faculty

#### Paul M. Anglin

BSc Toronto, MA, PhD Western Ontario - Associate Professor

#### May H. Aung

BComm, MComm Burma, PhD York - Associate Professor

#### Scott R. Colwell

AGD, MBA Athabasca, PhD Bradford (United Kingdom) - Associate Professor

#### Tim Dewhirst

BPHE Toronto, MA Queen's, PhD British Columbia - Associate Professor

#### Tirtha Dhar

MA Delhi, MSc, PhD Connecticut - Associate Professor and Chair

#### Towhidul Islam

MSc Inst. of Mech. Tech. (Bulgaria), MBA Dhaka (Bangladesh), DIC Imperial College (United Kingdom), PhD London (United Kingdom) - Professor

#### Vinay Kanetkar

BArch Indian Inst. of Tech, MArch, MSc, PhD British Columbia - Associate Professor

#### Tanya Mark

BA, PhD Western Ontario - Associate Professor

#### Brent McKenzie

BA, McMaster, MBA Dalhousie, PhD Griffith - Associate Professor

#### Lefa Teng

BEng Jiangsu, MSc Beijing, PhD Concordia - Associate Professor

#### Juan Wang

BBA Nanjing, MSc Guelph, PhD Western - Assistant Professor

#### Sunghwan Yi

BBA, MBA Seoul National, PhD Pennsylvania State - Associate Professor

#### Jian Zhou

BA, MA Renmin, PhD Illinois (Chicago) - Associate Professor

### MSc Program

The MSc program is offered in two fields: 1) consumer behaviour; and 2) marketing and draws on a variety of disciplines for theory, concepts, and research methods. Students are required to successfully complete five departmental core courses; consumption behaviour theory, marketing theory, and three graduate courses in measurement and analysis. One elective course is selected by the student in conjunction with the Graduate Program Coordinator and/or his/her advisory committee and is normally chosen to provide theoretical, conceptual, and/or methodological background for the thesis. Each student is also required to attend the department's graduate seminar for the duration of his or her program.

A significant number of graduate students in marketing and consumer studies direct their course work and thesis research toward applications related to marketing within private, public, and non-profit sector organizations. This particular focus is especially appropriate for students with undergraduate preparation in business administration, commerce, economics, or marketing who have career interests in research and analysis in marketing management. The program also provides excellent training toward the pursuit of a PhD in marketing or consumer behaviour or a related business discipline.

### Admission Requirements

Admission information should be requested directly from the graduate program assistant in the Department of Marketing and Consumer Studies. Offers of admission are granted on a competitive basis and, in part, on the ability of graduate faculty to supervise the student's intended research. Potential applicants are urged to visit the department to discuss their research objectives with graduate faculty prior to applying. Visits should be arranged directly with members of graduate faculty. Please visit our departmental website <http://www.uoguelph.ca/mcs> for graduate faculty phone numbers and e-mail addresses.

All applicants should have completed a minimum of one course in statistics as part of their undergraduate program. Applicants are also encouraged to have completed courses in areas such as marketing, consumer behaviour, marketing research, and related subjects. Students may be admitted to the graduate program despite deficiencies in certain academic areas. Students admitted with deficiencies will likely be required to address academic weaknesses by enrolling in one or more undergraduate courses at the University of Guelph. Undergraduate courses do not count toward fulfillment of master of science graduation requirements.

All applicants are required to submit GRE or GMAT scores. The Department of Marketing and Consumer Studies admits students to the graduate program only in September. Program offices should be consulted for admission deadlines.

### Degree Requirements

The program normally consists of at least 6 half credit (3.0 full credits) graduate courses, enrolment in the marketing and consumer studies seminar (MCS\*6950) for each semester of full-time graduate study, and a successfully defended thesis. Additional course credits may be required by the student's advisory committee depending upon the student's background preparation for his/her intended area of study and thesis research.

### Departmental Core Courses

The departmental core is required of all graduate students in the Department of Marketing and Consumer Studies. It contains a minimum of 6 half credits (3.0 full credits) in total, and enrolment in the marketing and consumer studies department seminar (MCS\*6950) for each semester of full-time graduate study. The program consists of:

#### Fall Semester:

MCS*6000	[0.50]	Consumption Behaviour Theory I
MCS*6050	[0.50]	Research Methods in Marketing and Consumer Studies
MCS*6100	[0.50]	Marketing Theory
MCS*6950	[0.00]	Marketing & Consumer Studies Seminar

#### Winter Semester:

MCS*6060	[0.50]	Multivariate Research Methods
MCS*6080	[0.50]	Qualitative Research Methods
MCS*6950	[0.00]	Marketing & Consumer Studies Seminar

\* 1 of the following restricted electives

#### Electives

MCS*6010	[0.50]	Consumption Behaviour Theory II
MCS*6120	[0.50]	Marketing Management

#### Note

\*Chosen by the graduate student with the approval of the Graduate Program Coordinator and his/her advisory committee. Any Social Science Graduate level course may be substituted for the Elective.

#### Note

MCS\*6950 is taken during each semester of full-time graduate study until graduation

### Graduate Diploma in Market Research

The Graduate Diploma in Market Research serves the needs of students who want to extend their knowledge of market research beyond the level they obtained while taking their undergraduate degree, but do not want to undertake a thesis-based degree.

### Admission Requirements

Students who wish to enter the Graduate Diploma in Market Research program will apply to the Department's Graduate Admissions Committee through the normal University application process.

Candidates will be graduates of a four-year honours degree program (or equivalent) who maintained at least a B average in the final two years of their undergraduate program. They will have an academic background in consumer studies, the social sciences or humanities, or professional or business programs such as marketing, finance, or real estate, and they will submit a discussion paper indicating why they are interested in the Market Research field.

The Graduate Program Coordinator will also act as the primary advisor for Diploma students.

## Degree Requirements

Students are required to take courses in the Fall and Winter semesters. Students will complete a minimum of 6 half credits (3.0 full credits) in total, and enrolment in the marketing and consumer studies department seminar (MCS\*6950) each semester. The program consists of:

### Fall Semester:

MCS*6000	[0.50]	Consumption Behaviour Theory I
MCS*6050	[0.50]	Research Methods in Marketing and Consumer Studies
MCS*6100	[0.50]	Marketing Theory
MCS*6950	[0.00]	Marketing & Consumer Studies Seminar

### Winter Semester:

MCS*6060	[0.50]	Multivariate Research Methods
MCS*6080	[0.50]	Qualitative Research Methods
MCS*6950	[0.00]	Marketing & Consumer Studies Seminar

\* one of the following restricted electives

MCS*6010	[0.50]	Consumption Behaviour Theory II
MCS*6120	[0.50]	Marketing Management
MCS*6200	[0.50]	Marketing Analytics

## Courses

For courses without a semester designation the student should consult the Graduate Program Coordinator.

### MCS\*6000 Consumption Behaviour Theory I F [0.50]

A review of the nature and scope of consumption behaviour and the approaches to studying the role of human consumption using the major theoretical perspectives.

*Department(s):* Department of Marketing and Consumer Studies

### MCS\*6010 Consumption Behaviour Theory II W [0.50]

Consumption behaviour is an interdisciplinary field of study which applies theories from multiple disciplines to the activities and processes people engage in when choosing, using and disposing of goods and services. The purpose of this course is to provide a basic review of the theoretical foundations of aspects of consumption and consumer behaviour and to demonstrate their applicability to marketing management. The course is designed to allow participants to bring their own background and interests to bear on the review and application of the theories underlying consumer behaviour.

*Prerequisite(s):* MCS\*6000 or consent of instructor

*Department(s):* Department of Marketing and Consumer Studies

### MCS\*6050 Research Methods in Marketing and Consumer Studies F [0.50]

A comprehensive review of measurement theory, including issues such as construct definition, scale development, validity and reliability. Applicants of measurement principles will be demonstrated, particularly as they relate to experimental and survey research design.

*Department(s):* Department of Marketing and Consumer Studies

### MCS\*6060 Multivariate Research Methods W [0.50]

A review of selected multivariate analysis techniques as applied to marketing and consumer research. Topics include regression, anova, principal components, factor and discriminant analysis, nonmetric scaling and trade-off analysis. The course uses a hands-on approach with small sample databases available for required computer-program analysis.

*Prerequisite(s):* MCS\*6050 or consent of instructor

*Department(s):* Department of Marketing and Consumer Studies

### MCS\*6070 Introduction to Structural Equation Modeling W [0.50]

This course introduces students to the theory, concepts and application of structural equation modeling. Topics covered include path analysis, confirmatory factor analysis and measurement models, latent variable modeling, multi-group modeling, and measurement invariance testing. Emphasis is placed on applying the principles of SEM to the creation and testing of theoretically driven models using both categorical and continuous data.

*Department(s):* Department of Marketing and Consumer Studies

### MCS\*6080 Qualitative Research Methods W [0.50]

A review of the nature, importance and validity issues associated with qualitative research. Topics include theory and tactics in design, interpersonal dynamics, analysis of interaction and transcripts.

*Prerequisite(s):* MCS\*6050 or consent of instructor

*Department(s):* Department of Marketing and Consumer Studies

### MCS\*6090 Special Topics in Consumer Research and Analysis U [0.50]

*Department(s):* Department of Marketing and Consumer Studies

### MCS\*6100 Marketing Theory F [0.50]

A theoretical understanding of marketing, including philosophy of science and marketing, a history of marketing thought, market orientation, marketing strategy theory, modeling, social marketing, and ethical issues in marketing.

*Restriction(s):* Signature required for non-MCS students.

*Department(s):* Department of Marketing and Consumer Studies

### MCS\*6120 Marketing Management U [0.50]

This course is designed to increase depth of knowledge of marketing by helping the student understand how marketing theory can directly affect marketing practice and firm performance. As this is an MSc course and NOT an MBA course, there is an expectation that the level of critical thinking and knowledge growth falls within the realm of the science of marketing and/or the empirical nature of marketing research and is not simply about marketing practice.

*Prerequisite(s):* MCS\*6100

*Department(s):* Department of Marketing and Consumer Studies

### MCS\*6200 Marketing Analytics F [0.50]

Course will cover major marketing decisions and the analytical tools to make decisions for business solutions. Topics and tools include market segmentation, targeting and positioning, new product design and forecasting, marketing mix and resource allocation and customer life time value.

*Restriction(s):* Restricted to MSc.MCS, MSc.TRMH, MA.MGMT, PhD.MGMT students

*Department(s):* Department of Marketing and Consumer Studies

### MCS\*6260 Special Topics in Food Marketing U [0.50]

*Department(s):* Department of Marketing and Consumer Studies

### MCS\*6710 Special Topics in Marketing U [0.50]

*Department(s):* Department of Marketing and Consumer Studies

### MCS\*6720 Special Topics in Housing and Real Estate U [0.50]

*Department(s):* Department of Marketing and Consumer Studies

### MCS\*6950 Marketing & Consumer Studies Seminar F,W [0.00]

*Department(s):* Department of Marketing and Consumer Studies

## Mathematics and Statistics

The objective of the graduate program is to offer opportunities for advanced studies and research in the fields of:

- Applied Mathematics
- Applied Statistics

Although the two fields within the program have different requirements in terms of specific courses and qualifying examination areas, there is a considerable degree of interaction and commonality between them, from both philosophical and practical viewpoints. Philosophically, this commonality relates to the methodology of constructing and validating models of specific real-world situations. The major areas of specialization in applied mathematics are dynamical systems, mathematical biology, numerical analysis and operations research. Applied statistics encompasses the study and application of statistical procedures to data arising from real-world problems. Much of the emphasis in this field concerns problems originally arising in a biological setting. The major areas of specialization include linear and nonlinear models; bioassay; and survival analysis, life testing and reliability.

### Administrative Staff

#### Chair

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### Graduate Faculty

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#### Marcus R. Garvie

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#### William Smith

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#### Edward Thommes

BSc Alberta, PhD Queens - Adjunct Professor, Mathematics and Statistics, University of Guelph/Health Outcome Manager, GlaxoSmithKline Canada

### MSc Program

The department offers an MSc degree in the fields of : 1) mathematics; or 2) statistics.

### Admission Requirements

For the MSc Degree Program, applicants will normally have either

- an honours degree with an equivalent to a major in the intended area of emphasis. or
- an honours degree with the equivalent of a minor in the intended area of emphasis, as defined in the University of Guelph Undergraduate Calendar.

Strong applicants with more diverse backgrounds will also be considered but are encouraged to contact the Graduate Program Coordinator or a potential advisor before applying.

Note that the department's undergraduate diploma in applied statistics fulfils the requirement of a minor equivalent in statistics.

### Degree Requirements

Students enrol in one of two study options: 1) thesis, or 2) course work and major research project.

All programs of study must include the appropriate core courses (see below). Students who have obtained prior credit for a core course or its equivalent will normally substitute a departmental graduate course at the same or higher level, with the approval of the Graduate Program Coordinator. The remaining prescribed courses are to be selected from either graduate courses or 400-level undergraduate courses. Courses taken outside of this department must have the prior approval of the Graduate Program Committee.

#### Thesis

Students must complete at least 2.0 credits (four courses) plus a thesis.

#### Course Work and Major Research Project (MRP)

Students must complete at least 3.0 credits (six courses), 2.0 of which must be for graduate-level courses plus successful completion, within two semesters either MATH\*6998 MSc Project in Mathematics or STAT\*6998 MSc Project in Statistics.

### Mathematical Area of Emphasis

All candidates for the MSc with a mathematical area of emphasis are required to include in their program of study at least two of the core courses. The core courses are:

MATH*6010	[0.50]	Analysis
MATH*6020	[0.50]	Scientific Computing
MATH*6051	[0.50]	Mathematical Modelling

For an MSc by thesis at least three MATH courses must be taken, for an MSc by course work and major research project at least four MATH courses must be taken.

### Statistical Area of Emphasis

All candidates for the MSc with a statistical area of emphasis are required to include in their program of study at least two of the core courses.

The core courses are:

STAT*6801	[0.50]	Statistical Learning
STAT*6802	[0.50]	Generalized Linear Models and Extensions
STAT*6841	[0.50]	Computational Statistical Inference

It is required that students take the undergraduate course Statistical Inference, STAT\*4340, if this course or its equivalent has not previously been taken. For an MSc by thesis at least three STAT courses must be taken, for an MSc by course work and major research project at least four STAT courses must be taken.

## PhD Program

### Admission Requirements

Normally a candidate for the PhD degree program must possess a recognized master's degree obtained with high academic standing. The Departmental Graduate Program Committee will consider applications for direct entry to PhD and for transfer from MSc to PhD. In any event, a member of the department's graduate faculty must agree to act as an advisor to the student.

### Degree Requirements

The PhD degree is primarily a research degree. For that reason, course work commonly comprises a smaller proportion of the student's effort than in the master's program. Course requirements are as follows:

#### Applied Mathematics

Students must successfully complete 2.0 graduate course credits; i.e. four graduate courses. At least three of these courses must be graduate level MATH courses. Depending upon the student's academic background, further courses may be prescribed. All courses are chosen in consultation with the advisory committee. Additional courses may be required at the discretion of the advisory committee and/or the departmental Graduate Program Committee. With departmental approval, some courses given by other universities may be taken for credit. Courses taken outside of this department must have the prior approval of the Graduate Program Committee.

#### Applied Statistics

Students must successfully complete 2.0 graduate-course credits. At least three of these courses must be graduate level STAT courses. Depending upon the student's academic background, further courses may be prescribed. Students must take the following courses as part of the four required courses (providing that these courses were not taken as part of the student's master's-degree program):

STAT\*6801 [0.50] Statistical Learning  
STAT\*6841 [0.50] Computational Statistical Inference

All courses are chosen in consultation with the student's advisory committee. Additional courses may be required at the discretion of the advisory committee and/or the departmental Graduate Program Committee. With departmental approval, some courses given by other universities may be taken for credit. Courses taken outside of this department must have the prior approval of the Graduate Program Committee.

### Interdepartmental Programs

#### Biophysics MSc/PhD Program

The Department of Mathematics and Statistics participates in the MSc/PhD programs in biophysics. Please consult the Biophysics listing for a detailed description of the graduate programs offered by the Biophysics Interdepartmental Group.

#### Bioinformatics MBNF/MSc/PhD Programs

The Department of Mathematics and Statistics participates in the MBNF/MSc/PhD programs in Bioinformatics. Please consult the Bioinformatics listing for a detailed description of these graduate programs and a list of the graduate faculty involved.

### Collaborative Specializations

#### Artificial Intelligence

The Department of Mathematics and Statistics participates in the collaborative specialization in Artificial Intelligence. MSc students wishing to undertake thesis research with an emphasis on artificial intelligence are eligible to apply to register concurrently in Mathematics and Statistics and the collaborative specialization. Students should consult the Artificial Intelligence listing for more information.

### Courses

#### Mathematics

<b>MATH*6010 Analysis U [0.50]</b>
Half the course covers metric spaces, normed linear spaces, and inner product spaces, including Banach's and Schauder's fixed point theorems, $L_p$ spaces, Hilbert spaces and the projection theorem. The remaining content may include topics like operator theory, inverse problems, measure theory and spectral analysis. <i>Department(s):</i> Department of Mathematics and Statistics
<b>MATH*6011 Dynamical Systems I U [0.50]</b>
Basic theorems on existence, uniqueness and differentiability; phase space, flows, dynamical systems; review of linear systems, Floquet theory; Hopf bifurcation; perturbation theory and structural stability; differential equations on manifolds. Applications drawn from the biological, physical, and social sciences. <i>Department(s):</i> Department of Mathematics and Statistics

<b>MATH*6012 Dynamical Systems II U [0.50]</b>
The quantitative theory of dynamical systems defined by differential equations and discrete maps, including: generic properties; bifurcation theory; the center manifold theorem; nonlinear oscillations, phase locking and period doubling; the Birkhoff-Smale homoclinic theorem; strange attractors and deterministic chaos. <i>Department(s):</i> Department of Mathematics and Statistics
<b>MATH*6020 Scientific Computing U [0.50]</b>
This course covers the fundamentals of algorithms and computer programming. This may include computer arithmetic, complexity, error analysis, linear and nonlinear equations, least squares, interpolation, numerical differentiation and integration, optimization, random number generators, Monte Carlo simulation; case studies will be undertaken using modern software. <i>Department(s):</i> Department of Mathematics and Statistics
<b>MATH*6021 Optimization I U [0.50]</b>
A study of the basic concepts in: linear programming, convex programming, non-convex programming, geometric programming and related numerical methods. <i>Department(s):</i> Department of Mathematics and Statistics
<b>MATH*6022 Optimization II U [0.50]</b>
A study of the basic concepts in: calculus of variations, optimal control theory, dynamic programming and related numerical methods. <i>Department(s):</i> Department of Mathematics and Statistics
<b>MATH*6031 Functional Analysis U [0.50]</b>
Hilbert, Banach and metric spaces are covered including applications. The Baire Category theorem is covered along with its consequences such as the open mapping theorem, the principle of uniform boundedness and the closed graph theorem. The theory of linear functionals is discussed including the Hahn-Banach theorem, dual spaces, and if time permits, weak topologies or generalized functions. Basic operator theory is covered including topics such as adjoints, compact operators, the Frechet derivative and spectral theory. A brief introduction to the concepts of measure and integration required for some of the aforementioned topics is also included. Offered in conjunction with MATH*4220. Extra work is required of graduate students. <i>Restriction(s):</i> Credit may be obtained for only one of MATH*4220 or MATH*6031 <i>Department(s):</i> Department of Mathematics and Statistics
<b>MATH*6041 Partial Differential Equations I U [0.50]</b>
Classification of partial differential equations. The Hyperbolic type, the Cauchy problem, range of influence, well- and ill-posed problems, successive approximation, the Riemann function. The elliptic type: fundamental solutions, Dirichlet and Neumann problems. The parabolic type: boundary conditions, Green's functions and separation of variables. Introduction to certain non-linear equations and transformations methods. Offered in conjunction with MATH*4270. Extra work is required for graduate students. <i>Restriction(s):</i> Credit may be obtained for only one of MATH*4270 or MATH*6041 <i>Department(s):</i> Department of Mathematics and Statistics
<b>MATH*6042 Partial Differential Equations II U [0.50]</b>
A continuation of some of the topics of Partial Differential Equations I. Also, systems of partial differential equations, equations of mixed type and non-linear equations. <i>Department(s):</i> Department of Mathematics and Statistics
<b>MATH*6051 Mathematical Modelling U [0.50]</b>
The process of phenomena and systems model development, techniques of model analysis, model verification, and interpretation of results are presented. The examples of continuous or discrete, deterministic or probabilistic models may include differential equations, difference equations, cellular automata, agent based models, network models, stochastic processes. <i>Department(s):</i> Department of Mathematics and Statistics
<b>MATH*6071 Biomathematics U [0.50]</b>
The application of mathematics to model and analyze biological systems. Specific models to illustrate the different mathematical approaches employed when considering different levels of biological function. <i>Department(s):</i> Department of Mathematics and Statistics
<b>MATH*6091 Topics in Analysis U [0.50]</b>
Selected topics from topology, real analysis, complex analysis, and functional analysis. <i>Department(s):</i> Department of Mathematics and Statistics
<b>MATH*6181 Topics in Applied Mathematics I U [0.50]</b>
This course provides graduate students, either individually or in groups, with the opportunity to pursue topics in applied mathematics under the guidance of graduate faculty. Course topics will normally be advertised by faculty in the semester prior to their offering. Courses may be offered in any of lecture, reading/seminar, or individual project formats. <i>Department(s):</i> Department of Mathematics and Statistics

**MATH\*6182 Topics in Applied Mathematics II U [0.50]**

This course provides graduate students, either individually or in groups, with the opportunity to pursue topics in applied mathematics under the guidance of graduate faculty. Course topics will normally be advertised by faculty in the semester prior to their offering. Courses may be offered in any of lecture, reading/seminar, or individual project formats.

*Department(s):* Department of Mathematics and Statistics

**MATH\*6400 Numerical Analysis I U [0.50]**

Topics selected from numerical problems in: matrix operations, interpolation, approximation theory, quadrature, ordinary differential equations, partial differential equations, integral equations, nonlinear algebraic and transcendental equations.

*Department(s):* Department of Mathematics and Statistics

**MATH\*6410 Numerical Analysis II U [0.50]**

One or more topics selected from those discussed in Numerical Analysis I, but in greater depth.

*Department(s):* Department of Mathematics and Statistics

**MATH\*6998 MSc Project in Mathematics U [1.00]**

This course is intended for students in the course-based MSc program in Mathematics. The MSc project will be written under the supervision of a faculty member and will normally be completed within one or two semesters. Once completed, students will submit a final copy of their project to the Department and give an oral presentation of their work.

*Restriction(s):* Restricted to MSC.MAST:L-MATH students in Mathematics

*Department(s):* Department of Mathematics and Statistics

**Statistics****STAT\*6550 Computational Statistics U [0.50]**

This course covers the implementation of a variety of computational statistics techniques. These include random number generation, Monte Carlo methods, non-parametric techniques, Markov chain Monte Carlo methods, and the EM algorithm. A significant component of this course is the implementation of techniques.

*Department(s):* Department of Mathematics and Statistics

**STAT\*6700 Stochastic Processes U [0.50]**

The content of this course is to introduce Brownian motion leading to the development of stochastic integrals thus providing a stochastic calculus. The content of this course will be delivered using concepts from measure theory and so familiarity with measures, measurable spaces, etc., will be assumed.

*Department(s):* Department of Mathematics and Statistics

**STAT\*6721 Stochastic Modelling U [0.50]**

Topics include the Poisson process, renewal theory, Markov chains, Martingales, random walks, Brownian motion and other Markov processes. Methods will be applied to a variety of subject matter areas. Offered in conjunction with STAT\*4360. Extra work is required for graduate students.

*Restriction(s):* Credit may be obtained for only one of STAT\*4360 or STAT\*6721

*Department(s):* Department of Mathematics and Statistics

**STAT\*6761 Survival Analysis U [0.50]**

Kaplan-Meier estimation, life-table methods, the analysis of censored data, survival and hazard functions, a comparison of parametric and semi-parametric methods, longitudinal data analysis.

*Department(s):* Department of Mathematics and Statistics

**STAT\*6801 Statistical Learning U [0.50]**

Topics include: nonparametric and semiparametric regression; kernel methods; regression splines; local polynomial models; generalized additive models; classification and regression trees; neural networks. This course deals with both the methodology and its application with appropriate software. Areas of application include biology, economics, engineering and medicine.

*Department(s):* Department of Mathematics and Statistics

**STAT\*6802 Generalized Linear Models and Extensions U [0.50]**

Topics include: generalized linear models; generalized linear mixed models; joint modelling of mean and dispersion; generalized estimating equations; modelling longitudinal categorical data; modelling clustered data. This course will focus both on theory and implementation using relevant statistical software. Offered in conjunction with STAT\*4050/4060. Extra work is required for graduate students.

*Restriction(s):* Credit may be obtained for only one of STAT\*4050 or STAT\*4060 or STAT\*6802

*Department(s):* Department of Mathematics and Statistics

**STAT\*6821 Multivariate Analysis U [0.50]**

This is an advanced course in multivariate analysis and one of the primary emphases will be on the derivation of some of the fundamental classical results of multivariate analysis. In addition, topics that are more current to the field will also be discussed such as: multivariate adaptive regression splines; projection pursuit regression; and wavelets. Offered in conjunction with STAT\*4350. Extra work is required for graduate students.

*Restriction(s):* Credit may be obtained for only one of STAT\*4350 or STAT\*6821

*Department(s):* Department of Mathematics and Statistics

**STAT\*6841 Computational Statistical Inference U [0.50]**

This course covers Bayesian and likelihood methods, large sample theory, nuisance parameters, profile, conditional and marginal likelihoods, EM algorithms and other optimization methods, estimating functions, Monte Carlo methods for exploring posterior distributions and likelihoods, data augmentation, importance sampling and MCMC methods.

*Department(s):* Department of Mathematics and Statistics

**STAT\*6860 Linear Statistical Models U [0.50]**

Generalized inverses of matrices; distribution of quadratic and linear forms; regression or full rank model; models not of full rank; hypothesis testing and estimation for full and non-full rank cases; estimability and testability; reduction sums of squares; balanced and unbalanced data; mixed models; components of variance.

*Department(s):* Department of Mathematics and Statistics

**STAT\*6920 Topics in Statistics U [0.50]**

*Department(s):* Department of Mathematics and Statistics

**STAT\*6950 Statistical Methods for the Life Sciences F [0.50]**

Analysis of variance, completely randomized, randomized complete block and latin square designs; planned and unplanned treatment comparisons; random and fixed effects; factorial treatment arrangements; simple and multiple linear regression; analysis of covariance with emphasis on the life sciences. STAT\*6950 and STAT\*6960 are intended for graduate students of other departments and may not normally be taken for credit by mathematics and statistics graduate students.

*Department(s):* Department of Mathematics and Statistics

**STAT\*6998 MSc Project in Statistics U [1.00]**

This course is intended for students in the course-based MSc program in Statistics. The MSc project will be written under the supervision of a faculty member and will normally be completed within one or two semesters. Once completed, students will submit a final copy of their project to the Department and give an oral presentation of their work

*Restriction(s):* Restricted to MSC.MAST:L-STAT students in Statistics

*Department(s):* Department of Mathematics and Statistics

## Molecular and Cellular Biology

The MCB graduate program offers opportunities for interdisciplinary studies in molecular and cellular biology leading to the MSc and PhD degrees in the following five fields:

- **Biochemistry**
- **Cell Biology**
- **Microbiology**
- **Molecular Biology and Genetics**
- **Plant Biology**

The research groups directed by the faculty pursue fundamental and applied research questions involving diverse biological systems (plants, humans and other animals, prokaryotic and eukaryotic microbes). In general, they follow lines of scientific enquiry at the level of molecules to cells. See the [department website](#) for additional information.

### Administrative Staff

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#### Andrew J. Bendall

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#### Joseph L. Colasanti

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BA Swarthmore College, PhD Wisconsin - Professor

#### Scott Ryan

BSc Memorial, PhD Ottawa - Assistant Professor

#### Stephen Y.K. Seah

BSc, MSc National University of Singapore, PhD Sheffield - Associate Professor

#### Rebecca Shapiro

BSc McGill, PhD Toronto - Assistant Professor

#### Ian Tetlow

BSc Newcastle (UK), PhD North Wales - Associate Professor

#### James Uniacke

BSc, PhD Concordia University - Associate Professor

#### George van der Merwe

BSc, MSc, PhD Stellenbosch (South Africa) - Associate Professor

#### Terry Van Raay

BSc Windsor, MSc Guelph, PhD Utah - Associate Professor

#### John Vessey

BSc, MSc Dalhousie, PhD Eberhard Karls University of Tübingen - Assistant Professor

#### Christopher Whitfield

BSc Newcastle, PhD Edinburgh - Professor

#### Krassimir (Joseph) Yankulov

BSc Sophia, PhD ICRF London - Professor

#### Wei Zhang

BSc Beijing, MA York, PhD Toronto - Assistant Professor

### Associated Graduate Faculty

#### Marc Aucoin

BASc, MSc Waterloo, PhD Montreal - Associate Professor, Chemistry, University of Waterloo

#### Peter J. Krell

BSc, MSc Carleton, PhD Dalhousie - Professor Emeritus, Molecular and Cellular Biology, University of Guelph

#### Joseph S.L. Lam

BSc, PhD Calgary - Professor Emeritus, Molecular and Cellular Biology, University of Guelph

#### Reggie Y.C. Lo

BSc, PhD Alberta - Professor Emeritus, Molecular and Cellular Biology, University of Guelph

#### Roselynn M.W. Stevenson

BSc, PhD Manitoba - Professor Emeritus, Molecular and Cellular Biology, University of Guelph

#### Janet M. Wood

BSc Victoria, PhD Edinburgh - Professor Emeritus, Molecular and Cellular Biology, University of Guelph



## MSc Program

The MCB MSc program is offered in five fields: 1) biochemistry; 2) cell biology; 3) microbiology; 4) molecular biology and genetics; and 5) plant biology. The objective of the program is to provide graduate students with a high level of relevant knowledge and expertise in contemporary molecular and cellular biology, including experimental techniques, library research, writing and communication skills. Graduates will have the knowledge and skills needed to carry out high quality scientific research and will be prepared for employment in positions with some responsibility in the research and teaching enterprises of academic institutions (as instructors and technical staff), in science-related positions in the broad biotechnology sector (e.g. food and beverage industries, pharmaceuticals, biomedical, and agriculture-related industries), or in government sector institutes and laboratories. They will be well prepared to continue their graduate education at the PhD level. Alternatively they may opt to complete a professional degree (such as law, medicine, or business) or a teaching certificate.

### Admission Requirements

To be considered, applicants must have completed a four-year honours undergraduate science degree (or its equivalent) in a relevant discipline. Normally, the applicant must have achieved a “B” (75%) average or higher during the last two years of full-time study. In exceptional circumstances, students with a “B-minus” average (70%) will be considered provided there is strong supporting evidence of research aptitude and potential.

Each applicant must obtain the support of a faculty member willing to serve as his/her thesis advisor.

Admission may be granted for entry in September, January or May. Completed applications should be uploaded at least one full semester (four months) before the expected date of admission (at least eight months for international students).

All components of the application, including transcript(s), graduate certificate(s), grading scale(s), language test results, assessment forms, a statement of interest, and the name of the faculty advisor must be uploaded no later than two months after an application is submitted through the OUAC portal. Applications that are incomplete after this time period will be closed.

### Admission Process

Graduate student applications to programs in the College of Biological Science are handled by the Office of the Associate Dean, Research (ADR). Before submitting an application, applicants are strongly encouraged to view the "[Before you Apply](#)" and "[Admission Process](#)" webpages on the ADR Future Student's site.

Complete application instructions may also be found on the [Office of Graduate Studies](#) webpage or in the Graduate Calendar

### Degree Requirements

Students in the MSc program must complete a minimum of 2 courses (1.5 credits) at the graduate level. The course MCB\*6500 MSc Research Topics in Molecular & Cellular Biology (1.0) is mandatory. This two-semester should be completed in the first year of study and normally in the first two semesters. Senior undergraduate courses may be taken on the recommendation of the Advisory Committee but these will not count towards the 1.5 credit requirement. An average of “B-minus” (70%) must be achieved in the prescribed courses.

The MSc thesis research must involve original enquiry into a well-defined question in the molecular biosciences. It is expected that the research will not have been previously reported in the literature and, wherever possible, the research should yield publishable data.

All students beyond year 1 in the program are required to participate annually in the CBS Graduate Student Symposium by presenting a poster or giving a short talk describing their research progress.

## PhD Program

The MCB PhD program is offered in five fields: 1) biochemistry; 2) cell biology; 3) microbiology; 4) molecular biology and genetics; and 5) plant biology. The objective of the program is to develop independent and creative scientists specializing in molecular and cellular biology. Graduates will be prepared for positions as scholars in academic institutions, as leaders in the research and development sector of the biomedical and other industries or government agencies, and in social institutions.

### Admission Requirements

There are three pathways for admission to the PhD program:

1. Students who have achieved an “A-minus” (80%) average or higher during the last two years of full-time study while completing a four-year honours BSc program (or its equivalent) and who provide evidence of research aptitude and potential based on laboratory research experience may apply to enter the PhD program directly, or

2. An MSc student may apply to transfer to the PhD program before completing the MSc degree. To be eligible for transfer, the student must have completed a high quality undergraduate degree with a grade average of B+ or higher. Before applying for transfer to the PhD program students must complete MCB\*6500 (MSc Research Topics in Molecular and Cellular Biology) plus an additional course with at least 0.5 graduate course credit, attaining an overall A minus average (at least 80%). Applications for transfer must be approved by the end of the fourth semester in the MSc program.
3. Applicants may have completed a recognized Masters degree in a relevant discipline with a minimum academic standing of “A-minus” (80%).

Each applicant must obtain the support of a faculty member willing to serve as his/her thesis advisor.

All components of the application, including transcript(s), graduate certificate(s), grading scale(s), language test results, assessment forms, a statement of interest, and the name of the faculty advisor must be uploaded no later than two months after an application is submitted through the OUAC portal. Applications that are incomplete after this time period will be closed.

Admission may be granted for entry in September, January or May. Completed applications should be uploaded at least one full semester (four months) before the expected date of admission (at least eight months for international students).

### Admission Process

Graduate student applications to programs in the College of Biological Science are handled by the Office of the Associate Dean, Research (ADR). Before submitting an application, applicants are strongly encouraged to view the "[Before you Apply](#)" and "[Admission Process](#)" webpages on the ADR Future Student's site.

Completed application instructions may also be found on the [Office of Graduate Studies](#) webpage or in the Graduate Calendar.

### Degree Requirements

Students in the PhD program must complete MCB\*7500 PhD Research Topics in Molecular & Cellular Biology. This two-semester course should be completed in the first year of study and normally within the first two semesters. Students without an MSc degree in Molecular and Cellular Biology or the equivalent are required to take one additional graduate course. Other courses may be taken on the recommendation of the Advisory Committee. An average of “B-minus” (70%) must be achieved in the prescribed courses. To be a candidate for the PhD degree, each student must pass a PhD Qualifying Exam. The Qualifying Examination is completed before the end of the fifth semester (for students with an MSc) or the end of the seventh semester (for students without an MSc).

The PhD thesis research must involve original enquiry into a well-defined question in the molecular biosciences. It is expected to result in the publication of one or more papers in high-quality peer-reviewed journals. The research must represent a significant contribution to the relevant research field.

All students beyond year 1 in the program are required to participate annually in the CBS Graduate Student Symposium by presenting a poster or giving a short talk describing their research progress.

### Interdepartmental Programs

Faculty in Molecular and Cellular Biology also participate in the interdepartmental programs in Bioinformatics, Biophysics and Biotechnology

### Collaborative Specializations

Faculty in Molecular and Cellular Biology also participate in the collaborative specializations in Neuroscience or Toxicology

### Courses

#### MCB\*6310 Advanced Topics in Molecular and Cellular Biology F [0.50]

This course will consider fundamental cellular processes from multiple perspectives: biochemistry, cell biology, microbiology, molecular biology and genetics, and plant biology. Topics will vary from semester to semester but a multi-disciplinary approach to advanced concepts and experimental strategies will be a common theme.

*Department(s):* Department of Molecular and Cellular Biology

#### MCB\*6370 Protein Structural Biology and Bioinformatics U [0.50]

This course explores structural biology from three perspectives: 1) the fundamental concepts in structural biology; 2) the methods used to determine structures (including x-ray crystallography, NMR, electron microscopy, and computational modeling); 3) the bioinformatic concepts and tools used to compare, contrast and assign biochemical function to protein structures and sequences. The course emphasizes building a conceptual and practical skill set that will be applicable to any structure related problem.

*Department(s):* Department of Molecular and Cellular Biology

**MCB\*6500 MSc Research Topics in Molecular and Cellular Biology U [1.00]**

This mandatory two semester course emphasizes the development and refinement of the skills of scientific communication. Students submit a written thesis proposal and present a public seminar on a contemporary subject in the molecular biosciences. MCB MSc students normally complete this course within the first two semesters of their program. Students will register in each semester and receive a grade of INP (in progress) at the end of the first semester and a grade at the end of the second semester.

*Department(s):* Department of Molecular and Cellular Biology

**MCB\*7500 PhD Research Topics in Molecular and Cellular Biology U [1.00]**

This mandatory two semester course emphasizes the development and refinement of the skills of scientific communication. Students submit a written thesis proposal and present a public seminar on a contemporary subject in the molecular biosciences. MCB PhD students normally complete this course within the first two semesters of their program. Students will register in each semester and receive a grade of INP (in progress) at the end of the first semester and a grade at the end of the second semester.

*Department(s):* Department of Molecular and Cellular Biology

BINF\*6110 [0.50] Genomic Methods for Bioinformatics

BIOT\*6500 [0.50] Molecular Biotechnology

## Pathobiology

The department offers programs of study leading to MSc and PhD degrees and a Graduate Diploma in the following four fields:

- **Comparative Pathology**
  - Avian pathology
  - Fish pathology
  - Wildlife and zoo animal medicine and pathology
  - Laboratory animal science
- **Immunology**
- **Veterinary Infectious Diseases**
  - Veterinary bacteriology
  - Veterinary parasitology
  - Veterinary virology
- **Veterinary Pathology**
  - Anatomic pathology
  - Clinical pathology

The department also participates in the Doctor of Veterinary Science (DVSc) program.

### Administrative Staff

#### Chair

Shayan Sharif (3839 Pathobiology, Ext. 54641)  
shayan@uoguelph.ca

#### Graduate Program Coordinator

Jeff Caswell (3828 Pathobiology, Ext. 54555)  
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#### Graduate Program Assistant

Donna Kangas (Stewart Building, Room 2509, Ext. 54725)  
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#### Administrative Assistant to the Chair and Faculty

Marni Struyk (3840 Pathobiology, Ext. 54755)  
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### Graduate Faculty

#### John R. Barta

BSc, PhD Toronto - Professor

#### Janet Beeler-Marfisi

DVM, BSc, DVSc Guelph - Assistant Professor

#### Dorothee Bienze

DVM, MSc Guelph, PhD McMaster, Diplomate ACVP - Professor

#### Patrick Boerlin

DVM, PhD Bern - Associate Professor and Graduate Program Coordinator

#### Byram Bridle

BSc, MSc, PhD Guelph - Assistant Professor

#### Jeff Caswell

DVM, DVSc Guelph, PhD Saskatchewan, Diplomate ACVP - Professor

#### Robert A. Foster

BVSc (Hons) Queensland, PhD James Cook Univ. of North Queensland, MANZCVS, Diplomate ACVP - Professor

#### Claire Jardine

BSc Guelph, MSc British Columbia, DVM, PhD Saskatchewan - Associate Professor

#### Stefan M. Keller

DVM Berlin, Vet. M. B. Zurich, PhD UC Davis, Diplomate ECVP - Assistant Professor

#### Brandon N. Lillie

DVM, PhD Guelph, Diplomate ACVP - Associate Professor

#### John S. Lumsden

BSc, DVM, MSc, PhD Guelph, MANZCVS, Diplomate ACVP - Professor

#### Janet I. MacInnes

BSc Victoria, PhD Western Ontario - Professor

#### Bonnie A. Mallard

BSc, MSc, PhD Guelph - Professor

#### Éva Nagy

DVM, PhD, DSc Budapest - Professor

#### Andrew S. Peregrine

BVMS, PhD, DVM (Hons.) Glasgow, Diplomate EVPC, Diplomate ACVM - Associate Professor

#### Brandon L. Plattner

BSc, DVM Kansas State, PhD Iowa State, Diplomate ACVP - Associate Professor

#### Shayan Sharif

DVM Tehran, PhD Guelph - Professor and Department Chair

#### Leonardo Susta

DVM Perugia, PhD Georgia, Diplomate ACVP - Assistant Professor

#### J. Scott Weese

DVM, DVSc Guelph, Diplomate ACVIM - Professor

#### R. Darren Wood

DVM Prince Edward Island, DVSc Guelph, Diplomate ACVP - Associate Professor

#### Geoffrey A. Wood

DVM Guelph, PhD Toronto, DVSc Guelph - Associate Professor

#### K. Sarah Wootton

BSc, PhD Guelph - Associate Professor

### Associated Faculty

#### Hugues Beaufre

DVM Lyon, PhD Louisiana - Service Chief, Avian and Exotic Service, Health Sciences Centre, Ontario Veterinary College

#### Moussa Sory Diarra

PhD Laval - Research Scientist, Agriculture and Agri-Food Canada, Guelph

#### Christopher Dutton

BSc Bristol, MSc London - Head of Veterinary Services, Toronto Zoo

#### Vahab Farzan

DVM Tehran, MSc PhD Guelph - Research Associate, Population Medicine, University of Guelph

#### Khalil Karimi

DVM Shiraz, PhD Utrecht - Research Associate, Department of Pathobiology, Guelph

#### Ravi Kulkarni

MSc Izatnagar, PhD Guelph - Research Coordinator, Pathobiology, University of Guelph

#### Craig Mosley

BSc, DVM, MSc Guelph - Clinical Veterinarian Anesthesiologist, VCA Canada, Newmarket

#### Nicole Nemeth

DVM, PhD Colorado State University - Assistant Professor, Pathology, University of Georgia

#### Nicholas Ogden

BVSc Liverpool, DPhil Oxford - Senior Research Scientist, Public Health Agency of Canada

#### Jane Parmley

DVM Saskatchewan, PhD Guelph - Veterinary Epidemiologist, Public Health Agency, Guelph

#### John Prescott

BA, MA, VETMB, PhD Cambridge - University Professor Emeritus, Pathobiology, University of Guelph

#### Dale A. Smith

DVM, DVSc Guelph - Professor

#### Craig Stephen

DVM, PhD Saskatchewan - Professor, Centre for Coastal Health, Nanaimo

#### Durda Slavic

DVM Zagreb, MSc, PhD Guelph - Veterinary Bacteriologist, Animal Health Laboratory, University of Guelph

#### Pat Turner

BSc McMaster, MSc Dalhousie, DVM, DVSc Guelph, Diplomate ACLAM, Diplomate ABT - Retired Faculty, Pathobiology, University of Guelph

#### Csaba Varga

DVM Cluj Napoca, MSc Cluj Napoca and Guelph, PhD Guelph - Lead Veterinarian Poultry Diseases, OMAFRA, Guelph

### MSc Program

The MSc program is offered in four fields: 1) comparative pathology; 2) immunology; 3) veterinary infectious diseases; and 4) veterinary pathology. The primary objective is to provide students with training in conceptual and laboratory aspects of research, combined with advanced training in a field of knowledge relating to manifestations, basic mechanisms and host resistance for diseases of vertebrates.

### Admission Requirements

Applicants should have either a an honours degree in biological sciences with at least a 'B' average during the final 2 years of the program, or a DVM (or equivalent) degree with at least a 'B' average over the four years of the program. In either case, performance in relevant biomedical science courses, (e.g. microbiology, immunology, biochemistry, molecular biology, etc.) at a level above the minimum 'B' average is normally expected. Admission requires a statement of the applicant's interests and objectives and supportive letters of reference. An appropriate faculty advisor must be identified, as well as potential sources of funds for research and for provision of a stipend for the student. Applications may be submitted at any time. Initial enrolment can be in the Fall, Winter or Summer semesters, with a preference for the Fall.

## Degree Requirements

Students must complete at least 1.5 credits of prescribed courses with at least a 'B' average, and must satisfactorily write and defend a research thesis. Prescribed courses and additional courses are selected by the student in consultation with the advisor and advisory committee based on the student's background and their research and career objectives. The Academic and Professional Skills in Pathobiology course PABI\*6430 and the MSc Seminar in Pathobiology course PABI\*6440 are prescribed for all MSc students. The thesis research is planned by the student in consultation with the advisor. Research plans and progress must be approved by the advisory committee. The thesis defence includes a seminar presentation and a final oral examination by a committee of graduate faculty members.

See also the MSc Degree Regulations in the Graduate Calendar.

## PhD Program

The PhD program is offered in four fields: 1) comparative pathology; 2) immunology; 3) veterinary infectious diseases; and 4) veterinary pathology. The program is designed primarily for students who aspire to a career involving research on the biology of mechanisms of diseases in vertebrates. The program provides advanced training in conceptual and laboratory aspects of independent research, combined with advanced training in one or more fields of knowledge. The major emphasis is on the generation and critical evaluation of scientific knowledge relating to the causes, mechanisms and/or consequences of diseases affecting a particular species, organ system or biological process or to the understanding of host resistance and basic mechanisms of health or disease in vertebrates. DVM (or equivalent) graduates may obtain some of the practical experience required for specialty certification in veterinary anatomic pathology, clinical pathology, laboratory animal science, microbiology or parasitology.

## Admission Requirements

The usual requirement for admission to the PhD program is the completion of an approved MSc degree with a minimum 'B+' average and strongly supportive letters from referees familiar with the background of the applicant. Performance in relevant biomedical science courses, (e.g. microbiology, immunology, biochemistry, molecular biology, etc) at a level above the 'B+' average is normally expected. Students may apply for admission into the PhD program before completing the MSc program, providing that they have a minimum 'A' average and a demonstrated capacity for independent research. Some students with demonstrated potential for independent research and a superior academic record during their baccalaureate or DVM programs may be admitted directly into the PhD program.

Admission requires a statement of the applicant's interests and objectives and supportive letters of reference. An appropriate faculty advisor must be identified, as well as potential sources of funds for research and provision of a stipend for the student. Applications may be submitted at any time. Initial enrolment can be in the Fall, Winter or Summer semesters, with a preference for the Fall.

## Degree Requirements

Students must have successfully completed the Academic and Professional Skills in Pathobiology course PABI\*6430 and the Doctoral Seminar in Pathobiology course PABI\*6450, and have obtained at least a 'B' average in all courses prescribed by the advisory committee. There are no other specific course requirements. Prescribed courses and additional courses are selected by the student in consultation with the advisor and advisory committee based on the student's background, their research and career objectives. Students are required to satisfactorily complete a qualifying examination before the end of the fifth semester if they possess an MSc degree, or before the end of the seventh semester if they possess an honours baccalaureate or DVM degree. The qualifying examination is conducted by a committee of graduate faculty members with expertise in the areas of study, and includes written and oral components. The qualifying examination covers a breadth of knowledge of topics related to the student's research area, and depth of knowledge within this research area. To successfully complete the examination, students must have a broad general understanding of one of the departmental fields of study, and a current and detailed understanding of one or two additional areas in their field of study. The advisory committee identifies selected areas of study by the end of the second semester. In addition, the advisory committee is required to confirm that the student has demonstrated both ability and promise in research. This is based on performance in the research project and in courses and other academic activities.

The thesis research is planned by the student in consultation with the advisor. The proposed thesis research is developed and defended as part of the course PABI\*6450, Graduate Seminar in Pathobiology. Research plans and progress must be approved by the advisory committee. The program is completed with the satisfactory presentation and defence of a thesis, which includes a seminar presentation and a final oral examination by a committee that includes an external examiner and members of the graduate faculty.

See also the Degree Regulations in the Graduate Calendar.

## DVSc Program

The Department of Pathobiology participates in the DVSc program which provides advanced training in a specialty discipline of veterinary medicine, combined with course work and a thesis-based research project. Specialty training is offered in the areas of veterinary anatomic pathology, veterinary clinical pathology, veterinary clinical microbiology, laboratory animal science, wildlife and zoo animal medicine and pathology, avian and exotic medicine and pathology, and fish pathology. The research project addresses an applied aspect of an important disease problem in vertebrates. The program provides practical training for candidates preparing for specialty board certification in veterinary anatomic pathology, veterinary clinical pathology, laboratory animal science or veterinary clinical microbiology. Refer to the Degree Regulations in the Graduate calendar for more information.

## Admission Requirements

Applicants require a DVM (or equivalent) degree with high academic standing from a program that provides eligibility for the practice of veterinary medicine in Ontario. Alternatively, applicants with a DVM (or equivalent) degree can be admitted after completion of an acceptable graduate diploma, MSc, or PhD degree with an upper 'B' average. Admission requires the identification of a faculty advisor and a source of personal support for the student. If these have not been arranged by the applicant, a statement of the applicant's interests and objectives and supportive letters of reference are required to assist with the identification of an appropriate faculty advisor and potential sources of funds for research and student stipend. Several stipends for DVSc candidates are available intermittently for training in some disciplines. As these funds become available, stipends are awarded to the most qualified applicant(s) based on completed applications for admission to the DVSc program. Applications may be submitted at any time. Initial enrolment can be in the Fall, Winter or Summer semesters.

## Degree Requirements

The degree requires a minimum of nine semesters of full-time study; the completion of at least 2.5 credits in courses prescribed by the student's advisory committee including completion of the department's graduate seminar course, with an overall average of at least 'B-', and satisfactory completion of a qualifying examination, thesis and final oral examination.

See also the Degree Regulations in the Graduate Calendar.

## Collaborative Specializations

### Toxicology

The Department of Pathobiology participates in the MSc collaborative specialization in toxicology. The faculty members' research and teaching expertise includes aspects of toxicology; they may serve as advisors for MSc students.

Please consult the Toxicology listing for a detailed description of the MSc collaborative specialization.

## Graduate Diploma Program

The diploma program is offered in four fields: 1) comparative pathology; 2) immunology; 3) veterinary infectious diseases; and 4) veterinary pathology. The objective is to provide advanced practical training in a field of veterinary pathology to veterinarians working in industry, government or in private practice. The program emphasizes practical and course-based applied training in anatomic pathology, clinical pathology, avian medicine and pathology, laboratory animal science, or wildlife and zoo animal pathology. The Diploma program does not normally result in eligibility for specialty certification.

## Admission Requirements

Applicants require a DVM (or equivalent) degree with acceptable academic standing. Admission requires the prior identification of a faculty advisor and a source of personal support for the student.

## Diploma Requirements

The Graduate Diploma requires three semesters of full time study and completion of 1.5 credits of prescribed courses, including 0.5 credits in an applied course and no more than 0.5 credits in a Special Topics course. The remaining credits may be in the defined area of study, as prescribed by the faculty advisor. Diploma students must satisfactorily pass a final oral comprehensive examination on knowledge in their field of study. It will be conducted by faculty members in the Department of Pathobiology. There is no thesis, but students are required to write a paper that the advisor considers ready for submission to a peer reviewed scientific journal.

See also the Graduate Diploma Regulations of the Faculty of Graduate Studies.

## Courses

### General

#### PABI\*6430 Academic and Professional Skills in Pathobiology S,F [0.00]

Students will be introduced to fundamental elements of scientific research and communication and to various academic skills through lectures, seminars, and completion of in class activities. Throughout the course, relevant ethical, and regulatory issues will be discussed.

*Department(s):* Department of Pathobiology

**PABI\*6440 MSc Seminar in Pathobiology S,F,W [0.50]**

Students registered in the MSc program will develop a written critical review of the literature and plan for their thesis research. This material will also be presented in the form of a public seminar. Students are also required to provide oral and written critical reviews of thesis plan presentations.

*Prerequisite(s):* PABI\*6430

*Department(s):* Department of Pathobiology

**PABI\*6450 Doctoral Seminar in Pathobiology S,F,W [0.50]**

Students registered in the PhD or DVSc programs will develop a written critical review of the literature and plan for their thesis research. This material will also be presented in the form of a public seminar. Students are also required to provide oral and written critical reviews of the thesis plan presentations of other students.

*Prerequisite(s):* PABI\*6430

*Department(s):* Department of Pathobiology

**PABI\*6960 Special Topics in Pathobiology F,W,S [0.50]**

In-depth independent study of subjects related to student's principal area of interest. Major paper(s), laboratory studies, and/or written and oral examination, with or without seminar preparation.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Pathobiology

**Comparative Pathology****PABI\*6050 Applied Avian Pathology I F [0.50]**

Examination and interpretation of gross and microscopic lesions of domestic poultry.

*Restriction(s):* Instructor consent required. Veterinarians licensed by CVO. Students who are not DVM students and/or do not have a protective rabies titre need instructors permission.

*Department(s):* Department of Pathobiology

**PABI\*6060 Applied Avian Pathology II W [0.50]**

A continuation of PABI\*6050, emphasizing seasonal differences in diseases as well as diseases more commonly associated with winter conditions.

*Prerequisite(s):* PABI\*6050

*Restriction(s):* Instructor consent required. Veterinarians licensed by CVO. Students who are not DVM students and/or do not have a protective rabies titre need instructors permission.

*Department(s):* Department of Pathobiology

**PABI\*6070 Applied Avian Pathology III S [0.50]**

A continuation of PABI\*6060, emphasizing seasonal differences in diseases as well as diseases more commonly associated with summer conditions.

*Prerequisite(s):* PABI\*6050 and PABI\*6060

*Restriction(s):* Instructor consent required. Veterinarians licensed by CVO. Students who are not DVM students and/or do not have a protective rabies titre need instructors permission.

*Department(s):* Department of Pathobiology

**PABI\*6221 Comparative Veterinary Pathology I U [0.50]**

Pathological changes associated with diseases of amphibia, reptiles, wild and captive non-domestic birds, and wild mammals including fur-bearers.

*Offering(s):* Offered in even-numbered years.

*Restriction(s):* Instructor consent required. Students who are not DVM students and/or do not have a protective rabies titre need instructors permission.

*Department(s):* Department of Pathobiology

**PABI\*6222 Comparative Veterinary Pathology II U [0.50]**

Pathological changes associated with diseases of poultry and pet birds, fish and various laboratory animals.

*Offering(s):* Offered in even-numbered years.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Pathobiology

**PABI\*6630 Applied Comparative Pathology I U [0.50]**

Introductory course in the diagnostic pathology of mammals, birds, reptiles, amphibians, and fish. Cases may be restricted by animal taxa or context (e.g., free-ranging Canadian wildlife, zoological collections, aquaculture). The three-semester course in Applied Comparative Pathology builds in expected level of accomplishment.

*Restriction(s):* Veterinarians licensed by CVO. Students who are not DVM students and/or do not have a protective rabies titre need instructors permission.

*Department(s):* Department of Pathobiology

**PABI\*6640 Applied Comparative Pathology II U [0.50]**

Intermediate course in the diagnostic pathology of mammals, birds, reptiles, amphibians, and fish. Cases may be restricted by animal taxa or context (e.g., free-ranging Canadian wildlife, zoological collections, aquaculture). The three-semester course in Applied Comparative Pathology builds in expected level of accomplishment.

*Prerequisite(s):* PABI\*6630

*Restriction(s):* Veterinarians licensed by CVO. Students who are not DVM students and/or do not have a protective rabies titre need instructors permission.

*Department(s):* Department of Pathobiology

**PABI\*6650 Applied Comparative Pathology III U [0.50]**

Advanced course in the diagnostic pathology of mammals, birds, reptiles, amphibians, and fish. Cases may be restricted by animal taxa or context (e.g., free-ranging Canadian wildlife, zoological collections, aquaculture). The three-semester course in Applied Comparative Pathology builds in expected level of accomplishment.

*Prerequisite(s):* PABI\*6630 PABI\*6640

*Restriction(s):* Veterinarians licensed by CVO. Students who are not DVM students and/or do not have a protective rabies titre need instructors permission.

*Department(s):* Department of Pathobiology

**PABI\*6700 Laboratory Animal Science U [0.50]**

Basic information on various aspects of laboratory animal science, including IACUC function, regulatory oversight, ethics, historical review of animal research, animal models and alternatives, experimental design and considerations, biology, management and uses of common species in research.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Pathobiology

**PABI\*6710 Applied Laboratory Animal Science I U [0.50]**

This course will emphasize practical aspects of laboratory animal science including research protocol review, writing and reviewing standard operating procedures, animal monitoring, pathology procedures, and case management.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Pathobiology

**PABI\*6720 Applied Laboratory Animal Science II U [0.50]**

Continuation of I with emphasis on biohazard and personnel safety, monitoring for disease, quality control and diagnostic procedures.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Pathobiology

**PABI\*6730 Applied Laboratory Animal Science III U [0.50]**

Continuation of I and II, with emphasis on a comparison of programs and procedures in other facilities in Canada, nonhuman primate medicine, and surgical, clinical and necropsy procedures.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Pathobiology

**PABI\*6740 Avian Diseases U [0.50]**

Detailed study of recent concepts of preventive medicine, diagnosis and therapeutics as applied to clinical recognition and control of avian diseases.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Pathobiology

**Immunology****PABI\*6100 Immunobiology F [0.50]**

Major areas of immunology, including initiation, regulation, receptors, genetics, immune system development and function.

*Department(s):* Department of Pathobiology

**PABI\*6190 Topics in Immunology W [0.50]**

Aspects of immune and non-specific host resistance, diagnostic immunology and immune-mediated disease.

*Department(s):* Department of Pathobiology

**Veterinary Infectious Diseases****PABI\*6000 Bacterial Pathogenesis F [0.50]**

An overview of key concepts in bacterial pathogenesis with emphasis on veterinary and zoonotic pathogens.

*Department(s):* Department of Pathobiology

**PABI\*6330 Viral Diseases F [0.50]**

A study of important viral diseases of animals, with emphasis on etiology, host responses, diagnosis and control.

*Offering(s):* Offered in odd-numbered years.

*Department(s):* Department of Pathobiology

**PABI\*6350 Molecular Epidemiology of Bacterial Diseases F [0.50]**

This is a basic introduction to molecular epidemiology of bacterial diseases. It provides an understanding of molecular epidemiology methodologies and of their use for improving our understanding of infectious diseases epidemiology and control.

*Prerequisite(s):* STAT\*2040 Statistics I

*Restriction(s):* Lab component: limited number of participants and WHIMIS certificate compulsory.

*Department(s):* Department of Pathobiology

**PABI\*6550 Epidemiology of Zoonoses W [0.50]**

Characterization and distribution of diseases common to people and animals.

*Department(s):* Department of Pathobiology

**Veterinary Pathology****PABI\*6030 Applied Clinical Pathology I F,W,S [0.50]**

Introduction to laboratory procedures and interpretation of data arising from hematology, cytology, clinical chemistry, urinalysis and hemostasis analysis of clinical material (Intended for students training in clinical pathology.)

*Restriction(s):* Veterinarians licensed by CVO.

*Department(s):* Department of Pathobiology

**PABI\*6040 Applied Clinical Pathology II U [0.50]**

A continuation of PABI\*6030 with greater depth in the interpretation of data and increased understanding of ancillary diagnostic methods applied in clinical case material. (Intended for students in training in clinical pathology.)

*Prerequisite(s):* PABI\*6030

*Restriction(s):* Veterinarians licensed by CVO.

*Department(s):* Department of Pathobiology

**PABI\*6041 Applied Clinical Pathology III U [0.50]**

A continuation of PABI\*6040 with independent and comprehensive interpretation of diagnostic test results, and analysis of laboratory quality assurance quality control procedures. (Intended for students training in clinical pathology)

*Prerequisite(s):* PABI\*6030 and PABI\*6040

*Restriction(s):* Veterinarians licensed by CVO.

*Department(s):* Department of Pathobiology

**PABI\*6080 Diagnostic Pathology I S,F,W [0.50]**

An introductory course of diagnostic pathology, including all body systems but emphasizing diseases affecting the whole body and respiratory, urinary and digestive (including liver and pancreas) systems. (Intended for students in training in anatomic pathology.)

*Restriction(s):* Instructor consent required. Veterinarians licensed by CVO, engaged in applied anatomic pathology training

*Department(s):* Department of Pathobiology

**PABI\*6090 Diagnostic Pathology II S,F,W [0.50]**

An intermediate course that builds on the skills acquired in PABI\*6080 and further enhances diagnostic veterinary pathology skills to include diseases of the nervous, endocrine and musculoskeletal systems. (Intended for students training in anatomic pathology.)

*Prerequisite(s):* PABI\*6080

*Restriction(s):* Veterinarians licensed by CVO, engaged in applied anatomic pathology training

*Department(s):* Department of Pathobiology

**PABI\*6091 Diagnostic Pathology III S,F,W [0.50]**

An advanced course that builds on the skills acquired in PABI\*6090 and further enhances diagnostic veterinary pathology skills to include diseases of all organ systems. (Intended for students training in anatomic pathology.)

*Prerequisite(s):* PABI\*6080 and PABI\*6090

*Restriction(s):* Veterinarians licensed by CVO, engaged in applied anatomic pathology training

*Department(s):* Department of Pathobiology

**PABI\*6104 Mechanisms of Disease W [0.50]**

Molecular, cellular and tissue processes involved in the pathogenesis of adaptive, degenerative, inflammatory, infectious, proliferative and neoplastic diseases.

*Department(s):* Department of Pathobiology

**PABI\*6300 Clinical Pathology I U [0.50]**

Principles and applications of veterinary hematology and cytology, with emphasis on the hematopoietic systems.

*Restriction(s):* Veterinarians licensed by CVO.

*Department(s):* Department of Pathobiology

**PABI\*6320 Clinical Pathology II W [0.50]**

In depth study of principles and applications of biochemical tests to evaluate the function of selected organ systems, including the renal, hepatic, pancreatic and endocrine systems.

*Restriction(s):* Veterinarians licensed by CVO.

*Department(s):* Department of Pathobiology

## Philosophy

The Department of Philosophy includes a wide range of expertise which allows students accepted into our graduate programs to both extend their philosophical education at the graduate level and to concentrate their research project in a number of areas. These include the history of philosophy, ethics, social and political philosophy, feminist philosophy, epistemology, philosophy of mind, metaphysics, and philosophy of science. There is also a diversity of approaches within the department, with faculty expertise in analytic, continental and other philosophical traditions and approaches. We offer PhD, MA (thesis) and MA (major research paper) programs.

### Administrative Staff

#### Chair

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#### John Hacker-Wright

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#### Karen L. Houle

BSc, MA, PhD Guelph - Professor

#### Stefan Linquist

BAH Simon Fraser, MSc New York, PhD Duke - Associate Professor

#### Mark McCullagh

BA Toronto, PhD Pittsburgh - Associate Professor and Chair

#### Omid Payrow Shabani

BA, MA Carleton, PhD Ottawa - Professor

#### John Russon

BA Regina, MA, PhD Toronto - Professor

#### Patricia Sheridan

BA McGill, MA Concordia, PhD Western - Associate Professor

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#### Karen Wendling

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### Associated Graduate Faculty

#### Ken Dorter

BA Queen's, MA, PhD Pennsylvania - Professor Emeritus, Philosophy, University of Guelph

#### Jay Lampert

BA, MA, PhD, Toronto - Professor Emeritus, Philosophy, University of Guelph

#### Jeff Mitscherling

BA California (Santa Barbara), MA McMaster, PhD Guelph - Retired Faculty, Philosophy, University of Guelph

### MA Program

The Philosophy Department includes a wide range of expertise which allows students accepted into the MA program to both extend their philosophical background at the graduate level and to concentrate their research project in any of a number of different areas such as the history of philosophy, ethics, social and political philosophy, feminist philosophy, epistemology, philosophy of mind, metaphysics, philosophy of science. It is primarily a research degree and the program will involve either an MA thesis or the smaller Major Research Project.

### Admission Requirements

A four-year bachelor's degree from a recognized university. Normally this will include at least a major in philosophy, although the program is also open to students who may not have had a substantial number of philosophy undergraduate courses but who provide evidence of philosophical ability. In all cases, in order to be considered for admission to the MA program, the department requires that the average grade over the last 10.00 credits of studies (i.e., a normal two years of full-time studies on the University of Guelph system) be at least 75%. All applicants are required to submit a sample of writing. Further details can be found on the [Philosophy Department website](#).

### Degree Requirements

Students enrol in one of two study options: 1) course work and major research project (1 year), or 2) thesis (2 years).

Regardless of the stream chosen, the MA in Philosophy at Guelph is a research degree, in which the responsibility for study rests primarily with the student. Students in both streams are expected to develop their own topic for research.

#### Thesis

- Total of 2 credits in graduate course work required
- At least 3 graduate courses (0.5 credits each) plus the mandatory MA Seminar (0.5 credits)
- Completion and defence of a thesis

### Course Work and Major Research Project (MRP)

- Total of 4 credits in graduate course work required.
- 5 graduate courses (0.5 credits each) plus the mandatory MA Seminar (0.5 credits)
- Major Research Project (1.0 credit)

### PhD Program

The Department of Philosophy includes a wide range of expertise which allows students accepted into our graduate programs to both extend their philosophical education at the graduate level and to concentrate their research project in a number of areas. These include the history of philosophy, ethics, social and political philosophy, feminist philosophy, epistemology, philosophy of mind, metaphysics, and philosophy of science. There is also a diversity of approaches within the department, with faculty expertise in analytic, continental and other philosophical traditions and approaches. The aim of the program is to develop philosophers who are well rounded in the traditional areas of study and who have achieved a high level of expertise in their special areas of research.

### Admission Requirements

Admission to the program is restricted to those who have an MA in philosophy, or an outstanding record in undergraduate studies in philosophy.

### Degree Requirements

Students are normally required to take between six and ten courses plus the PhD Research Seminar (PHIL\*6960). Students must also demonstrate knowledge in at least five designated fields of study. This may be done by course work, by examination, by thesis or by a suitable combination of these. Students must pass an Oral Qualifying Examination by the end of their fifth semester in the program. Students in the program may be required to demonstrate competence in one or more skills which their advisory committee decides, in consultation with the program officer, is needed for their dissertation (e.g. a language other than English). PhD candidates must submit a thesis of not more than 75,000 words (250 pages). More details are available at <http://www.uoguelph.ca/philosophy>.

### Collaborative Specializations

#### International Development Studies

The Department of Philosophy participates in the MA/PhD collaborative specialization in International Development Studies (IDS). Students in this option register in an MA/PhD program in the department and IDS. Those faculty members whose research and teaching expertise includes aspects of international development studies may serve as advisors for MA/PhD students. Please consult the International Development Studies listing for a detailed description of the MA/PhD collaborative specialization and the special additional requirements for each of the participating departments.

#### Courses

Except where specified, the courses listed below may be offered in any semester, subject to student demand and the availability of an instructor.

<b>PHIL*6000 Value Theory U [0.50]</b>
A critical examination of some selected contemporary works in value theory or aesthetics. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6060 Logic U [0.50]</b>
A course designed to bring the individual student to the level of competence in logical techniques and theory required for graduate studies. <i>Department(s):</i> Department of Philosophy

<b>PHIL*6110 Philosophy of Religion U [0.50]</b>
A critical examination of some selected major works or central problems in the philosophy of religion. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6120 Philosophy of Mind U [0.50]</b>
A study of contemporary theories of mind and philosophies of psychology. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6140 Contemporary European Philosophy I U [0.50]</b>
A study of the historical and contemporary origins of existentialism, phenomenology and post-modernism, concentrating on one or several of the classic texts. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6150 Contemporary European Philosophy II U [0.50]</b>
A study of the historical and contemporary origins of existentialism, phenomenology and post-modernism, concentrating on texts not covered in PHIL*6140 in the same year. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6200 Problems of Contemporary Philosophy U [0.50]</b>
A study of a particular set of problems in contemporary philosophy. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6210 Metaphysics U [0.50]</b>
A critical examination of some selected major works or central problems in metaphysics. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6220 Epistemology U [0.50]</b>
A critical examination of some selected major works or central problems in epistemology. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6230 Ethics U [0.50]</b>
A critical examination of some selected contemporary works or problems in ethical theory. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6240 Biomedical Ethics U [0.50]</b>
A critical examination of some selected contemporary works or of problems in biomedical ethics. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6310 Plato U [0.50]</b>
A study of some of the major works of Plato. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6311 Aristotle U [0.50]</b>
A study of some of the major works of Aristotle. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6320 Medieval Philosophy U [0.50]</b>
A close examination of particular problems and texts of the medieval period <i>Department(s):</i> Department of Philosophy
<b>PHIL*6340 Modern Philosophy U [0.50]</b>
An examination of major texts, from Descartes to Mill. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6500 John Locke U [0.50]</b>
A critical examination of the works of John Locke. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6530 Kant U [0.50]</b>
A critical examination of the works of Immanuel Kant. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6600 Social and Political Philosophy U [0.50]</b>
A critical examination of some selected contemporary works or central problems in the field of social philosophy. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6700 Survey of Ancient Philosophy U [0.50]</b>
A survey of ancient philosophy. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6710 Survey of Early Modern Philosophy U [0.50]</b>
A survey of modern philosophy from Hobbes to Hume. <i>Department(s):</i> Department of Philosophy

<b>PHIL*6720 History of the Philosophy of Science U [0.50]</b>
A survey of the history of the philosophy of science from the Presocratics to the Positivists. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6730 Contemporary Philosophy of Science U [0.50]</b>
An examination of the contemporary discipline of the philosophy of science. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6740 Philosophy of Biology U [0.50]</b>
A general introduction to the history and philosophy of biology. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6760 Science and Ethics U [0.50]</b>
A consideration of the problems which arise in the conjunction of science and ethics. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6810 Survey of Late Modern Philosophy U [0.50]</b>
A survey of modern philosophy from Kant to the late 19th century. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6900 Reading Course U [0.50]</b>
<i>Department(s):</i> Department of Philosophy
<b>PHIL*6930 Selected Topics I U [0.50]</b>
Topics in this course will vary from offering to offering. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6940 Selected Topics II U [0.50]</b>
Topics in this course will vary from offering to offering. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6950 MA Seminar U [0.50]</b>
A seminar course in which students work on developing a range of academic skills for doing professional philosophy. This course is pass/fail and is mandatory for all incoming MA students. Please refer to the Philosophy Department website for a comprehensive description of this course. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6960 PhD Graduate Seminar F,W [0.50]</b>
A seminar course in which students work on developing a range of academic skills for doing professional philosophy. This course is pass/fail and is mandatory for all first year PhD students. Please refer to the Philosophy Department website for a comprehensive description of this course. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6990 Major Research Project U [1.00]</b>
A major research project undertaken by students doing an MA by course work, under the supervision of a faculty member. <i>Department(s):</i> Department of Philosophy



## Physics

The Departments of Physics at the Universities of Guelph and Waterloo offer a joint program leading to MSc and PhD degrees in the following fields:

- Astrophysics and Gravitation
- Atomic, Molecular and Optical Physics
- Biophysics
- Chemical Physics
- Condensed Matter and Material Physics
- Industrial and Applied Physics
- Subatomic Physics
- Quantum Computing

The Guelph-Waterloo Physics Institute consists of members from both university departments and is administered by a joint co-ordinating committee. Students interested in graduate work in physics at either university should consult the application requirements and the on-line application procedures available from the web-site <http://gwp.on.ca>. Students are ultimately registered at the university at which their advisor is located. A student comes under the general regulations of the university at which he or she is registered, and the degree is granted by that university.

### Administrative Staff

Graduate teaching and research in physics at the University of Guelph are operated through Graduate Studies in Physics, University of Guelph, University of Waterloo.

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#### Alexandros Gezerlis

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#### Xiao-Rong Qin

March 1, 2019

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#### Carl E. Svensson

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#### Robert Wickham

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#### Martin Williams

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#### Huan Yang

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### Associated Graduate Faculty

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### Graduate Faculty from the University of Waterloo

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#### Niayesh Afshordi

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**Zoran Miskovic**

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**Ruxandra Moraru**

- Associate Professor

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**Russell Thompson**

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**Adam Wei Tsen**

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**Zbigniew Wasilewski**

MSc University of Warsaw, PhD Institute of Physics, Polish Academy of Sciences - Professor

**Christopher Wilson**

BS MIT, PhD Yale University - Associate Professor

**David Yevick**

AB Harvard, MA, PhD Princeton, Docuent Lund - Professor

**MSc Program**

The MSc programs is offered in the following fields: 1) astrophysics and gravitation; 2) atomic, molecular and optical physics; 3) biophysics; 4) chemical physics; 5) condensed matter and material physics; 6) industrial and applied physics; 7) subatomic physics; and 8) quantum computing.

**Admission Requirements**

Application for admission should be made as early as possible using on-line application methods described on the web-site <https://uwaterloo.ca/waterloo-guelph-physics-graduate-studies/student-resources/how-apply>. Successful applicants are encouraged to start their graduate studies in May or September, but a January starting date is possible. Program offices should be consulted for admission deadlines.

The admission requirements are as follows:

- An honours BSc degree in physics (or equivalent) with at least a B standing (75%) from a recognized university.
- Three letters of reference, two of which normally are from academic sources.
- Proof of competency in English (for applicants whose prior education was in a language other than English). See the University regulations on English Language Proficiency Certification.
- GRE Physics Subject Test score for all applicants who have completed their post-secondary education outside of Canada.

Successful applicants are encouraged to start their graduate studies in May or September, but a January starting date is possible. Academic transcripts and other supporting documents should be forwarded as soon as they become available. Admission to the program cannot be granted until all requirements have been met and all documents submitted.

Applications are considered by the Admissions Committee. It should be noted that students will normally be admitted only if an advisor can be found to oversee their research. Since there are a limited number of openings each year, applicants are advised to state alternative areas of research on the preference form supplied (see web-site <http://gwp.on.ca/>).

**Degree Requirements**

Students enrol in one of two study options: 1) thesis, or 2) course work and major research project.

**Thesis**

Four one-term courses (at least 2.0 course credits) acceptable for graduate credit and a thesis based on original research are required. The subject of research must be approved by the candidate's advisory committee and the thesis must be read and approved by the advisory committee. One of the four courses may be an undergraduate course approved by the student's advisory committee and the Graduate Program Coordinator. If it is a physics course, it must be at the fourth-year level.

For all students one of the courses must include at least one of Quantum Mechanics 1 (PHYS\*7010), Introduction to Quantum Field Theory (PHYS\*7030), Statistical Physics 1 (PHYS\*7040), Electromagnetic Theory (PHYS\*7060), and Fundamentals of Astrophysics (PHYS\*7810). An MSc student in this program who shows a particular aptitude for research and has a superior record in fourth-year undergraduate and three one-term graduate courses may be permitted, upon recommendation of the advisor and with the approval of the co-ordinating committee, to transfer into the PhD program without completing an MSc thesis.

An average of at least 70% must be obtained in the required courses. A minimum grade of 65% is required for a pass in each course. No more than two courses, of the first four taken, can have a grade of less than 70%. If a student does not meet these minimum grade requirements, or receives a failing grade in any course, he/she may be required to withdraw from the program.

**Course Work and Major Research Project (MRP)**

Eight one-term courses (0.50 unit weight) acceptable for graduate credit, including a project course summarized in a report, are required. The project must be approved by the candidate's advisor and the report read and approved by the advisor and one other faculty member. [Exception: biophysics students taking the course-based MSc option are required to take only one of the core courses PHYS\*7010, PHYS\*7030, PHYS\*7040, PHYS\*7060, PHYS\*7670, and PHYS\*7810]. Two of the courses may be undergraduate courses approved by the advisor and the Graduate Advisory Committee. If they are Physics courses, they must be at the fourth year level. This program is recommended for those planning careers requiring a broad non-specialized knowledge of physics (for example, high school teaching).

## PhD Program

The PhD program is research-based and offered in the fields of: 1) astrophysics and gravitation; 2) atomic, molecular and optical physics; 3) biophysics; 4) chemical physics; 5) condensed matter and material physics; 6) industrial and applied physics; 7) subatomic physics; and 8) quantum computing.

### Admission Requirements

There are three pathways for admission to the PhD program:

1. An MSc degree in physics from an approved university or college with at least a B standing (75%) is normally required for entrance into the PhD program. Other requirements are the same as those described above for the MSc program (see web-site <http://gwp.on.ca/>).
2. Students with an undergraduate degree in Physics may apply for admission directly to the PhD program. Successful applicants will have an outstanding academic record, breadth of knowledge in physics, previous research experience, and strong letters of recommendation.
3. Students wishing to be considered for transfer to a PhD program prior to completion of the MSc program must request the transfer up to 3 full-time terms after initial registration and have an excellent academic record as well as a strong aptitude for research.

### Degree Requirements

The core courses for the program are Quantum Mechanics 1 PHYS\*7010, Introduction to Quantum Field Theory PHYS\*7030, Statistical Physics 1 PHYS\*7040, Electromagnetic Theory PHYS\*7060, Introduction to Quantum Information Processing PHYS\*7670, and Fundamentals of Astrophysics PHYS\*7810. By the end of the first year of the program, three of the core courses, including one of Quantum Mechanics 1 PHYS\*7010, Statistical Physics 1 PHYS\*7040 and Electromagnetic Theory PHYS\*7060 or their equivalent should be completed. This requirement may be satisfied, in full or in part, by courses taken during the M.Sc. (Exception: Biophysics students must have taken at least one of Quantum Mechanics 1 PHYS\*7010, Statistical Physics 1 PHYS\*7040, and Electromagnetic Theory PHYS\*7060 by the completion of the first year of the PhD program.)

Two one-term courses not including any already taken for MSc credit are required; courses taken during the MSc program and in excess of those required will, however, be allowed for PhD credit. The extra courses must be identified prior to admission. One of the required courses may be an undergraduate course outside the student's main field of study and must be approved by the student's advisory committee and the Graduate Program Coordinator. No undergraduate course in physics may be taken for credit.

An average of at least 70% must be obtained in the required courses. A minimum grade of 65% is required for a pass in each course. No more than two courses, of the first four taken, can have a grade of less than 70%. If a student does not meet these minimum grade requirements, or receives a failing grade in any course, he/she may be required to withdraw from the program.

Students who transfer to the PhD, or who enter the PhD directly, will need to complete the course work requirements of both the MSc and PhD degrees, a total of six one-term graduate courses. Three of the core courses including one of Physics 7010, Physics 7040 or Physics 7060 will have been taken by the end of the first year of the PhD program.

### Interdepartmental Programs

#### Biophysics Interdepartmental Group

The Department of Physics participates in the MSc/PhD programs in biophysics. Please consult the Biophysics listing for a detailed description of the graduate programs offered by the Biophysics Interdepartmental Group.

### Courses

\* Courses offered annually. Other courses are offered on an alternate year basis and as requested.

#### Perimeter Scholars' Institute Courses

<b>PHYS*6010 PSI Quantum Field Theory I U [0.50]</b>
Canonical quantization of fields, perturbation theory, derivation of Feynman diagrams, applications in particle and condensed matter theory, renormalization in $\phi^4$ .
<i>Department(s):</i> Department of Physics
<b>PHYS*6020 PSI Statistical Physics U [0.50]</b>
A brief review of ensembles and quantum gases, Ising model, Landau theory of phase transitions, order parameters, topology, classical solutions.
<i>Department(s):</i> Department of Physics
<b>PHYS*6030 PSI Quantum Field Theory II U [0.50]</b>
Feynman Path Integral, abelian and nonabelian gauge theories and their quantization, spontaneous symmetry breaking, nonperturbative techniques: lattice field theory, Wilsonian renormalization.
<i>Department(s):</i> Department of Physics

<b>PHYS*6040 PSI Relativity U [0.50]</b>
Special relativity, foundations of general relativity, Riemannian geometry, Einstein's equations, FRW and Schwarzschild geometries and their properties.
<i>Department(s):</i> Department of Physics
<b>PHYS*6050 PSI Quantum Theory U [0.50]</b>
Schrodinger equation: free particle, harmonic oscillator, simple time-dependent problems, Heisenberg picture and connection with classical physics. Entanglement and non-locality. Pure and mixed states, quantum correlators, measurement theory and interpretation.
<i>Department(s):</i> Department of Physics
<b>PHYS*6060 PSI Information and Data Analysis U [0.50]</b>
Probability, entropy, Bayesian inference and information theory. Maximum likelihood methods, common probability distributions, applications to real data including Monte Carlo methods.
<i>Department(s):</i> Department of Physics
<b>PHYS*6070 PSI Dynamical Systems U [0.50]</b>
Maps, flows, stability, fixed points, attractors, chaos, bifurcations, ergodicity, approach to chaos. Hamiltonian systems, Liouville, measure, Poincare theorem, integrable systems with examples.
<i>Department(s):</i> Department of Physics
<b>PHYS*6080 PSI Computation U [0.50]</b>
Common algorithms for ode and pde solving, with numerical analysis. Common tasks in linear algebra. Focus on how to write a good code, test it, and obtain a reliable result. Parallel programming.
<i>Department(s):</i> Department of Physics
<b>PHYS*6210 PSI Cosmology U [0.25]</b>
FRW metric, Hubble expansion, dark energy, dark matter, CMB, Thermodynamic history of early universe. Growth of perturbations, CDM model of structure formation and comparison to observations, cosmic microwave background anisotropies, inflation and observational tests.
<i>Department(s):</i> Department of Physics
<b>PHYS*6220 PSI Standard Model U [0.25]</b>
Application of Yang-Mills theory to particle physics, QCD and its tests in the perturbative regime, theory of weak interactions, precision tests of electroweak theory, CKM matrix and flavour physics, open questions.
<i>Department(s):</i> Department of Physics
<b>PHYS*6230 PSI String Theory U [0.25]</b>
Superstring spectrum in 10d Minkowski, as well as simple toroidal and orbifold compactifications. T-duality, D-branes, tree amplitudes. Construct some simple unified models of particle physics. Motivate the 10- 11-dimensional supergravities. Simple supergravity solutions and use these to explore some aspects of AdS/CFT duality.
<i>Department(s):</i> Department of Physics
<b>PHYS*6240 PSI Mathematical Physics Topics U [0.25]</b>
Differential forms, de Rham cohomology, differential topology and characteristic classes, monopoles and instantons, Kahler manifolds, Dirac equations, zero modes and index theorems.
<i>Department(s):</i> Department of Physics
<b>PHYS*6350 PSI Quantum Information Review U [0.25]</b>
Review of selected topics in Quantum Information.
<i>Department(s):</i> Department of Physics
<b>PHYS*6360 PSI Gravitational Physics Review U [0.25]</b>
Review of selected topics in Gravitational Physics.
<i>Department(s):</i> Department of Physics
<b>PHYS*6370 PSI Condensed Matter Theory U [0.25]</b>
Review of selected topics in Condensed Matter Theory.
<i>Department(s):</i> Department of Physics
<b>PHYS*6380 PSI Quantum Gravity U [0.25]</b>
Review of selected topics in Quantum Gravity.
<i>Department(s):</i> Department of Physics
<b>PHYS*6390 PSI Foundations of Quantum Theory U [0.25]</b>
Review of selected topics in Foundations of Quantum Theory.
<i>Department(s):</i> Department of Physics
<b>PHYS*6410 PSI Explorations in Quantum Information U [0.25]</b>
Review of selected topics in Quantum Information.
<i>Department(s):</i> Department of Physics

**PHYS\*6420 PSI Explorations in Gravitational Physics U [0.25]**

Review of selected topics in Gravitational Physics.

*Department(s):* Department of Physics

**PHYS\*6430 PSI Exploration in Condensed Matter Theory U [0.25]**

Review of selected topics in Condensed Matter Theory.

*Department(s):* Department of Physics

**PHYS\*6440 PSI Exploration in Quantum Gravity U [0.25]**

Review of selected topics in Quantum Gravity.

*Department(s):* Department of Physics

**PHYS\*6450 PSI Explorations in Foundations of Quantum Theory U [0.25]**

Review of selected topics in Foundations of Quantum Theory.

*Department(s):* Department of Physics

**PHYS\*6460 PSI Explorations in Particle Physics U [0.25]**

Review of selected topics in Particle Physics.

*Department(s):* Department of Physics

**PHYS\*6470 PSI Explorations in String Theory U [0.25]**

Review of selected topics in String Theory.

*Department(s):* Department of Physics

**PHYS\*6480 PSI Explorations in Complex Systems U [0.25]**

Review of selected topics in Complex Systems.

*Department(s):* Department of Physics

**PHYS\*6490 PSI Explorations in Cosmology U [0.25]**

Review of selected topics in Cosmology.

*Department(s):* Department of Physics

**Basic Group****PHYS\*7010 Quantum Mechanics I \* U [0.50]**

Review of formalism of nonrelativistic quantum mechanics including symmetries and invariance. Approximation methods and scattering theory. Elementary quantum theory of radiation. Introduction to one-particle relativistic wave equations.

*Department(s):* Department of Physics

**PHYS\*7020 Quantum Mechanics II U [0.50]**

Concepts of relativistic quantum mechanics, elementary quantum field theory, and Feynman diagrams. Application to many-particle systems.

*Prerequisite(s):* PHYS\*7010 or equivalent

*Department(s):* Department of Physics

**PHYS\*7040 Statistical Physics I\* U [0.50]**

Statistical basis of thermodynamics; microcanonical, canonical and grand canonical ensembles; quantum statistical mechanics, theory of the density matrix; fluctuations, noise, irreversible thermodynamics; transport theory; application to gases, liquids, solids.

*Department(s):* Department of Physics

**PHYS\*7050 Statistical Physics II U [0.50]**

Phase transitions. Fluctuation phenomena. Kubo's theory of time correlation functions for transport and spectral properties; applications selected from a variety of topics including linearized hydrodynamics of normal and superfluids, molecular liquids, liquid crystals, surface phenomena, theory of the dielectric constant, etc.

*Prerequisite(s):* PHYS\*7040 or equivalent.

*Department(s):* Department of Physics

**PHYS\*7060 Electromagnetic Theory \* U [0.50]**

Solutions to Maxwell's equations; radiation theory, normal modes; multipole expansion; Kirchhoff's diffraction theory; radiating point charge; optical theorem. Special relativity; transformation laws for the electromagnetic field; line broadening. Dispersion; Kramers-Kronig relations. Magnetohydrodynamics and plasmas.

*Department(s):* Department of Physics

**PHYS\*7080 Applications of Group Theory U [0.50]**

Introduction to group theory; symmetry, the group concept, representation theory, character theory. Applications to molecular vibrations, the solid state, quantum mechanics and crystal field theory.

*Department(s):* Department of Physics

**PHYS\*7670 Introduction to Quantum Information Processing F [0.50]**

Quantum superposition, interference, and entanglement. Postulates of Quantum Mechanics. Quantum computational complexity. Quantum Algorithms. Quantum communication and cryptography. Quantum error correction. Implementations.

*Department(s):* Department of Physics

**Subatomic and Nuclear****PHYS\*7030 Quantum Field Theory U [0.50]**

Review of relativistic quantum mechanics and classical field theory. Quantization of free quantum fields (the particle interpretation of field quanta). Canonical quantization of interacting fields (Feynman rules). Application of the formalism of interacting quantum fields to lowest-order quantum electrodynamic processes. Radiative corrections and renormalization.

*Prerequisite(s):* PHYS\*7010 or equivalent.

*Department(s):* Department of Physics

**PHYS\*7090 Green's Function Method U [0.50]**

Review of essential quantum field theory. Zero and finite temperature. Green's functions. Applications.

*Department(s):* Department of Physics

**PHYS\*7150 Nuclear Physics U [0.50]**

Static properties of nuclei; alpha, beta, gamma decay; two-body systems; nuclear forces; nuclear reactions; single-particle models for spherical and deformed nuclei; shell, collective, interacting boson models.

*Department(s):* Department of Physics

**PHYS\*7160 Special Topics in Subatomic and Nuclear Physics U [0.50]**

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Physics

**PHYS\*7170 Intermediate and High Energy Physics U [0.50]**

Strong, electromagnetic and weak interactions. Isospin, strangeness, conservation laws and symmetry principles. Leptons, hadrons, quarks and their classification, formation, interactions and decay.

*Department(s):* Department of Physics

**PHYS\*7180 Special Topics in Subatomic and Nuclear Physics U [0.25]**

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Physics

**Astronomy and Astrophysics****PHYS\*7810 Fundamentals of Astrophysics U [0.50]**

The fundamental astronomical data: techniques to obtain it and the shortcomings present. The classification systems. Wide- and narrow-band photometric systems. The intrinsic properties of stars: colours, luminosities, masses, radii, temperatures. Variable stars. Distance indicators. Interstellar reddening. Related topics.

*Department(s):* Department of Physics

**PHYS\*7840 Advanced General Relativity W [0.50]**

Review of elementary general relativity. Timelike and null geodesic congruences. Hypersurfaces and junction conditions. Lagrangian and Hamiltonian formulations of general relativity. Mass and angular momentum of a gravitating body. The laws of black-hole mechanics.

*Department(s):* Department of Physics

**PHYS\*7850 Quantum Field Theory for Cosmology U [0.50]**

Introduction to scalar field theory and its canonical quantization in flat and curved spacetimes. The flat space effects of Casimir and Unruh. Quantum fluctuations of scalar fields and of the metric on curved space-times and application to inflationary cosmology. Hawking radiation.

*Prerequisite(s):* PHYS\*7010

*Department(s):* Department of Physics

**PHYS\*7860 General Relativity for Cosmology U [0.50]**

Introduction to the differential geometry of Lorentzian manifolds. The principles of general relativity. Causal structure and cosmological singularities. Cosmological space-times with Killing vector fields. Friedmann-Lemaître cosmologies, scalar vector and tensor perturbations in the linear and nonlinear regimes. De Sitter space-times and inflationary models.

*Department(s):* Department of Physics

**PHYS\*7870 Cosmology U [0.50]**

Friedmann-Robertson-Walker metric and dynamics; big bang thermodynamics; nucleosynthesis; recombination; perturbation theory and structure formation; anisotropies in the Cosmic Microwave Background; statistics of cosmological density and velocity fields; galaxy formation; inflation.

*Department(s):* Department of Physics

**PHYS\*7880 Special Topics in Astronomy U [0.50]**

Offered on demand

*Department(s):* Department of Physics

**PHYS\*7890 Special Topics in Astrophysics U [0.25]**

Offered on demand

*Department(s):* Department of Physics**PHYS\*7900 Special Topics in Gravitation and Cosmology U [0.50]***Department(s):* Department of Physics**PHYS\*7910 Special Topics in Gravitation and Cosmology U [0.25]***Department(s):* Department of Physics**Atomic and Molecular****PHYS\*7100 Atomic Physics U [0.50]**

Emphasis on atomic structure and spectroscopy. Review of angular momentum, rotations, Wigner-Eckart theorem, n-j symbols. Energy levels in complex atoms, Hartree-Fock theory, radiative-transitions and inner-shell processes. Further topics selected with class interest in mind, at least one of which is to be taken from current literature.

*Department(s):* Department of Physics**PHYS\*7130 Molecular Physics U [0.50]**

Angular momentum and the rotation of molecules; introduction to group theory with application to molecular vibrations; principles of molecular spectroscopy; spectra of isolated molecules; intermolecular interactions and their effects on molecular spectra; selected additional topics (e.g., electronic structure of molecules, experimental spectroscopic techniques, neutron scattering, correlation functions, collision induced absorption, extension of group theory to molecular crystals, normal co-ordinate analysis, etc.).

*Department(s):* Department of Physics**Condensed Matter****PHYS\*7310 Solid State Physics I U [0.50]**

Phonons, electron states, electron-electron interaction, electron-ion interaction, static properties of solids.

*Department(s):* Department of Physics**PHYS\*7320 Solid State Physics II U [0.50]**

Transport properties; optical properties; magnetism; superconductivity; disordered systems.

*Department(s):* Department of Physics**PHYS\*7330 Special Topics in Theoretical Condensed Matter Physics U [0.50]***Department(s):* Department of Physics**PHYS\*7370 Special Topics in Surface Physics U [0.50]***Department(s):* Department of Physics**Biophysics****PHYS\*7510 Clinical Applications of Physics in Medicine U [0.50]**

This course provides an overview of the application of physics to medicine. The physical concepts underlying the diagnosis and treatment of disease will be explored. Topics will include general imaging principles such as resolution, intensity, and contrast; x-ray imaging and computed tomography; radioisotopes and nuclear medicine, SPECT and PET; magnetic resonance imaging; ultrasound imaging and radiation therapy. Credit may be obtained for only one of PHYS\*4070 or PHYS\*7510.

*Department(s):* Department of Physics**PHYS\*7520 Molecular Biophysics U [0.50]**

Physical methods of determining macromolecular structure: energetics, intramolecular and intermolecular forces, with application to lamellar structures, information storage, DNA and RNA, recognition and rejection of foreign molecules. Offered in conjunction with PHYS\*4540. Extra work is required of graduate students.

*Restriction(s):* Credit may be obtained for only one of PHYS\*4540 or PHYS\*7520*Department(s):* Department of Physics**PHYS\*7540 Special Topics in Biophysics U [0.50]**

Offered on demand

*Department(s):* Department of Physics**PHYS\*7570 Special Topics in Biophysics U [0.25]**

Offered on demand

*Department(s):* Department of Physics**Applied Physics (including Technical Methods)****PHYS\*7140 Nonlinear Optics U [0.50]**

Classical and Quantum Mechanical descriptions of nonlinear susceptibility, nonlinear wave propagation, nonlinear effects such as Peckel's and Kerr effects, harmonic generation, phase conjugation and stimulated scattering processes.

*Department(s):* Department of Physics**PHYS\*7450 Special Topics in Experimental Physics \* U [0.50]**

A modular course in which each module deals with an established technique of experimental physics. Four modules will be offered during the Winter and Spring semesters, but registration and credit will be in the spring semester. Typical topics are neutron diffraction, light scattering, acoustics, molecular beams, NMR, surface analysis, etc.

*Department(s):* Department of Physics**PHYS\*7470 Optical Electronics U [0.50]**

Optoelectronic component fabrication, light propagation in linear and nonlinear media, optical fiber properties, electro-optic and acousto-optic modulation, spontaneous and stimulated emission, semiconductor lasers and detectors, noise effects in fiber systems.

*Department(s):* Department of Physics**Special Courses (offered on demand only)****PHYS\*7120 Special Topics in Theoretical Physics U [0.50]***Department(s):* Department of Physics**PHYS\*7710 Special Lecture and Reading Course U [0.50]***Department(s):* Department of Physics**PHYS\*7730 Special Topics in Physics U [0.50]***Department(s):* Department of Physics**PHYS\*7750 Interinstitution Exchange U [0.50]**

At the GWPI director's discretion, a PhD or MSc student may receive credit for a term of specialized studies at another institution. Formal evaluation is required.

*Restriction(s):* GWPI director approval required*Department(s):* Department of Physics**PHYS\*7970 MSc Project U [1.00]**

Study of a selected topic in physics presented in the form of a written report. For students whose MSc program consists entirely of courses

*Department(s):* Department of Physics

## Plant Agriculture

The MSc and PhD programs in the Department of Plant Agriculture offer specialization in four broad fields of the Plant Sciences: 1) plant breeding and genetics; 2) plant biochemistry and physiology; 3) crop production systems and 4) bioproducts.

- **Plant Breeding and Genetics** has long been a key focus of our faculty and students. Through breeding and biotechnology, Guelph researchers help society by developing new field-crop, fruit, ornamental and vegetable cultivars that are grown in Canada and worldwide. Also, Plant Agriculture faculty and students seek both to understand the fundamental mechanisms that enable plant improvements and to discover novel methodologies and technologies that will be the foundation for future advances.
- **Plant Biochemistry and Physiology** is a broad discipline. Faculty and students in this area study the response of plants to environmental change and plant development at the ecosystem, whole plant, and molecular levels. Students investigate ecologically friendly management strategies, study underlying molecular and biochemical mechanisms that regulate plant development, investigate how plant performance can be optimized in the field or closed environments, and contribute to cultivar development
- **Crop Production Systems** research seeks to develop or test agricultural management strategies for yield improvement and economically and environmentally sound production practices in field and horticultural crops such as ornamentals and turf. Students assist producers and industry in the control of weeds, insects and plant diseases, and investigate new management protocols for production of high quality crops.
- **Bioproducts** is a multi-disciplinary field and will deal with background sciences ranging from chemical engineering to plant science. Students deal with products and materials made from cellulose, oil, protein, starch and other compounds derived from various plant parts such as seeds, stalks/stovers, hulls and cobs of crop plants. Students will develop their expertise in analytical methods, factors affecting quality of plant-derived raw materials, engineering (including bioengineering of bioproducts) biomaterials and biocomposites.

## Administrative Staff

### Chair

Hugh Earl (314 Crop Science Building, Ext. 58568)  
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### Graduate Program Coordinator

Istvan Rajcan (317 Crop Science Building, Ext. 53564)  
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### Graduate Program Assistant

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## Graduate Faculty

### Stephen R. Bowley

BS, MSc Guelph, PhD Kentucky - Associate Professor

### Gale G. Bozzo

BSc, MSc York, PhD Queen's - Associate Professor

### John A. Cline

BSc Guelph, MSc Michigan State, PhD London UK - Associate Professor

### William Deen

BSc, MSc, PhD Guelph - Associate Professor

### Hugh J. Earl

BSc, MSc Guelph, PhD Western Ontario - Associate Professor and Chair

### Mehrzad Eskandari

BSc, Arsenjan Azad Univ., MSc, Karaj Azad Univ., PhD Guelph - Assistant Professor

### Christopher L. Gillard

BSc, MSc, Guelph - Associate Professor

### Bernard Grodzinski

BSc Toronto, MSc, PhD York, MA Cambridge - Professor

### David C. Hooker

BSc Agr, MSc, PhD Guelph - Associate Professor

### A. Maxwell P. Jones

BSc, MSc Guelph, PhD British Columbia - Assistant Professor

### Katerina S. Jordan

BS, MS Maryland, PhD Rhode Island - Associate Professor

### Elizabeth A. Lee

BSc Minnesota, MSc Iowa State, PhD Missouri - Professor

### Lewis N. Lukens

BSc Carleton College, PhD Minnesota - Associate Professor

### Eric M. Lyons

BSc Northern Iowa, PhD Pennsylvania State - Associate Professor

### Ralph C. Martin

BA, MSc Carleton, PhD McGill - Professor

### Mary Ruth McDonald

BSc, MSc, PhD Guelph - Professor

### Barry J. Micallef

BSc, MSc Guelph, PhD Wisconsin-Madison - Associate Professor and Associate Department Chair

### Amar K. Mohanty

BSc, MSc, PhD Utkal - Professor and Premier's Research Chair in Biomaterials & Transportation

### Alireza Navabi

BSc Shiraz Univ.(Iran), MSc Azad Univ.(Iran), PhD Alberta - Associate Professor

### Gopinadhan Paliyath

BScEd Mysore, MSc Calicut, PhD Indian Institute of Science - Professor

### K. Peter Pauls

BSc, MSc, PhD Waterloo - Professor

### Manish N. Raizada

BSc Western, PhD Stanford - Professor

### Istvan Rajcan

BSc Novi Sad, Yugoslavia, PhD Guelph - Professor and Associate Graduate Program Coordinator

### Darren E. Robinson

BSc Winnipeg, MSc Manitoba, PhD Guelph - Associate Professor

### Praveen K. Saxena

BSc Meerut, MSc Lucknow, PhD Delhi - Professor

### Arthur W. Schaafsma

BSc, MSc, PhD Guelph - Professor

### Peter H. Sikkema

BSc, MSc Guelph, PhD Western Ontario - Professor

### Jayasankar Subramanian

BSc, MSc TamilNadu Agricultural (India), PhD Florida - Professor

### John Sulik

BS, MS, PhD Florida State - Assistant Professor

### J. Alan Sullivan

BSc, MSc, PhD Guelph - Professor and Graduate Coordinator

### Clarence J. Swanton

BSc Toronto, MSc Guelph, PhD Western Ontario - Professor

### Francois Tardif

BSc, MSc, PhD Laval - Professor

### Rene C. Van Acker

BSc, MSc Guelph, PhD Reading - Professor and Associate Dean, OAC

### David J. Wolyn

BS Rutgers, MS, PhD Wisconsin - Professor

## Associated Graduate Faculty

### Michael Brownbridge

BSc, PhD Newcastle Upon Tyne - Research Director, Horticulture Production Systems, Vineland Research and Innovation Centre

### Adam Dale

BSc, PhD Sheffield - Retired Faculty

### Gavin Humphreys

BSc Queen's, MSc Guelph, PhD McGill - Senior Research Scientist, Agriculture & Agri-Food Canada, Ottawa

### Laima Kott

BA Waterloo, MSc, PhD Guelph - Retired Research Scientist

### Qiang Liu

BEEng, MEng East China, PhD Laval - Research Scientist, Agriculture & Agri-Food Canada, Guelph

### Sean Myles

BA Saint Thomas, MSc Oxford, PhD Max Planck - Assistant Professor, Animal Sciences, Dalhousie University

### Steven Schnebly

BS Agronomy, MSc, PhD Iowa State - Senior Research Scientist, Pioneer Hi-Bred International

### Barry Shelp

BSc, MSc Brock, PhD Queen's - Retired Faculty, Plant Agriculture, University of Guelph

### Ting Zhou

BSc Henan, PhD McGill - Research Scientist, Agriculture & Agri-Food Canada

## MSc Program

The Department of Plant Agriculture offers an MSc program in four broad fields of the Plant Sciences: 1) plant breeding and genetics; 2) plant biochemistry and physiology; 3) crop production systems and 4) bioproducts. Students conduct basic and/or applied research on topics within these fields.

### Admission Requirements

Applicants should have a baccalaureate degree in an honours plant science/biology program, or the equivalent, from a recognized university or college with an average academic standing of at least 'B' during the last two years of full-time study (or equivalent). To assist in identifying a suitable thesis advisor(s), applicants should submit a short statement of research interests. Supportive letters of reference are essential and should outline the applicant's strengths and weaknesses. Students may be admitted in the Fall, Winter or Summer semesters. The University of Guelph requires that applicants from some foreign institutions have a MSc (or equivalent) degree before they are considered for admission to the University of Guelph's MSc program.

### Degree Requirements

A program of prescribed courses (at least 1.50 credits of 6000 level courses) and additional courses is established with the student's advisory committee. All MSc candidates must complete a thesis and present a seminar in conjunction with the final oral examination. Students are required to participate in the Seminar PLNT\*6400 and in a Departmental Colloquium course dealing with current topics. Students are expected to participate in Departmental events, with particular emphasis on seminar series.

## PhD Program

The Department of Plant Agriculture offers a PhD program in four broad fields of the Plant Sciences: 1) plant breeding and genetics; 2) plant biochemistry and physiology; 3) crop production systems and 4) bioproducts. Students conduct research on topics within these fields.

### Admission Requirements

The usual requirement for admission into the PhD program is a MSc degree by thesis in a field appropriate to their proposed area of specialization with a minimum 'B' average and supportive letters of reference. Direct admission to the PhD program is permitted to applicants holding an honours baccalaureate degree and demonstrating extraordinary academic and research capabilities. It is also possible for a student to transfer from the MSc without completing the requirements for that degree if the student has an excellent academic record and has strong research progress that can be expanded to the doctoral level. The request for transfer must be initiated by the student and must be done no earlier than the end of the second semester and no later than the end of the fourth semester. Applicants should submit a statement of research interests, background experiences, and career goals to assist in the identification of an appropriate faculty adviser with the resources necessary to support the thesis research. Students may be admitted in the Fall, Winter or Spring semesters. In some instances, applicants who already hold a MSc may be required to initially register in the MSc program.

### Degree Requirements

The major emphasis in the PhD program is on research and the preparation and defense of an acceptable thesis. All PhD candidates must complete a thesis and present a seminar in conjunction with the final oral examination. Students are required to participate in the Seminar PLNT\*6400 and in a Departmental Colloquium course dealing with current topics. There are no other specific course requirements. It is usual for most students, in consultation with their advisory committee, to select some appropriate courses in preparation for the qualifying examination and thesis research. The qualifying examination is in two parts (written and oral) and evaluates the student's knowledge of their field of specialization and related topics. The qualifying examination is taken no later than the fifth semester. For students who have transferred from the MSc program or have been admitted directly to the PhD program from a BSc, the qualifying examination is taken no later than the seventh semester. The advisory committee is required to submit a written evaluation of the student's performance in research and the student's potential as a researcher. Upon completion of the qualifying examination, the student becomes a candidate for the PhD degree.

All students are expected to participate in Departmental events, with particular emphasis on seminar series.

## Interdepartmental Programs

### Bioinformatics MBNF

The Department of Plant Agriculture participates in the Master of Bioinformatics Program. Please consult the Bioinformatics listing for a detailed description of the Master of Bioinformatics

## Collaborative Specializations

### International Development Studies

The Department of Plant Agriculture participates in the PhD collaborative specialization in International Development Studies (IDS). Please consult the International Development Studies listing for a detailed description of the PhD collaborative specialization.

## Toxicology

The Department of Plant Agriculture participates in the MSc/PhD collaborative specialization in toxicology. Please consult the Toxicology listing for a detailed description of the MSc/PhD collaborative specialization.

## Courses

### Plant Breeding and Genetics

#### PLNT\*6100 Advanced Plant Breeding I W [0.50]

The practical consideration of genetic theory and biological limitations to improving plant populations and developing cultivars are discussed. Current and emerging breeding methodologies and sources of variation used to achieve plant breeding goals are examined through lectures, paper discussion, site visits and invited talks.

*Department(s):* Department of Plant Agriculture

#### PLNT\*6160 Advanced Plant Breeding II W [0.50]

Fundamentals of quantitative genetics. Topics include gene and genotype frequencies means, variances, covariances and resemblance among relatives. Lecture topics are expanded through discussion of classic and current papers.

*Offering(s):* Offered in odd-numbered years.

*Department(s):* Department of Plant Agriculture

#### PLNT\*6250 Colloquium in Plant Genetics and Breeding U [0.25]

An open discussion course designed to review and critically analyse contemporary issues in plant genetics and breeding.

*Department(s):* Department of Plant Agriculture

#### PLNT\*6260 Advanced Plant Genetics I F [0.50]

A lecture and discussion course examining the underlying principles of genetics and the recent advances in plant genetics. Topics include: structure of the genome, experiments to measure and experimentally describe phenotypes, population structures, and molecular basis of inheritance of a phenotype.

*Department(s):* Department of Plant Agriculture

#### PLNT\*6290 Physiological and Developmental Genetics in Plants F [0.50]

A lecture and discussion course examining classical and molecular genetic investigations to understand the genetic basis and regulation of physiological and developmental processes in plants.

*Offering(s):* Offered in even-numbered years.

*Department(s):* Department of Plant Agriculture

#### PLNT\*6340 Plant Breeding F [0.50]

This course examines principles of plant breeding in self- and cross-pollinated crops. Additional topics include crop domestication, mating systems, heritability, gain from selection, disease resistance, polyploidy, marker assisted selection and government regulations.

*Restriction(s):* MBG\*4160

*Department(s):* Department of Plant Agriculture

#### PLNT\*6500 Applied Bioinformatics W [0.50]

The goal of this course is to provide an introductory understanding of the databases and methods used in computational molecular biology research. Topics include: reviewing major molecular databases and their structures, constructing sequence alignments, constructing phylogenies, and finding motifs and genes in biological sequences. Lab sessions include an introduction to Unix and Perl for the biologist and hands-on use of several molecular data analysis programs.

*Prerequisite(s):* Undergraduate level statistics class (such as STAT\*2040 or STAT\*2100) and undergraduate level molecular biology class (such as MBG\*2020).

*Department(s):* Department of Plant Agriculture

## Plant Biochemistry and Physiology

#### PLNT\*6010 Physiology of Crop Yield W [0.50]

This course covers factors affecting biomass production and yield, with primary focus on phenomena measured at the whole canopy scale. Yield-limiting abiotic stresses (temperature, water deficit, nutrient deficiency) are considered in detail, as are technical aspects of instrumentation used in crop physiology research. (Offered annually)

*Prerequisite(s):* PBIO\*3110 or permission of instructor

*Department(s):* Department of Plant Agriculture

**PLNT\*6110 Fruit and Vegetable Technology F [0.50]**

The course is primarily intended to address science and technology aspects of fruits and vegetables, with specific reference to storage, packaging, quality, processing, products and ingredients, health regulatory properties and biotechnology issues. Methods of instruction include lectures and seminars. Students are evaluated during their seminar presentations, term papers and participation in discussions.

*Offering(s):* Offered in even-numbered years.

*Department(s):* Department of Plant Agriculture

**PLNT\*6140 Biological and Cultural Control of Plant Diseases W [0.50]**

This course explores current concepts and approaches to managing pathogens and diseases in detail but other methods (e.g. genetic resistance) will be presented as well. Offered in conjunction with PBIO\*4070. Extra work is required of graduate students.

*Offering(s):* Offered Annually

*Restriction(s):* Credit may be obtained for only one of PBIO\*4070 or PLNT\*6140

*Department(s):* Department of Plant Agriculture

**PLNT\*6230 Colloquium in Plant Physiology and Biochemistry U [0.25]**

An open discussion course designed to review and critically analyze contemporary issues in plant physiology and biochemistry.

*Department(s):* Department of Plant Agriculture

**PLNT\*6320 Metabolic Processes in Crop Plants F [0.50]**

A comprehensive examination of the metabolic mechanisms and versatility whereby autotrophic organisms sustain themselves. Emphasis is placed on our current understanding of the regulation and integration of metabolic processes in plants and their physiological and agricultural significance including available research methodologies.

*Prerequisite(s):* one undergraduate course in biochemistry

*Restriction(s):* No auditing without permission of Instructor.

*Department(s):* Department of Plant Agriculture

**PLNT\*6330 Metabolism of Natural Products in Plants W [0.50]**

A comprehensive analysis of the metabolism and roles of natural products in plants. Emphasis is placed on the distinction between secondary and primary processes, and the composition, detection, and regulation of the biosynthesis, modification and turnover of natural products. Key research methodologies and the roles of natural products in abiotic and biotic stresses and their effects on human health are discussed.

*Offering(s):* Offered in even-numbered years.

*Department(s):* Department of Plant Agriculture

**Crop Production Systems****PLNT\*6140 Biological and Cultural Control of Plant Diseases W [0.50]**

This course explores current concepts and approaches to managing pathogens and diseases in detail but other methods (e.g. genetic resistance) will be presented as well. Offered in conjunction with PBIO\*4070. Extra work is required of graduate students.

*Offering(s):* Offered Annually

*Restriction(s):* Credit may be obtained for only one of PBIO\*4070 or PLNT\*6140

*Department(s):* Department of Plant Agriculture

**PLNT\*6210 Herbicide Activity, Modes-of-Action, Selectivity and Resistance F [0.50]**

This course provides a comprehensive study of the major herbicide groups. The various herbicide groups will be discussed under the following topics: herbicide uptake and translocation, herbicide mode of action, herbicide selectivity, weeds controlled and crop injury.

*Offering(s):* Offered in odd-numbered years.

*Department(s):* Department of Plant Agriculture

**PLNT\*6240 Colloquium in Crop Production and Management U [0.25]**

An open discussion course designed to review and critically analyze contemporary issues in crop production and management.

*Department(s):* Department of Plant Agriculture

**PLNT\*6270 Agroecosystem Design and Function F [0.50]**

This lecture-based course critically analyzes the agroecosystem in field crop, horticulture, turfgrass and greenhouse industries. Agroecosystem design is considered in relation to key components such as crop rotation and management of soil, nutrient and water supply. The significance of plant function, soil properties, and nutrient and water cycles to agroecosystem design are examined. Metrics of productivity and environmental sustainability serve to focus discussion on agroecosystem optimization.

*Department(s):* Department of Plant Agriculture

**PLNT\*6280 Invasive Plant Ecology in Natural and Agricultural Systems W [0.50]**

This course focuses on the ecological principles that are important in understanding the potential for a plant species to become invasive. Students are able to use this knowledge to facilitate management of these species under field conditions.

*Offering(s):* Offered in odd-numbered years.

*Prerequisite(s):* CROP\*4240 or BOT\*2100 or BOT\*3120

*Department(s):* Department of Plant Agriculture

**General****PLNT\*6080 Plant Disease Epidemiology and Management F [0.50]**

Epidemiology and management of plant diseases caused by fungi, viruses, and bacteria.

*Offering(s):* Offered in even-numbered years.

*Department(s):* Department of Plant Agriculture

**PLNT\*6170 Statistics in Plant Agriculture W [0.50]**

The application of statistical techniques to research in plant agriculture. SAS is the software used to perform data analysis. Emphasis is placed on statistical principles, the design of experiments, the testing of hypotheses, and communication of findings to other scientists.

*Department(s):* Department of Plant Agriculture

**PLNT\*6400 Seminar F,W [0.25]**

All graduate students present a departmental seminar on their research proposal in their second or third semester. Each student is expected to participate in the seminars of colleagues and faculty.

*Restriction(s):* Restricted to thesis-based students

*Department(s):* Department of Plant Agriculture

**PLNT\*6450 Plant Agriculture International Field Tour U [0.25]**

A field course designed to increase student's knowledge of primary field and animal agricultural production systems, to explore the environmental and political issues related to international agriculture, and to understand the role of agri-business in the rural economy.

*Restriction(s):* CROP\*4260 if PLNT\*6450 is field tour to mid-west USA

*Department(s):* Department of Plant Agriculture

**PLNT\*6800 Special Topics in Plant Science U [0.50]**

A study of selected contemporary topics in plant science. Proposed course descriptions are considered by the Department of Plant Agriculture on an ad hoc basis, and the course is offered according to demand.

*Department(s):* Department of Plant Agriculture



## Political Science

The Department of Political Science offers MA and PhD programs in the following fields:

- Rights, Justice, Citizenship, and Identity (MA)
- Canadian Politics (PhD)
- Comparative Politics (PhD)
- Gender, Race, Indigeneity, and Sexuality (PhD)
- International Relations (PhD)
- Law and Politics (PhD)
- Public Policy and Governance (PhD)

### Administrative Staff

#### Chair

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### Graduate Faculty

#### Dennis Baker

BA McMaster, LLB Toronto, PhD Calgary - Associate Professor

#### Ryan C. Briggs

BSS, Ottawa, PhD American University - Assistant Professor

#### Janine Clark

BES Waterloo, MA Carleton, PhD Toronto - Professor

#### Carol L. Dauda

BA McMaster, MA Guelph, PhD Toronto - Associate Professor

#### Jordi Diez

BA Toronto, MA Essex, PhD Toronto - Professor

#### Carmen Ho

BA Western, MSc London, PhD Toronto - Assistant Professor

#### Candace Johnson

BA Toronto, MA, PhD Dalhousie - Professor and Graduate Program Coordinator

#### Craig A. Johnson

BA Queen's, MA Toronto, PhD London School of Economics - Professor

#### Edward Koning

BA, MA Leiden, PhD Queen's - Associate Professor

#### Theresa M.L. Lee

BA Toronto, MA, PhD Princeton - Associate Professor

#### Leah Levac

BA Acadia, MA, PhD New Brunswick - Associate Professor

#### David MacDonald

BA Carleton, MA Ottawa, PhD London School of Economics - Professor

#### Maureen Mancuso

BA McMaster, MA Carleton, DPhil Oxford - Professor

#### Tim A. Mau

BA, MA Guelph, PhD Oxford - Associate Professor

#### Andrea Paras

BA UBC, MA, PhD Toronto - Associate Professor

#### Kate Puddister

BA, MA Guelph, PhD McGill - Assistant Professor

#### Troy Riddell

BA, MA Calgary, PhD McGill - Associate Professor and Chair

#### Byron M. Sheldrick

BA Carleton, LLB Toronto, MA, PhD York - Professor

#### Julie Simmons

BA British Columbia, MA, PhD Toronto - Associate Professor

#### Tamara Small

BA Guelph, MA Calgary, PhD Queen's - Assistant Professor

#### Ian S. Spears

BA Toronto, MA Queen's, PhD McGill - Associate Professor

#### Adam Sneyd

BA Queen's, MA York, PhD McMaster - Associate Professor

#### Daved Snow

BA St. Thomas, MA, PhD Calgary - Assistant Professor

#### Deborah Stienstra

BA Alberta, MA, PhD York - Professor and Jarislowsky Chair in Families and Work

## MA Program

The MA program revolves around the field of Rights, Justice, Citizenship, and Identity while allowing flexibility for students to pursue their various interests. Within the broader framework of Rights, Justice, Citizenship and Identity, the Department has particular strengths in Public Policy and Administration and Global Justice and Politics and offers a number of courses related to those topics.

Our broad range of course offerings and routes to complete the degree allow students to tailor their experience towards their future employment or academic goals. Graduates of the program are engaged in a wide range of careers with academic institutions, government and public sector agencies, non-governmental organizations, and industry.

### Application Procedure

Program offices should be consulted for admission deadlines and required documents <https://www.uoguelph.ca/polisci/masters/how-apply> . Complete application submission instructions can be found at <http://www.uoguelph.ca/graduatestudies/apply>

Graduate students are admitted each Fall semester.

### Admission Requirements

The department requires an Honours BA degree (4 years) in political science (or its equivalent) with at least a 'B+' average for consideration for admission to the program. A methodology course equivalent to The Systematic Study of Politics, POLS\*3650, in the Department of Political Science undergraduate program, is necessary for admission to the graduate program. Students not satisfying this requirement may be admitted with the provision that it be satisfied by completing the requisite extra course.

### Degree Requirements

Students enrol in one of three study options: 1) course work only, 2) course work and major research paper or 3) course work and thesis.

#### Thesis

In order to satisfy the degree requirements, the student will complete three courses plus the Communications seminar (POLS\*6900), the Research Design and Methods course (POLS\*6940) and complete a Thesis.

Three courses with at least two of them from the following core courses:

POLS*6050	[0.50]	The Politics of Identity
POLS*6130	[0.50]	Rights and Public Policy
POLS*6150	[0.50]	Constitutionalism and Judicial Politics
POLS*6400	[0.50]	Citizenship and Social Policy
POLS*6510	[0.50]	Political Participation and Engagement
POLS*6730	[0.50]	Development and Global Justice
Plus		

POLS*6900	[0.25]	Communications
POLS*6940	[0.75]	Research Design and Methods

or an approved equivalent from another department

A thesis of approximately 10,000 to 15,000 words (approximately 80 to 100 double-spaced pages). The written thesis is defended in an oral examination.

### Course Work and Major Research Paper

In order to satisfy the degree requirements, the student will complete four courses plus the Research Design and Methods course POLS\*6940, a Communications seminar POLS\*6900, for a total of six courses and complete the Major Research Paper POLS\*6970.

Four courses with at least two of them from the following core courses:

POLS*6050	[0.50]	The Politics of Identity
POLS*6130	[0.50]	Rights and Public Policy
POLS*6150	[0.50]	Constitutionalism and Judicial Politics
POLS*6400	[0.50]	Citizenship and Social Policy
POLS*6510	[0.50]	Political Participation and Engagement
POLS*6730	[0.50]	Development and Global Justice
Plus		

POLS*6900	[0.25]	Communications
POLS*6940	[0.75]	Research Design and Methods

or an approved equivalent from another department

POLS*6970	[1.00]	Major Paper
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The research paper is approximately 10,000 to 12,500 words (approximately 40 to 50 double-spaced pages).

### Course Work

In order to satisfy the degree requirements, the student will complete the Research Methods course POLS\*6940 and the Communications seminar POLS\*6900, plus five additional courses.

Five courses with at least three of them from the following core courses:

POLS*6050	[0.50]	The Politics of Identity
POLS*6130	[0.50]	Rights and Public Policy
POLS*6150	[0.50]	Constitutionalism and Judicial Politics
POLS*6400	[0.50]	Citizenship and Social Policy
POLS*6510	[0.50]	Political Participation and Engagement
POLS*6730	[0.50]	Development and Global Justice

Plus

POLS\*6940 [0.75] Research Design and Methods  
or an approved equivalent from another department

POLS\*6900 [0.25] Communications

## PhD Program

The PhD program offers students the opportunity to pursue studies in six fields: 1) Canadian Politics; 2) Comparative politics; 3) Gender, Race, Indigeneity, and Sexuality; 4) International Relations; 5) Law and Politics; and 6) Public Policy and Governance. Students are required to major in one field and minor in the other. The Department has wide-ranging and various expertise in each of the fields—please consult the Department's website for more information.

The PhD program is designed both for students interested in pursuing academic positions and also for students interested in working in research capacities in the public, non-profit or private sectors.

## Application Procedure

Graduate students are admitted each Fall semester. Program offices should be consulted for admission deadlines and required documents <https://www.uoguelph.ca/polisci/masters/how-apply>. All applications must be submitted on-line. Complete application submission instructions can be found at <http://www.uoguelph.ca/graduatestudies/apply>.

## Admission Requirements

Students are expected to have completed an MA in Political Science with at least an A-average for consideration for admission to the program. Students with a MA in a Social Science other than Political Science, are encouraged to apply on the condition that they take additional courses upon their entry into the program.

## Degree Requirements

Students will be required to successfully complete a minimum of six graduate courses:

- Two PhD field courses (see [Department's Graduate Handbook](#). One course in the student's major field and one course in the minor field (selected in consultation with the student's Advisor)
- Two research methods courses:
 

POLS*6940	[0.75]	Research Design and Methods
POLS*6500	[0.50]	Qualitative and Quantitative Data Analysis
- Two elective courses
- A written qualifying exam and an oral qualifying exam.

The qualifying examination will take the form of a written take-home examination followed by an oral examination and will be based on the reading lists for the core courses in the major and minor field. Normally the examination will involve three questions based on the major field of study and two questions from the minor field.

- A thesis

Each candidate will be required to write and submit a thesis on the research carried out by the candidate on a topic approved by the Advisory Committee. The thesis is expected to be a significant contribution to knowledge in its field and the candidate must indicate in what ways it is a contribution. A thesis is expected to be no less than 200 double-spaced pages in length. The thesis must demonstrate mature scholarship and critical judgement on the part of the candidate, and it must indicate an ability to express oneself in a satisfactory literary style. Approval of the thesis is taken to imply that it is judged to be sufficiently meritorious to warrant publication in reputable scholarly media in the field.

## Collaborative Specializations

### International Development Studies

The Department of Political Science participates in the MA in International Development Studies (IDS) collaborative specialization. Please consult the International Development Studies listing for a detailed description of the MA collaborative specialization including the special additional requirements for each of the participating departments.

IDS graduates hold positions in government in Canada and abroad with NGOs, international organizations and private consultancies. Many also enter PhD programs.

The Department of Political Science also participates in the PhD collaborative specialization in International Development Studies (IDS), which provides an opportunity to engage in interdisciplinary study of international development issues. Applications are part of the general PhD application, and go directly to the Political Science Department. In addition to the Political Science PhD requirements, IDS applicants are expected to have a strong background in the social sciences, a demonstrable track record of experience in the course-based study of development issues, development research and/or development practice and a stated research interest relating to international development. The IDS designation also requires two core courses in international development theory and research methods. Please consult the International Development Studies listing for more information about the requirements and expectations of the PhD collaborative specialization in IDS.

## Courses

### POLS\*6050 The Politics of Identity U [0.50]

This course engages theoretical approaches of identity and identity politics in the global north and/or south. Topics may include contestation over indigenous, racial, ethnic, cultural, sexual, gender, and women's rights.

*Department(s):* Department of Political Science

### POLS\*6120 Theories of International Relations U [0.50]

This course examines Western and non-Western theories of international relations, such as realism, liberalism, and constructivism, as well as Marxist, critical, indigenous and gender approaches. It will engage with established and emerging theories, exploring contestation and debates within the discipline.

*Department(s):* Department of Political Science

### POLS\*6130 Rights and Public Policy U [0.50]

Students will study how individual rights can be restricted, protected or expanded through public policy, and how rights considerations and discourse may shape policy and the policy process.

*Department(s):* Department of Political Science

### POLS\*6150 Constitutionalism and Judicial Politics U [0.50]

This course investigates how the constitution and the judiciary affect political processes and decision-making, and how politics shape constitutions and judicial process. Canadian or comparative examples will be examined.

*Department(s):* Department of Political Science

### POLS\*6180 Women, Justice and Public Policy U [0.50]

This course will use gender-based analysis in examining a series of justice and public policy issues affecting the lives of women, including equality rights, pay and employment equity, domestic violence, sexual assault, family policy, health care policy, and pornography. Offered in conjunction with POLS\*4100. Extra work is required for graduate students.

*Restriction(s):* Credit may be obtained for only one of POLS\*4100 or POLS\*6180

*Department(s):* Department of Political Science

### POLS\*6210 Conceptions of Canada U [0.50]

This course will explore evolving conceptions of Canadian identity and nationalism through consideration of political culture, institutions and constitutional arrangements. Possible topics include: multiculturalism, aboriginal identity and community, Quebec nationalism, social citizenship, rights and representation, as well as Canada's global role and significance.

*Department(s):* Department of Political Science

### POLS\*6380 State-building and Regime Change U [0.50]

Students will explore theories of states, regimes, state-building, regime change, and democratization. The course critically engages dominant debates and reviews empirical examples.

*Department(s):* Department of Political Science

### POLS\*6390 Resource Scarcity and Conflict U [0.50]

This course examines domestic, international and global dimensions of environmental governance and resource conflict, as well as stakeholder perspectives on resource politics. Topics may include climate change; the resource curse; commodity production, trade and consumption; food and human security; political ecology and extractive industries.

*Department(s):* Department of Political Science

### POLS\*6400 Citizenship and Social Policy U [0.50]

In this course, students will study social policy in comparative perspective. Theoretical models and various policy fields will be examined in order to understand welfare state development and retrenchment. Policy fields may include immigration, health, child care and income.

*Department(s):* Department of Political Science

### POLS\*6500 Qualitative and Quantitative Data Analysis U [0.50]

This course introduces both qualitative and quantitative methods of data analysis. Students will engage theoretical material on the subject and develop data analysis skills through practice.

*Department(s):* Department of Political Science

### POLS\*6510 Political Participation and Engagement U [0.50]

Students will study how individual citizens engage in the political process. Informal channels such as social movements or more formal organizations such as interest groups and political parties may be examined.

*Department(s):* Department of Political Science

**POLS\*6630 Approaches to Public Policy U [0.50]**

This course introduces students to the main theoretical approaches utilized in understanding public policy making and outcomes. Throughout the course, particular attention is paid to varying conceptions of institutions, ideas and interest and the role of these conceptions in various explanations of policy change and stasis.

*Department(s):* Department of Political Science

**POLS\*6640 Canadian Public Administration: Public Sector Management U [0.50]**

This course examines the growth of the administrative state in Canada, especially in the post World War II period. It critically reviews issues such as the concept of public sector management, the delegation of authority, personnel management, accountability and the ethics of ministers and officials to Parliament and the public.

*Department(s):* Department of Political Science

**POLS\*6730 Development and Global Justice U [0.50]**

Students will study Western and non-Western theoretical perspectives on the politics of development and global justice. Topics may include human rights and development, global inequality, environmental justice, indigenous politics, humanitarian ethics, intercultural competency, and faith-based development.

*Department(s):* Department of Political Science

**POLS\*6900 Communications F-W [0.25]**

This course trains students in crucial academic skills, in particular writing and presentation skills. Some course elements may be offered through workshops in conjunction with other units, such as the Learning Commons.

*Department(s):* Department of Political Science

**POLS\*6940 Research Design and Methods U [0.75]**

This course focuses on the elements of designing and writing a research question and proposal. It examines the principles of research design and research ethics, and surveys the strengths and weaknesses of a variety of methods of data collection.

*Department(s):* Department of Political Science

**POLS\*6950 Specialized Topics in Political Studies U [0.50]**

This course is intended to be an elective course for students wishing to pursue an area of investigation not covered in the other courses offered by the department. This course may also be chosen by students who want to further pursue a subject area to which they were introduced in a previous course.

*Department(s):* Department of Political Science

**POLS\*6960 Directed Readings U [0.50]**

This is an elective course for students wishing to pursue an area of investigation not covered in other courses offered by the department. This course may also be chosen by students who want to further pursue a subject area to which they were introduced in a previous course.

*Department(s):* Department of Political Science

**POLS\*6970 Major Paper U [1.00]**

The major paper is an extensive research paper for those who do not elect to complete a thesis. It may be taken over two semesters. The length of the major paper is not to exceed 10,000 words.

*Department(s):* Department of Political Science

Students should also consult the fourth year undergraduate course selection. Graduate students, with the approval of the instructor and the Graduate Program Coordinator, may take a fourth year undergraduate course in the Political Science Department. This course is taken as POLS\*6950 Specialized Topics. Course requirements are modified so that they are comparable to other courses offered at the graduate level.

## Population Medicine

The Department of Population Medicine is an international leader in promoting the optimal health and productivity of animal populations, ensuring the safety of foods of animal origin, and preventing animal-related disease in humans. MSc and PhD degrees are offered in the following fields:

- Epidemiology (MSc thesis option, MSc course-work option, PhD)
- Theriogenology (MSc thesis option)
- Health Management (MSc thesis option)
- Public Health (PhD)

Our research mission is to discover and disseminate knowledge regarding the management of health and productivity of animal populations, and the interrelationships of animals with humans and the environment. In support of this mission we rely principally on our expertise in field-based quantitative observational studies and clinical trials.

Our teaching/learning mission is to guide students as they obtain an essential knowledge base and develop the necessary communicative, quantitative and problem-solving skills to integrate and apply this knowledge; and to instill the appropriate attitudes and abilities required for life-long learning.

The department offers programs leading to MSc, Master of Public Health (MPH), PhD and DVSc degrees.

### Administrative Staff

#### Chair

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### Graduate Faculty

#### Cathy Bauman

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#### Olaf Berke

Dipl. Statistics, PhD Dortmund Germany - Associate Professor

#### Tracey S. Chenier

DVM, DVSc Guelph, Dip ACT - Assistant Professor

#### Jason B. Coe

DVM, PhD Guelph - Associate Professor

#### Catherine E. Dewey

DVM, MSc, PhD Guelph - Professor and Chair

#### Todd F. Duffield

DVM, DVSc Guelph - Professor

#### Robert M. Friendship

DVM, MSc Guelph, Dip ABVP - Professor

#### Cathy J. Gartley

BSc New Brunswick, DVM, DVSc Guelph, Dip ACT - Assistant Professor

#### Jessica L. Gordon

BSc, MSc Michigan State Univ., DVSc Guelph - Assistant Professor

#### Amy L. Greer

BSc, Mount Allison, MSc, Trent, PhD Arizona State - Assistant Professor

#### Michele T. Guerin

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#### Derek B. Haley

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#### Deep K. Khosa

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#### Stephen J. LeBlanc

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#### Kerry D. Lissemore

BSc Toronto, DVM, DVSc Guelph - Associate Professor and Associate Dean, Academic

#### Scott A. McEwen

2018-2019 Graduate Calendar

DVM, DVSc Guelph, Dip. ACVP - Professor

#### Jennifer McWhirter

BSc, PhD Waterloo - Assistant Professor

#### Lee E. Niel

BSc Simon Fraser, PhD UBC - Assistant Professor

#### Terri L. O'Sullivan

DVM, PhD Guelph - Assistant Professor

#### Andrew Papadopoulos

BASc Ryerson, MBA York, PhD Guelph - Associate Professor and Coordinator, Master of Public Health Program

#### David L. Pearl

BSc McGill, MSc York, DVM, PhD Guelph - Associate Professor and Graduate Program Coordinator, Admission and Administration

#### Zvonimir Poljak

DVM Croatia, MSc, PhD Guelph - Associate Professor

#### Jan M. Sargeant

DVM, MSc, PhD Guelph - Professor and Director - Centre for Public Health and Zoonoses

#### Anita Tucker

BSc, MSc, PhD Guelph - Assistant Professor

#### Jeffrey Wichtel

BVSc, PhD Massey - Professor and Dean

### Associated Graduate Faculty

#### Theresa M. Bernardo

Assoc. of Music, DVM Guelph, MSc UPEI - Contractually Limited Faculty, Population Medicine, University of Guelph

#### Colleen Best

BSc, DVM, PHD Guelph - Contractually Limited Faculty, Population Medicine, University of Guelph

#### Ashlee Cunsolo

BA, MSc, PHD Guelph - Director, Labrador Institute of Memorial University

#### Shannon Majowicz

BSc, Guelph MSc Guelph, Ph.D Guelph - Assistant Professor, School of Public Health and Health Systems, University of Waterloo

#### Suzanne Millman

BSc, PhD Guelph - Associate Professor, Veterinary Diagnostic and Production Animal Medicine/Biomedical Science, Iowa State University

#### Richard Reid-Smith

BSc UWO, DVM Guelph, DVSc Guelph - Veterinary Epidemiologist, Public Health Agency of Canada

#### Karen Shapiro

BS, DVM, PHD, MPVM - Assistant Research Faculty, Pathology, University of California-Davis

#### Jeff Wilson

DVM, DVSc, PhD Guelph - President, Novometrix Inc., Moffat

### MSc Program

The department offers a MSc by thesis in the fields of: 1) epidemiology; 2) theriogenology; and 3) health management, and a MSc by course work in the field of: 1) epidemiology.

### Admission Requirements

When reviewing transcripts, the department focuses on the applicant's performance in undergraduate and graduate-level courses relevant to the applicant's proposed area of specialization. Students admitted must have an honours or DVM degree (or its equivalent). In addition, the department considers the applicant's special circumstances and the referees' comments. Since the core of the MSc by course work program builds on analytic skills, students entering the program should possess knowledge of basic statistical methods and their application.

All applicants should submit a one-page statement of research interests and career goals to assist in the identification of a faculty advisor who has the funding necessary to support the research. Students may be admitted into the Fall, Winter or Summer semesters.

### Degree Requirements

Students enrol in one of two study options: 1) thesis, or 2) course work and major research paper.

#### Thesis

The prescribed studies are a minimum of four courses (at least 2.0 course credits) appropriate to the discipline. Epidemiology I (POPM\*6200) is a required course for students in epidemiology; students in health management and theriogenology must take either Epidemiology I (POPM\*6200) or Applied Clinical Research (POPM\*6230). A minimum of 'B-' average is required in the prescribed studies. The department seminar course, POPM\*6100, is also required but does not count as one of the four courses. A thesis must be completed and successfully defended.

## Course Work and Major Research Paper

For the MSc by course work in the field of Epidemiology, no fewer than eight courses (at least 4.0 course credits) will be taken. These must be approved by the departmental Graduate Program Committee **and the Assistant Vice-President (Graduate Studies)**. Each student in the program will take three core courses (including the Project in Epidemiology course, POPM\*6250, which is equivalent to two courses), and at least four additional courses. The department seminar course, POPM\*6100, is also required but does not count as one of the eight courses. Normally, the prescribed courses for the MSc in Epidemiology by course work will include:

### Core Courses:

POPM*6200	[0.50]	Epidemiology I
POPM*6210	[0.50]	Epidemiology II
POPM*6250	[1.00]	Project in Epidemiology

### Additional Courses

The four courses selected in this category will depend upon the student's background, specialty, interest and area of research.

Examples of courses suitable for inclusion in the student's program include:

PABI*6550	[0.50]	Epidemiology of Zoonoses
POPM*6230	[0.50]	Applied Clinical Research
POPM*6290	[0.50]	Epidemiology III
POPM*6350	[0.50]	Safety of Foods of Animal Origins
POPM*6950	[0.50]	Studies in Population Medicine
STAT*6920	[0.50]	Topics in Statistics
POPM*6520	[0.50]	Introduction to Epidemiological and Statistical Methods
POPM*6700	[0.50]	Swine Health Management *
POPM*6400	[0.50]	Dairy Health Management *

Additional courses other than those listed above may be deemed suitable for the student's program by the Departmental Graduate Program Coordinator after recommendations are received from the Advisory Committee.

At least three semesters of full-time study will be required for completion of the MSc program by course work and major research study option; two of these semesters must be at the University of Guelph. Normally, however, students take 4-5 semesters to complete the program.

## PhD Program

### Admission Requirements

A PhD program is offered in the fields of epidemiology and Public Health. Admission into this program is usually granted to holders of an MSc or MPH degree who have demonstrated superior performance, or to master's students who have not completed their program but wish to transfer to the PhD program and have performed exceptionally well in courses, shown exceptional aptitude and skill in research, and whose research is suitable for expansion to the doctoral level. For transfer, a thesis proposal and strongly supportive letters of reference are required. Infrequently, well qualified DVM or honours degree holders may be accepted directly into the PhD program.

All applicants should submit a one-page statement of research interests and career goals to assist in the identification of a faculty advisor who has the funding necessary to support the thesis research. Students may be admitted into the Fall, Winter or Summer semesters.

### Degree Requirements

The major emphasis in the PhD program is on the preparation of an acceptable thesis. There are no specific course requirements other than the Seminar, POPM\*6100, which must be completed twice. However, PhD students who have taken the course or its equivalent previously as an MSc student will only be required to take the seminar course once. Students are also expected to have taken POPM\*6200 Epidemiology I (F) and POPM\*6210 Epidemiology II, or their equivalent, in their master's program. In addition, students in the Public Health field are expected to have taken POPM\*6550 Public Health Policy and Systems or its equivalent. It is usual for students, in consultation with their advisory committee, to select a suitable program of prescribed studies and additional courses. Course selection takes into account the student's background, research area, career aspirations, and need to prepare for the qualifying examination.

Courses should normally be completed before the qualifying exam is attempted. The written component of the examination is followed by an oral component (two to four hours), usually one week later. Master's holders must complete the qualifying examination by the end of the fifth semester. Students transferring from their master's program and those who enter the program directly after their honours or DVM degrees (or their equivalents) must complete the examination by the end of the seventh semester. In addition, the advisory committee is required to confirm that the student has demonstrated ability and promise in research. The PhD program is completed by the successful defence of a thesis.

## DVSc Program

The Department of Population Medicine participates in the DVSc program with recognized fields in health management and theriogenology. The normal basis for admission to DVSc studies as a regular or a provisional student is a DVM or equivalent degree that would allow the applicant to be eligible for licence to practice veterinary medicine in Ontario. The applicant must have achieved high academic standing as set out in the Admission Requirements in the DVSc program

### Health Management

Candidates must have a DVM or equivalent degree, appropriate clinical experience, cumulative average of at least a "B", and be licensed or eligible for licensing to practice veterinary medicine in Ontario. One position in ruminant health management and one position in swine health management are available during most academic years, and they normally start in May or September. It is a three-year program, which will provide training and experience in applied health management and clinical research. Approximately one-third of the time will involve clinical training, teaching final year veterinary students and service duties (including on-call), one-third course work and one-third research. Service duties in ruminant health management are with the Ruminant Field Service clinic of the Veterinary Teaching Hospital. In swine health management, clinical experience and advanced academic activities will be appropriate for a candidate preparing for board certification in Swine Health Management by the American Board of Veterinary Practitioners. The candidate will be required to complete a substantive thesis research project, related to an applied aspect of production medicine. The DVSc degree requirements include successful completion of 2.5 credits of prescribed graduate level courses, a qualifying examination in the student's discipline area, and a successful defence of a thesis. A faculty member(s) in the Department of Population Medicine will supervise each candidate for the Health Management DVSc position.

### Theriogenology

The Department of Population Medicine offers the Doctor of Veterinary Science (DVSc) degree in the field of Theriogenology. Prerequisites include a DVM or equivalent degree, one or two years of practice experience/internship, cumulative average of at least a "B", and eligibility for licensure to practice veterinary medicine in Ontario. The DVSc program provides rigorous advanced academic preparation in the discipline of Theriogenology with a view to preparation for Board Certification by the American College of Theriogenologists. The Theriogenology field at the Ontario Veterinary College is multi-species, with emphasis placed on a candidate's specific areas of interest. The DVSc differs from PhD training by emphasizing the development of both research and applied clinical skills. It is a three-year program, with approximately one-third of the time involving clinical duties within the Veterinary Teaching Hospital, including assisting in teaching of final year veterinary students. The remainder of effort is directed towards a substantive thesis research project in Theriogenology and coursework. The DVSc degree requirements include successful completion of 2.5 credits of prescribed graduate level courses, a qualifying examination and successful defense of a thesis. A faculty member(s) in the Department of Population Medicine will supervise each candidate for the Theriogenology DVSc position.

## Interdepartmental Programs

### Food Safety and Quality Assurance

The Department of Population Medicine participates in the MSc program in food safety and quality assurance. Those faculty members whose research and teaching expertise includes aspects of food safety and quality assurance may serve as advisors for MSc students. Please consult the Food Safety and Quality Assurance listing for a detailed description of the MSc program.

### Collaborative Specializations

#### International Development Studies

The Department of Population Medicine participates in the International Development Studies MSc course work/PhD collaborative specialization. Those faculty members whose research and teaching expertise includes aspects of international studies may serve as advisors for MSc course work/PhD in International Development Studies students. Please consult the International Development Studies listing for a detailed description of the collaborative specialization.

#### Neuroscience

The Department of Population Medicine participates in the Neuroscience MSc/PhD collaborative specialization. Those faculty members whose research and teaching expertise includes aspects of neuroscience may serve as advisors for MSc/PhD in Neuroscience students. Please consult the Neuroscience listing for a detailed description of the collaborative specialization.

## Courses

\*Given in alternate years.

## Epidemiology

### POPM\*6200 Epidemiology I F [0.50]

This course covers concepts, principles and methods of basic and applied epidemiology, including the following topics: sampling, measuring disease frequency, clinical epidemiology, descriptive epidemiology, causal reasoning and design, interpretation and critical appraisal of surveys, observational studies, field trials and critical appraisal.

*Restriction(s):* MPH and Population medicine students. Instructor consent required.

*Department(s):* Department of Population Medicine

### POPM\*6210 Epidemiology II W [0.50]

Advanced study design and analytic methods for the analysis of data from observational studies and surveys.

*Department(s):* Department of Population Medicine

### POPM\*6220 Analytical Epidemiology S [0.50]

This course focuses on the advanced analysis of epidemiologic studies. Case control, cohort and survival studies are analysed within the generalized linear-model framework. Links between study objectives, study design and data analysis will be emphasized throughout. Special problems, such as the analysis of correlated data arising from cluster sampling of individuals, are discussed.

*Prerequisite(s):* POPM\*6210 and POPM\*6290

*Department(s):* Department of Population Medicine

### POPM\*6230 Applied Clinical Research F [0.50]

This course is designed to help clinical researchers design, fund, and analyze their clinical research. Emphasis is placed upon planning a well-designed clinical trial and writing a well-organized grant proposal.

*Department(s):* Department of Population Medicine

### POPM\*6250 Project in Epidemiology S [1.00]

Collection and analysis of field data and the preparation of a written report suitable for publication, and oral presentation of the findings to the graduate faculty. This course is part of the MSc program by course work in epidemiology.

*Department(s):* Department of Population Medicine

### POPM\*6290 Epidemiology III F [0.50]

This course gives an overview of advanced methods for the analysis of data of clustered/correlated data as opposed to independent data. Special emphasis is on spatial, longitudinal, survival data and time series data.

*Prerequisite(s):* POPM\*6210 (or equivalent graduate course from another university)

*Department(s):* Department of Population Medicine

### POPM\*6520 Introduction to Epidemiological and Statistical Methods F [0.50]

This is a 0.5 credit introductory graduate course for MPH students and students interested in epidemiology. The course will provide an introduction to research design, grant proposal writing, and critical appraisal, as well as survey (questionnaire) design and basic statistical methods for epidemiological studies.

*Co-requisite(s):* POPM\*6200

*Department(s):* Department of Population Medicine

## Health Management

### POPM\*6400 Dairy Health Management \* S [0.50]

This course stresses a population-based, herd-level approach to dairy herd health management, in which optimizing the efficiency of the dairy enterprise is the overall goal. The biological and economic impacts of disease and management deficiencies on herd performance will be discussed as they relate to design and implementation of herd health programs. The course will emphasize the critical role of record keeping, data analysis and monitoring on program success.

*Department(s):* Department of Population Medicine

### POPM\*6700 Swine Health Management \* U [0.50]

Diseases of swine are studied with particular emphasis on preventive medicine and herd-health management.

*Department(s):* Department of Population Medicine

## Theriogenology

### POPM\*6610 Theriogenology of Cattle \* U [0.50]

A lecture/seminar course emphasizing the relationship of nutritional, genetic, endocrine, anatomic, and environmental factors with the reproductive health of cattle. Application of reproductive technologies will also be covered.

*Department(s):* Department of Population Medicine

### POPM\*6630 Theriogenology of Horses \* U [0.50]

A lecture/seminar course covering the genetic, endocrine, anatomic and environmental factors that affect reproductive performance and health of horses. Breeding management, including recent technologies, and management of the infertile animal will be included.

*Department(s):* Department of Population Medicine

### POPM\*6650 Theriogenology of Dogs and Cats \* U [0.50]

A seminar/lecture series that includes the theory and management of clinical reproduction for the dog and cat, including use of developing technologies.

*Department(s):* Department of Population Medicine

### POPM\*6670 Theriogenology of Small Ruminants \* U [0.50]

A seminar/laboratory course emphasizing advanced reproductive management of sheep, goats and farmed deer/elk, with the emphasis on a sheep production model. New reproductive technologies will be included.

*Department(s):* Department of Population Medicine

## Other

### POPM\*6100 Seminar F [0.00]

A practical course that utilizes tutorials, workshops, self and peer reviewed assessment to help participants develop skills in public speaking and presentation of scientific data. Each student presents at least one seminar on an approved subject during the departmental seminar series.

*Department(s):* Department of Population Medicine

### POPM\*6950 Studies in Population Medicine U [0.50]

Assigned reading and/or special projects selected to provide in-depth study of topics appropriate to the specialized interests of individual students. Courses offered under this title have included Special Topics in Public Health; Ecology and Health; Systems Approaches; and Animal Welfare. Different offerings are assigned different section numbers.

*Department(s):* Department of Population Medicine

## Public Health

### POPM\*6350 Safety of Foods of Animal Origins F [0.50]

The detection, epidemiology, human health risk, and control of hazards in food of animal origin.

*Offering(s):* Offered through Distance Education format only.

*Department(s):* Department of Population Medicine

### POPM\*6510 Community Health Promotion F [0.50]

The objective of this course is to provide students with an understanding of public health, population health and health promotion. Topics will include perspectives on health and illness, injury prevention, determinants of health, population diversity and the role of evidence in public health decision-making.

*Department(s):* Department of Population Medicine

### POPM\*6530 Health Communication W [0.50]

This course introduces communication theory, best practices, and skills related to public health. Students will learn about the written, oral, and visual communication of health information for professional, peer, and lay audiences. Students will apply their knowledge by creating a portfolio of health communication materials.

*Restriction(s):* MPH students. Instructor consent required.

*Department(s):* Department of Population Medicine

### POPM\*6540 Concepts in Environmental Public Health W [0.50]

This course covers the main concepts of environmental public health including basic elements of environmental toxicology, risk analysis, air and water quality, food safety, waste, occupational health and eco health.

*Department(s):* Department of Population Medicine

### POPM\*6550 Public Health Policy and Systems W [0.50]

This course covers concepts and principles of public health policy and systems including: public health systems, their structure, funding and governance and their integration into the healthcare system; evolution of public health policy; models of policy development and analysis; stakeholder analysis; and, public health ethics.

*Department(s):* Department of Population Medicine

### POPM\*6560 Public Health Practicum U [1.00]

In this 1.0 credit course, students will synthesize theoretical concepts, learned via prior coursework, with public health practice. Students will work in a host public health agency for a 12-to 16-week period, focusing on a major project of significance to the host organization.

*Prerequisite(s):* POPM\*6200, POPM\*6510, POPM\*6520, POPM\*6530, POPM\*6540, and POPM\*6550

*Restriction(s):* MPH students only. Instructor consent required.

*Department(s):* Department of Population Medicine

**POPM\*6570 Public Health Capstone F [0.00]**

This course serves as a capstone for students in the Master of Public Health program to reflect on, interpret, and present their practicum work in a variety of formats, including public presentation, to enhance their communication skills and abilities.

*Prerequisite(s):* POPM\*6560 or instructor's signature required

*Department(s):* Department of Population Medicine

**POPM\*6580 Public Health Administration F [0.50]**

This course will teach students to develop, implement and improve public health programs. Understanding an organization's mission and priorities, and developing business plans is critical for an effective administrator. Furthermore, it introduces theories and effective components of leadership and describes the practical role of the leader.

*Department(s):* Department of Population Medicine

**POPM\*6590 Public Health Practicum II W [1.00]**

This course allows students in the Master of Public Health program to undertake an optional second practicum experience. They will work in a host public health organization or agency for a 12- to 16-week period, focusing on a major project of significance to the host organization.

*Prerequisite(s):* POPM\*6560

*Restriction(s):* Public Health program. Instructor consent required.

*Department(s):* Department of Population Medicine

## Psychology

The Department of Psychology offers programs in four fields of psychology: 1) applied social psychology, 2) clinical child and adolescent psychology, 3) industrial/organizational psychology and 4) neuroscience and applied cognitive science.

### • Applied Social Psychology (MA, PhD)

Applied Social Psychology is based on the investigation of social processes and problems of significance to the general community and to specific groups. Areas of investigation may include, but are not limited to, aging, ethics, health, policy, equity, community services, the environment, ethnicity, and gender. Diverse research strategies, including qualitative and quantitative methods, are used to answer questions related to social issues. Graduate study in Applied Social Psychology is designed to prepare students for academic and applied research careers in a wide range of settings. The graduate program has two emphases: (1) the pursuit of advanced research, and (2) the design and evaluation of programs that aim to reduce social problems and promote human welfare.

### • Clinical Child and Adolescent Psychology (MA, PhD)

The area of Clinical Child and Adolescent Psychology concentrates on understanding the development and treatment of psychological disorders experienced by children, youth and families. This includes a focus on the social, emotional, cognitive, and neurobiological features of normal and atypical development; risk and protective factors that influence the nature and progression of atypical development and response to treatment; and approaches to assessment, psychodiagnosis, and intervention. Also considered is the developmental impact of stressful life events such as divorce, illness, poverty, adoption, and death. Training in this field follows an integrated series of courses and practica which contributes to and mutually supports the students' acquisition of competence as both practitioners and researchers. Students participate in our on-campus clinic, the Centre for Psychological Services, and complete off campus practica in hospitals, schools and mental health settings under the supervision of registered psychologists. This training allows students to enter careers involving clinical and/or research positions in mental health centres, hospitals, schools, and the private sector, as well as careers involving teaching and research in university settings. It also prepares students for registration as psychologists with provincial licensing boards.

### • Industrial/Organizational Psychology (MA, PhD)

The objective of study in the area of Industrial/Organizational Psychology is to train future professionals in the area of Industrial/Organizational Psychology following the guidelines established by the Canadian Society for Industrial/Organizational Psychology. Graduate students are expected to obtain a high level of proficiency in both research skills and practice in the core areas of Industrial/Organizational Psychology including personnel selection, organizational behaviour, work attitudes, performance appraisal, and measurement of individual differences. Graduates from this field of study will be in a position to enter careers in a wide range of private and public sector organizations, including universities, consulting firms, industries, and government agencies.

### • Neuroscience and Applied Cognitive Science (MSc, PhD)

This program encompasses: basic cognitive processes, behavioural neuroscience, cognitive ergonomics, cognitive neuroscience, developmental and life-span cognition, and foundations of cognitive science. Students in these disciplines have the opportunity to learn about the interdisciplinary work of other students, faculty and outside researchers in the weekly research seminar in Neuroscience and Applied Cognitive Science. Additionally, students take courses specific to their research. A unique feature of this area of study is the practicum that provides students with additional specific training in a research laboratory, hospital, government agency, or non-government agency.

Note that the Masters programs are an integral part of the doctoral studies and students are admitted with the expectation of completing the doctoral degree. These areas of study, which are described below, provide training in both research and professional skills, as well as a firm grounding in theory and research in relevant content areas. See the department website at <http://www.psychology.uoguelph.ca> for additional information.

Faculty in Psychology also participate in the interdepartmental programs in Neuroscience and Toxicology

## Administrative Staff

### Chair

Francesco Leri (4013 MacKinnon, Ext. 58264)  
fleri@uoguelph.ca

### Graduate Program Coordinator (Summer 2018)

Daniel Meegan (3018 MacKinnon, Ext. 54999)  
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### Graduate Program Coordinator (effective Fall 2018)

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### Graduate Program Assistant

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## Graduate Faculty

### Naseem Al-Aidroos

BSc Waterloo, MA, PhD Toronto - Associate Professor

### Heidi N. Bailey

BA British Columbia, PhD Western - Associate Professor

### Paula Barata

BA British Columbia, MA, PhD Windsor - Associate Professor

### Patrick Barclay

BSc Guelph, PhD McMaster - Associate Professor

### Elena Choleris

BSc, PhD Parma (Italy) - Professor

### Donald Dedrick

BA, MA Carleton, PhD Toronto - Associate Professor, (cross-appointed with Department of Philosophy)

### Serge Desmarais

BA, MA, PhD Waterloo - Professor

### Mark J. Fenske

BSc Lethbridge, MA, PhD Waterloo - Associate Professor

### Christopher Fiacconi

BSc Western, PhD McMaster - Assistant Professor

### Benjamin Giguère

BA McGill, MA, PhD York - Associate Professor

### Harjinder Gill

BA Waterloo, MA, PhD Western Ontario - Associate Professor

### Gloria Gonzalez-Morales

BA La Laguna, DIPL, PhD Valencia - Associate Professor

### Peter A. Hausdorf

BSc McMaster, MA Guelph, PhD McMaster - Associate Professor and Graduate Program Coordinator

### Karl H. Hennig

BE, MA, PhD British Columbia - Assistant Professor

### Francesco Leri

BA, MA, PhD McGill - Professor and Chair

### Stephen Lewis

BSc, PhD Dalhousie - Associate Professor

### Margaret N. Lumley

BA Waterloo, MA, PhD Queen's - Associate Professor and Director of Clinical Training

### Harvey H.C. Marmurek

BA Toronto, MA, PhD Ohio State - Professor

### Kaitlyn McLachlan

BA York, MA, PhD Simon Fraser - Assistant Professor

### C. Meghan McMurtry

BA Laurier, PhD Dalhousie - Associate Professor

### Daniel V. Meegan

BA SUNY at Albany, PhD McMaster - Associate Professor

### Barbara A. Morrongiello

BA Douglass College (Rutgers), MS, PhD Massachusetts - Professor, Canada Research Chair

### Jennifer Murray

BSc Nebraska-Kearney, MA, PhD Nebraska-Lincoln - Assistant Professor

### Ian R. Newby-Clark

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### Kieran O'Doherty

BSc Witwatersrand, BHSc, PhD Adelaide - Associate Professor

### Linda A. Parker

BA, MA California State, Long Beach PhD Memorial - Professor, Canada Research Chair

### Deborah Powell

BA Queen's, MA, PhD Western - Associate Professor

### Saba F. Safdar

BA McMaster, MA, PhD York - Professor

### Leanne S.M. Son Hing

BA Queen's, MA, PhD Waterloo - Associate Professor

### Jeffrey Spence

BA Laurier, MA, PhD Waterloo - Associate Professor

### David Stanley

BA Waterloo, MA, PhD Western Ontario - Associate Professor

### Kristel Thomassin

BA Vanderbilt, MSc, PhD Georgia - Assistant Professor

### Lana M. Trick

BSc Calgary, MA, PhD Western Ontario - Professor



**Franco Vaccarino**

BSc Toronto, MA, PhD McGill - Professor, President, and Vice-Chancellor

**Boyer D. Winters**

BA Dalhousie, PhD Cambridge - Associate Professor and Director of Collaborative Neuroscience

**Jeffery Yen**

BSc MA Rhodes, PhD Toronto - Associate Professor

**Arlene Young**

BA Guelph, MSASc, PhD Waterloo - Associate Professor

**Associate Graduated Faculty****Eileen Gross**

BA NY Stonybrook, MSc Adelphi - Contractually Limited Faculty, Department of Psychology, University of Guelph

**Elissa Newby-Clark**

BASc McMaster, PhD Waterloo - Contractually Limited Faculty, Department of Psychology, University of Guelph

**Greg Simpson**

BAH Laurier, MA, PhD American Washington - Contractually Limited Faculty, Department of Psychology, University of Guelph

**MA Program**

The MA program is offered in: 1) Applied Social Psychology; 2) Clinical Child and Adolescent Psychology and 3) Industrial/Organizational Psychology.

**Admission Requirements**

Consideration for admission to the MA program in the areas of Applied Social Psychology, Clinical Child and Adolescent Psychology, or Industrial/Organizational Psychology will be given to students with an Honours BA or BSc (or its equivalent) in Psychology and a minimum of a 'B+' standing. Students are normally expected to have taken courses across the breadth of psychology with some courses in the area to which they are applying. A strong background in methodology and statistics is expected. As well, applicants must have undertaken an Honours thesis research project or senior research project equivalent. Students are admitted to the MA program with the understanding that they intend to proceed to the PhD program. To apply for admission, applicants must view "How to Apply" in the section Prospective Students... Graduate, in the Psychology Department website <http://www.psychology.uoguelph.ca> This is a self administered application.

**Degree Requirements****Applied Social Psychology**

PSYC\*6060 [0.50] Research Design and Statistics

OR

PSYC\*6940 [0.50] Discrete-variable Statistics

(upon consultation with Advisor as to which is most appropriate)

PSYC\*6471 [0.50] Practicum I

PSYC\*6880 [0.25] Ethical Issues in Psychology

At least 2 of the following 3 core AS courses:

PSYC\*6910 [0.50] Critical Approaches to Applied Social Psychology

PSYC\*6920 [0.50] Applied Social Psychology and intervention

PSYC\*6930 [0.50] Community, Culture &amp; Global Citizenship

At least 1 elective from the following list:

PSYC\*6380 [0.50] Psychological Applications of Multivariate Analysis

PSYC\*6521 [0.25] Research Seminar I

PSYC\*6670 [0.50] Research Methods

PSYC\*6840 [0.50] Program Evaluation

PSYC\*6950 [0.50] Qualitative Methods in Psychology

PSYC\*7070 [0.50] Psychological Measurement

And MA Thesis.

**Clinical Child and Adolescent Psychology**

PSYC\*6000 [0.50] Developmental Psychopathology: Etiology and Assessment

PSYC\*6010 [0.50] Integrated Child and Adolescent Assessment

PSYC\*6020 [0.50] Clinical and Diagnostic Interviewing Skills

PSYC\*6060 [0.50] Research Design and Statistics

OR

PSYC\*6940 [0.50] Discrete-variable Statistics

(upon consultation with Advisor as to which is most appropriate)

PSYC\*6630 [0.50] Developmental Psychology

PSYC\*6690 [0.50] Foundations in Cognitive Assessment of Child and Adolescents

PSYC\*6700 [0.50] Personality and Social Assessment of Children and Adolescents

PSYC\*6880 [0.25] Ethical Issues in Psychology

PSYC\*7991 [0.25] CCAP Clinical Practicum I

PSYC\*7992 [0.50] CCAP Clinical Practicum II

And MA Thesis.

**Industrial/Organizational Psychology**

PSYC\*6060 [0.50] Research Design and Statistics

PSYC\*6380 [0.50] Psychological Applications of Multivariate Analysis

PSYC\*6670 [0.50] Research Methods

PSYC\*7080 [0.00] Consulting in Industrial/Organizational Psychology

PSYC\*7130 [0.50] Introduction to Industrial/Organizational Psychology

At least 2 of the following set of 3 electives:

PSYC\*7010 [0.50] Recruitment and Selection: Methods and Outcomes

PSYC\*7020 [0.50] Employee Performance

PSYC\*7160 [0.50] Employee Development: Methods and Outcomes

At least 2 of the following set of 3 electives:

PSYC\*7030 [0.50] Work Attitudes and Behaviour

PSYC\*7040 [0.50] Social Processes in the Workplace

PSYC\*7190 [0.50] Work Motivation and Leadership

And MA Thesis

**MSc Program**

The MSc program is offered in the field of: 1) Neuroscience and Applied Cognitive Science.

**Admission Requirements**

Consideration for admission to the MSc program will be given to students with an honours BA or BSc (or its equivalent) in Psychology or a related field of study (e.g. neuroscience) and a minimum of a 'B+' standing. Students are normally expected to have taken courses across the breadth of psychology with some courses in the area to which they are applying. A strong background in methodology and statistics is expected. As well, applicants must have undertaken an Honours thesis research project or senior research project equivalent. Students are admitted to the MSc program with the understanding that they intend to proceed to the PhD program.

**Degree Requirements**

The program involves three components:

1. Preparatory Course Work Students will acquire knowledge and skills necessary to carry our Neuroscience and Cognitive Science research in academic and/or applied settings. This will involve a course in Research Design and Statistics, a course in Research Ethics (Animal research ethics or Human research ethics), at least one elective in their specific field of research and the Research Seminar in Neuroscience and Applied Cognitive Science.
2. Practicum One of the unique features of University of Guelph's Neuroscience and Applied Cognitive Science masters program is the practicum. Students will complete a practicum in a variety of research settings, including government agencies, hospitals, businesses, and other research laboratories. The practicum may involve learning a new technique in a laboratory other than that of the advisor. Practicum experiences will be tailored to the student's interests, and will enable student to acquire and refine skills and develop professional contacts. The research practicum is a required course for Masters students.
3. Thesis research Students will carry out an independent research project under the supervision of a faculty supervisor. This will involve a thesis for the Masters program.

PSYC\*6060 [0.50] Research Design and Statistics

OR

PSYC\*6940 [0.50] Discrete-variable Statistics

(upon consultation with Advisor as to which is most appropriate)

PSYC\*6471 [0.50] Practicum I

PSYC\*6472 [1.00] Practicum II

PSYC\*6473 [0.25] Practicum III

(upon consultation with Advisor/Practicum Coordinator as to which is most appropriate)

PSYC\*6740 [0.50] Research Seminar in Neuroscience and Applied Cognitive Science A

PSYC\*6880 [0.25] Ethical Issues in Psychology

OR

UNIV\*6600 [0.00] Animal Care Short Course

Students must also take at least 1 of the following electives:

PSYC\*6750 [0.50] Applications of Cognitive Science

PSYC\*6780 [0.50] Foundations of Cognitive Science

PSYC\*6790 [0.50] Memory and Cognition

PSYC\*6800 [0.50] Neurobiology of Learning

PSYC\*6810 [0.50] Neuropsychology

NEUR\*6000 [0.50] Principles of Neuroscience

Students are also given the option of choosing a graduate elective from outside this list with the permission of their advisor.

If students take more than one year to complete their Masters degree, then for each Fall and Winter semester until they graduate, they must register in PSYC\*6760 [0.0] Research Seminar in Neuroscience and Applied Cognitive Science B.

All students must also complete a MSc thesis.

## PhD Program

The PhD program is offered in the fields: 1) applied social psychology; 2) clinical child and adolescent psychology; 3) industrial/organizational psychology and 4) neuroscience and applied cognitive science.

## Admission Requirements

Students must have completed Masters requirements in the appropriate field of study (Neuroscience and Applied Cognitive Science; Applied Social Psychology; Clinical Child and Adolescent Psychology; Industrial/Organizational Psychology) with a minimum 'A-' standing to be eligible for admission to the PhD program. These Masters requirements are normally met within the department in a two-year course of studies comprising specified course work and a thesis. Students admitted to the PhD program who have completed MA or MSc degrees in other fields of study and/or from other universities may be required to take Masters level courses and complete clinical practica to ensure adequate background preparation for PhD work.

## Degree Requirements

### Applied Social Psychology

PSYC\*6900 [0.50] Philosophy and History of Psychology as a Science

One of the following:

PSYC\*6380 [0.50] Psychological Applications of Multivariate Analysis

PSYC\*6950 [0.50] Qualitative Methods in Psychology

One of the following 3 core AS courses:

PSYC\*6910 [0.50] Critical Approaches to Applied Social Psychology

PSYC\*6920 [0.50] Applied Social Psychology and intervention

PSYC\*6930 [0.50] Community, Culture & Global Citizenship

One elective course to be determined in consultation with the student's PhD Advisory Committee and approved by the Graduate Area Representative.

One of the following two experiential courses:

PSYC\*6471 [0.50] Practicum I

OR

PSYC\*6472 [1.00] Practicum II

PSYC\*6522 [0.50] Research Seminar II

Qualifying Exam;

And PhD Thesis.

### Clinical Child and Adolescent Psychology

PSYC\*6580 [0.50] Foundations in Child and Adolescent Psychotherapy

PSYC\*6610 [0.50] Advanced Child and Adolescent Psychotherapy

PSYC\*6840 [0.50] Program Evaluation

PSYC\*6890 [0.25] Legislation and Professional Practice

PSYC\*6900 [0.50] Philosophy and History of Psychology as a Science

PSYC\*7070 [0.50] Psychological Measurement

PSYC\*7993 [1.00] CCAP Clinical Practicum III

PSYC\*7994 [1.00] Cognitive Behaviour Therapy Practicum

PSYC\*7996 [0.50] Clinical Supervision, Consultation and Professional Development

PSYC\*8000 [0.00] Clinical Internship

Students who complete this accredited Doctoral program in clinical psychology are expected to have breadth of training within the larger discipline of Psychology. If a student has not completed 2 senior undergraduate half courses in the biological bases of behaviour, the following course is required:

PSYC\*6810 [0.50] Neuropsychology

If a student has not completed 2 senior undergraduate half courses in social bases of behavior, the following course is required:

PSYC\*6920 [0.50] Applied Social Psychology and intervention

OR

PSYC\*6930 [0.50] Community, Culture & Global Citizenship

If a student has not completed 2 senior undergraduate half courses in the cognitive-affective bases of behaviour, the following course is required:

PSYC\*6790 [0.50] Memory and Cognition

The following course is required if a student has not taken a one half undergraduate course of this nature:

PSYC\*6900 [0.50] Philosophy and History of Psychology as a Science

Qualifying Exam;

And PhD Thesis.

### Industrial/Organizational Psychology

PSYC\*6900 [0.50] Philosophy and History of Psychology as a Science

PSYC\*7070 [0.50] Psychological Measurement

PSYC\*7080 [0.00] Consulting in Industrial/Organizational Psychology

And if not already taken during Master's Degree:

PSYC\*7130 [0.50] Introduction to Industrial/Organizational Psychology

At least 1 of the following set of 3 courses:

PSYC\*7010 [0.50] Recruitment and Selection: Methods and Outcomes

PSYC\*7020 [0.50] Employee Performance

PSYC\*7160 [0.50] Employee Development: Methods and Outcomes

At least 1 of the following set of 3 courses:

PSYC\*7030 [0.50] Work Attitudes and Behaviour

PSYC\*7040 [0.50] Social Processes in the Workplace

PSYC\*7190 [0.50] Work Motivation and Leadership

One elective from:

PSYC\*6840 [0.50] Program Evaluation

PSYC\*7140 [0.50] Industrial/Organizational Psychology Special Topic

Doctoral Research Seminar

PSYC\*7170 [0.50] Industrial/Organizational Psychology Doctoral Research

Internship I

PSYC\*7180 [0.50] Industrial/Organizational Psychology Doctoral Research

Internship II

Qualifying Exam;

And PhD Thesis.

### Neuroscience and Applied Cognitive Science

PSYC\*6760 [0.00] Research Seminar in Neuroscience and Applied Cognitive Science B

(must be taken each year of the program)

For students coming from other Master's programs:

PSYC\*6880 [0.25] Ethical Issues in Psychology

OR

UNIV\*6600 [0.00] Animal Care Short Course

Three elective courses from the list below, with the option of PSYC\*6472 which is credited as 2 electives.

PSYC\*6472 [1.00] Practicum II

PSYC\*6473 [0.25] Practicum III

PSYC\*6750 [0.50] Applications of Cognitive Science

PSYC\*6780 [0.50] Foundations of Cognitive Science

PSYC\*6790 [0.50] Memory and Cognition

PSYC\*6800 [0.50] Neurobiology of Learning

PSYC\*6810 [0.50] Neuropsychology

PSYC\*6900 [0.50] Philosophy and History of Psychology as a Science

NEUR\*6000 [0.50] Principles of Neuroscience

Students are also given the option of choosing a graduate elective from outside this list with the permission of their advisor.

Qualifying Exam;

And PhD Thesis

## Collaborative Specializations

Faculty in Psychology also participate in the collaborative specializations in Neuroscience and Toxicology

## Courses

**Restriction:** All courses are restricted to Psychology graduate students; all others are by permission only. Students from all areas of Psychology may choose from the Department Core courses. For convenience, the other graduate courses are categorized by area, but students from any area may take courses from outside their specific area with the permission of their thesis advisor and with instructor consent. In fact, in some cases, students are encouraged to take courses out of area as these courses are specified in their list of electives or required courses.

## Departmental Core Courses

### PSYC\*6060 Research Design and Statistics U [0.50]

This course covers non-parametric and parametric hypothesis testing and estimation, analysis of variance and covariance, and multiple correlation and multiple regression. Current controversial issues are presented.

*Department(s):* Department of Psychology

### PSYC\*6190 Research Project U [1.00]

This course is an option for students in the applied streams of MA studies who do not plan on proceeding to a PhD program. Under the supervision of a faculty member, students will design and conduct an empirical investigation in their area of emphasis.

*Department(s):* Department of Psychology

### PSYC\*6380 Psychological Applications of Multivariate Analysis U [0.50]

This course emphasizes the use of multivariate techniques in psychological research. Both predictive (e.g., regression, canonical correlation, discriminant analysis, MANOVA) and reduction (e.g., factor analysis, multidimensional scaling, cluster analysis) techniques are considered in addition to the use of both observed and latent variable structural models.

*Department(s):* Department of Psychology

### PSYC\*6401 Reading Course I U [0.25]

An independent in-depth study of current theoretical and empirical issues in the student's area of specialization.

*Department(s):* Department of Psychology

**PSYC\*6402 Reading Course II U [0.50]**

An independent in-depth study of current theoretical and empirical issues in the student's area of specialization.

*Department(s):* Department of Psychology

**PSYC\*6411 Special Problems in Psychology I U [0.25]**

A critical examination of current problems relating to conceptual and methodological developments in an area of psychology.

*Department(s):* Department of Psychology

**PSYC\*6412 Special Problems in Psychology II U [0.50]**

A critical examination of current problems relating to conceptual and methodological developments in an area of psychology.

*Department(s):* Department of Psychology

**PSYC\*6471 Practicum I U [0.50]**

Students will gain 2-3 days per week of supervised experience in a setting related to their field of specialization.

*Department(s):* Department of Psychology

**PSYC\*6472 Practicum II U [1.00]**

See PSYC\*6471 . Students work four to five days a week in the selected setting.

*Department(s):* Department of Psychology

**PSYC\*6473 Practicum III U [0.25]**

See PSYC\*6471. This course is intended for students who wish to gain additional practicum experience after completing the requirements for PSYC\*6471/PSYC\*6472. Students work one day a week in the selected setting.

*Department(s):* Department of Psychology

**PSYC\*6521 Research Seminar I U [0.25]**

An in-depth review of current theoretical and empirical developments in topic areas related to the student's area of specialization.

*Department(s):* Department of Psychology

**PSYC\*6522 Research Seminar II U [0.50]**

An in-depth review of current theoretical and empirical developments in topic areas related to the student's area of specialization. The course requirements may include the completion of an empirical research project.

*Department(s):* Department of Psychology

**PSYC\*6670 Research Methods U [0.50]**

This course emphasizes those techniques most frequently used in applied and field settings. These include: quasi-experimental designs, survey research, interviewing, questionnaire design, observational techniques, and other more qualitative methods.

*Department(s):* Department of Psychology

**PSYC\*6880 Ethical Issues in Psychology U [0.25]**

Relevant issues in the application of professional ethical standards to the practice of psychology, including consultation, field research, intervention, and decision-making models are discussed in this half course. Depending on the particular faculty and students involved, discussion emphasizes specific applications to either I/O or applied developmental/social psychology.

*Department(s):* Department of Psychology

**PSYC\*6890 Legislation and Professional Practice U [0.25]**

This companion course to PSYC\*6880, Ethics in Psychology, provides an introduction to the Provincial and Federal legislation governing the practice of psychology. Students will become familiar with legislation relevant to professional practice with children and adults in hospital, educational, community, and other settings.

*Co-requisite(s):* PSYC\*6880

*Department(s):* Department of Psychology

**PSYC\*6900 Philosophy and History of Psychology as a Science U [0.50]**

This doctoral course examines the philosophical and metatheoretical issues involved in the scientific analysis of human experience. Both the historical context of these issues and the status of current metatheoretical debates are covered.

*Department(s):* Department of Psychology

**PSYC\*6940 Discrete-variable Statistics U [0.50]**

This course is an in-depth examination of statistical approaches used in psychology, with an emphasis on experimental research designs with discrete independent variables (e.g., t-test, ANOVA, general linear model), and how these approaches address ongoing statistical challenges faced by psychological researchers, such as replication and generalizability.

*Department(s):* Department of Psychology

**PSYC\*6950 Qualitative Methods in Psychology U [0.50]**

The purpose of this course is to provide students with foundational knowledge and skills to conduct qualitative research in psychology. Approaches that will be covered may include discursive psychology, critical discourse analysis, grounded theory, thematic analysis, ethnography, and interpretive phenomenological analysis.

*Department(s):* Department of Psychology

**PSYC\*7070 Psychological Measurement U [0.50]**

Concepts and applications of classical measurement theory, especially reliability and validity of tests and measurements used in applied psychology. Principles of test construction, standardization, norming, administration, and interpretation are discussed, as well as integration of test information and its use in decision making.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Psychology

**Neuroscience and Applied Cognitive Science****PSYC\*6740 Research Seminar in Neuroscience and Applied Cognitive Science A U [0.50]**

This course will expose graduate students to some of the major theories, issues and methodologies driving research in the broad field of Neuroscience and Applied Cognitive Science. Students will learn to critically evaluate presentations by researchers as well as to communicate the results of their own research, in both a written and oral format. All first year master's students in NACS are required to enroll in this course in both the fall and winter semesters.

*Department(s):* Department of Psychology

**PSYC\*6750 Applications of Cognitive Science U [0.50]**

This course surveys applications of cognitive science to the problem of optimizing human performance. Topics of discussion will include human-system interactions (including Human-Computer and Human-Vehicle), education, and cognitive rehabilitation.

*Department(s):* Department of Psychology

**PSYC\*6760 Research Seminar in Neuroscience and Applied Cognitive Science B U [0.00]**

This course will expose graduate students to some of the major theories, issues and methodologies driving the research broad field of Neuroscience and Applied Cognitive Science. Students will learn to critically evaluate presentations by researchers in this field as well as to communicate the results of their own research, in both a written and oral format. All second year master's and doctoral students in NACS are required to enroll in this course each fall and winter semester of their graduate program until they graduate.

*Department(s):* Department of Psychology

**PSYC\*6780 Foundations of Cognitive Science U [0.50]**

Cognitive Science is an inter-disciplinary field that encompasses cognitive psychology, neuroscience, philosophy, and computer science. The foundational issues and basic methodologies that define cognitive science will be discussed, with specific examples from perception, learning, memory, language, decision-making, and problem solving.

*Restriction(s):* Restricted to Psychology graduate students; all others by permission only

*Department(s):* Department of Psychology

**PSYC\*6790 Memory and Cognition U [0.50]**

This course reviews the major theories, issues and methodologies guiding contemporary research in human memory and related aspects of human cognition. Topics include the encoding and retrieval of information, the nature of representations in memory, classifications of memory, and applications to reading and eyewitness testimony.

*Department(s):* Department of Psychology

**PSYC\*6800 Neurobiology of Learning U [0.50]**

This course reviews the major theories, issues, and methodologies guiding contemporary research in the neurobiology of learning.

*Department(s):* Department of Psychology

**PSYC\*6810 Neuropsychology U [0.50]**

This course focuses on current developments in neuropsychology. Particular emphasis is placed on the aphasia, apraxias, memory disorders, and disorders of movement.

*Department(s):* Department of Psychology

**Applied Social Psychology****PSYC\*6270 Issues in Social Policy U [0.50]**

This doctoral course examines historical developments and selected contemporary policy domains in Canada. Topics may include policies affecting children, families, the elderly, First Nations people, the mentally and physically disabled, and one parent families. The course also addresses the interplay between social and psychological research and policy formation, as well as the use of social policy as an instrument of social change.

*Department(s):* Department of Psychology

**PSYC\*6840 Program Evaluation U [0.50]**

This course provides an introduction to a variety of methods of social program evaluation and to the process of consultation with program staff.

*Department(s):* Department of Psychology

**PSYC\*6910 Critical Approaches to Applied Social Psychology U [0.50]**

The purpose of this course is to introduce students to critical approaches to applied social psychology. The course will address theoretical traditions and methodologies that take as their starting point a reflexive critique and evaluation of culture, society, and its institutions.

*Department(s):* Department of Psychology

**PSYC\*6920 Applied Social Psychology and intervention U [0.50]**

This course will critically examine theoretical approaches and research in the field of applied social psychology with a particular focus on work aimed at generating intervention strategies intended to ameliorate social and practical problems. The course will also consider implications for social policy.

*Department(s):* Department of Psychology

**PSYC\*6930 Community, Culture & Global Citizenship U [0.50]**

The purpose of this course is to conceptualize community and cultural psychological work in the context of global citizenship. The course will cover theory and methods for addressing such issues as community health, poverty, violence, immigration, diversity and acculturation, in an interconnected, interdependent and globalized world.

*Department(s):* Department of Psychology

**Clinical Child and Adolescent Psychology****PSYC\*6000 Developmental Psychopathology: Etiology and Assessment U [0.50]**

The interaction of neurobiological, physiological, familial and social factors to an understanding of developmental psychopathology is the focus of this course. Emphasis is given to etiology and clinical assessment issues.

*Department(s):* Department of Psychology

**PSYC\*6010 Integrated Child and Adolescent Assessment W [0.50]**

This course focuses on the cognitive and academic components of comprehensive cognitive assessment. The conceptualization and clinical skills in assessing cognitive processes and their application to the assessment of neurodevelopmental disorders (e.g., Specific Learning Disorders, ADHD, ASD, FASD) will be examined.

*Prerequisite(s):* PSYC\*6690

*Restriction(s):* Open only to graduate students in the Clinical Child and Adolescent Psychology (CCAP) field

*Department(s):* Department of Psychology

**PSYC\*6020 Clinical and Diagnostic Interviewing Skills S [0.50]**

This course provides practical training in clinical and diagnostic interviewing. Through role-play, direct observation, and in-vivo practice, students will learn how to conduct assessment and diagnostic interviews, and clinical dialogues with children and adults. This course is open only to graduate students in the CCAP field.

*Prerequisite(s):* Completion of all MA level course work except for the thesis

*Restriction(s):* Open only to graduate students in the Clinical Child and Adolescent Psychology (CCAP) field

*Department(s):* Department of Psychology

**PSYC\*6270 Issues in Social Policy U [0.50]**

This doctoral course examines historical developments and selected contemporary policy domains in Canada. Topics may include policies affecting children, families, the elderly, First Nations people, the mentally and physically disabled, and one parent families. The course also addresses the interplay between social and psychological research and policy formation, as well as the use of social policy as an instrument of social change.

*Department(s):* Department of Psychology

**PSYC\*6580 Foundations in Child and Adolescent Psychotherapy F [0.50]**

This course introduces foundations of practice in conducting psychotherapy with children and adolescents, highlighting evidence-based practice. Major models of child/adolescent psychotherapy and case conceptualization are introduced.

*Restriction(s):* Open only to graduate students in the Clinical Child and Adolescent Psychology (CCAP) field.

*Department(s):* Department of Psychology

**PSYC\*6610 Advanced Child and Adolescent Psychotherapy U [0.50]**

This course will consider newly emerging developments in child and adolescent psychotherapy, as well as issues of power relationships, cultural sensitivity and empirical support. In preparation, students should endeavor to complete two therapy cases prior to the commencement of the course.

*Prerequisite(s):* PSYC\*6580 and PSYC\*7993 (may be taken concurrently).

*Restriction(s):* This course is open only to graduate students in the CP:ADE field.

*Department(s):* Department of Psychology

**PSYC\*6630 Developmental Psychology U [0.50]**

This course examines issues in the areas of cognitive, social, and emotional development. Specific research topics and theoretical issues concerning the nature of development are discussed.

*Department(s):* Department of Psychology

**PSYC\*6690 Foundations in Cognitive Assessment of Child and Adolescents F [0.50]**

This course considers standards, ethics, uses and interpretation of selected intelligence and other cognitive tests. Students administer tests, score, interpret and write reports under supervision.

*Restriction(s):* This course is open only to graduate students in the CCAP field.

*Department(s):* Department of Psychology

**PSYC\*6700 Personality and Social Assessment of Children and Adolescents U [0.50]**

This course considers projectives, questionnaires, observations and interviews for assessing children's personality and behaviour. Students administer tests, score, interpret and write reports under supervision.

*Restriction(s):* This course is open only to graduate students in the CCAP field.

*Department(s):* Department of Psychology

**PSYC\*7991 CCAP Clinical Practicum I U [0.25]**

This CCAP practicum is typically undertaken at the Center for Psychological Services, one day a week over a semester, to enhance skills introduced in other clinical courses. Expectations for the course will be based on the student's current level of clinical skill. Students will work with diverse clients, and gain knowledge of ethics and jurisprudence in a clinical setting.

*Restriction(s):* Restricted to students in the CCAP field

*Department(s):* Department of Psychology

**PSYC\*7992 CCAP Clinical Practicum II U [0.50]**

This CCAP practicum is undertaken in a school board, psychological services department for two days a week over one semester. Students will develop clinical assessment skills with a diversity of clients, work with interdisciplinary teams, and apply knowledge of ethics and jurisprudence to educational settings. A passing grade and a satisfactory rating on the practical component must be achieved in PSYC\*6690 and PSYC\*6700 to enroll in this course.

*Prerequisite(s):* PSYC\*6010, PSYC\*6690, and PSYC\*6700

*Restriction(s):* Restricted to students in the CCAP field

*Department(s):* Department of Psychology

**PSYC\*7993 CCAP Clinical Practicum III U [1.00]**

This CCAP practicum is undertaken in a children's mental health setting two days a week over two semesters. Students will develop complex assessment and therapy skills with diverse clients, work with interdisciplinary team, and apply knowledge of ethics and jurisprudence to mental health settings.

*Prerequisite(s):* PSYC\*6471 or PSYC\*7992

*Restriction(s):* Restricted to students in the CCAP field Instructor consent required.

*Department(s):* Department of Psychology

**PSYC\*7994 Cognitive Behaviour Therapy Practicum F,W [1.00]**

The CBT practicum is typically undertaken at the Center for Psychological Training, and is intended to foster clinical psychology graduate student training in cognitive behaviour therapy (CBT). This practicum course will involve didactic and experiential components. Students will gain competency with the basics of CBT, gain capability with treatment manuals and undertake at least one ongoing therapy case.

*Co-requisite(s):* PSYC\*6580

*Restriction(s):* Restricted to PhD students in the CCAP area of Psychology only. Instructor consent required.

*Department(s):* Department of Psychology

**PSYC\*7996 Clinical Supervision, Consultation and Professional Development F [0.50]**

This course is designed to introduce students to the theory, research, and practice of supervision and consultation in the field of clinical psychology. Students will become familiar with the professional literature relevant to supervision, gain competency with ethical, culturally-competent clinical supervision, and explore their own development as a professional in the field of psychology.

*Prerequisite(s):* PSYC\*6580, PSYC\*7994

*Restriction(s):* Restricted to PhD students in the CCAP area of Psychology only. Instructor consent required.

*Department(s):* Department of Psychology

**PSYC\*8000 Clinical Internship U [0.00]**

A mark of satisfactory (SAT) in this course indicates that a student in the Clinical Child and Adolescent Psychology (CCAP) field has successfully completed a full year (1800-2000 hour) internship in an accredited clinical setting (e.g., CPA or APA) approved by the Director of Clinical Training for CCAP.

*Prerequisite(s):* Completion of all course work in the CCAP field, the PhD qualifying examination, and the PhD Thesis proposal at the time of application, one year in advance of beginning the clinical internship.

*Department(s):* Department of Psychology

**Industrial/Organizational Psychology****PSYC\*7010 Recruitment and Selection: Methods and Outcomes U [0.50]**

The course explores organizational issues in the recruitment and selection of new employees. Topics may include: individual differences, human rights, survey-based job analysis, recruitment methods and outcomes, selection methods and outcomes, hiring, decision making and employee placement/classification.

*Department(s):* Department of Psychology

**PSYC\*7020 Employee Performance U [0.50]**

This course focuses on issues that relate to employee performance. Individuals and organizations are interested in maximizing the contributions of employees at work. This course focuses on performance-based job analysis, criterion theory, performance management/appraisal, employee socialization, compensation, benefits, technology, and labour relations.

*Department(s):* Department of Psychology

**PSYC\*7030 Work Attitudes and Behaviour U [0.50]**

This course examines micro-level influences on organizational behaviour. Topics may include: organizational commitment, job satisfaction, emotions, other work attitudes and attitude change, organizational citizenship behaviours, withdrawal behaviours, employee well-being, deviance, and work-life integration.

*Department(s):* Department of Psychology

**PSYC\*7040 Social Processes in the Workplace U [0.50]**

This course examines social processes in the workplace. Topics may include: groups, teams, and intergroup processes; justice; diversity in the workplace; prejudice and discrimination; harassment and unethical behaviour; climate, culture change; and, organizational development.

*Department(s):* Department of Psychology

**PSYC\*7050 Research Seminar in Industrial/Organizational Psychology U [0.00]**

This course will expose graduate students to some of the major theories, issues, and methodologies driving research in the field of Industrial/Organizational psychology. Students will learn to critically evaluate presentations by researchers in this field, as well as to communicate the results of their own research, in both written and an oral format. All students are required to enroll in this course.

*Restriction(s):* Psychology students only.

*Department(s):* Department of Psychology

**PSYC\*7080 Consulting in Industrial/Organizational Psychology U [0.00]**

The course introduces students to consulting in I/O Psychology through actual consulting projects with local organization. Topics include: marketing consulting services, understanding consulting, client and project management. Specific projects will vary from semester to semester based on work secured with local organizations (e.g. training, surveys, coaching).

*Prerequisite(s):* Registration in the graduate IO psychology program and permission of the Instructor.

*Department(s):* Department of Psychology

**PSYC\*7130 Introduction to Industrial/Organizational Psychology U [0.50]**

This course introduces graduate students to a broad range of topics in Industrial/Organizational psychology. It emphasizes researcher-practitioner issues, consumer behaviour, professionalism, ethics, and theory building. As well, graduate students will learn about contemporary issues in I-O Psychology.

*Department(s):* Department of Psychology

**PSYC\*7140 Industrial/Organizational Psychology Special Topic Doctoral Research Seminar U [0.50]**

Participants investigate a specific area of Industrial/Organizational psychology. They critically review past and current research, including theory development and empirical findings. Participants work together to integrate past theory and findings, to note inconsistencies in the literature, and to identify promising areas for future investigations.

*Prerequisite(s):* PSYC\*7130

*Department(s):* Department of Psychology

**PSYC\*7160 Employee Development: Methods and Outcomes U [0.50]**

This course explores development in an organization context. Employee learning and development is a key focus for employees and organizations. This course covers functional job analysis, career development, succession management, multi-source feedback, training, coaching/mentoring and employee counseling.

*Department(s):* Department of Psychology

**PSYC\*7170 Industrial/Organizational Psychology Doctoral Research Internship I U [0.50]**

Participants work with an Industrial Organizational faculty member to conduct research on a topic of mutual interest (other than their doctoral research). They collect and/or analyze data and write up results with the goal of producing a conference presentation and/or a quality publication manuscript.

*Prerequisite(s):* PSYC\*7130

*Co-requisite(s):* PSYC\*7140

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Psychology

**PSYC\*7180 Industrial/Organizational Psychology Doctoral Research Internship II U [0.50]**

Participants work with an Industrial Organizational faculty member to conduct research on a topic of mutual interest (other than their doctoral research). They collect and/or analyze data and write up results with the goal of producing a conference presentation and/or a quality publication manuscript.

*Prerequisite(s):* PSYC\*7130, PSYC\*7140, PSYC\*7170

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Psychology

**PSYC\*7190 Work Motivation and Leadership U [0.50]**

This course examines theories, research, and application of work motivation and leadership within an organizational context. The course will include a description of classic and contemporary theories of work motivation and leadership, a critical evaluation of the research findings, and a discussion of the application of the research findings to the work environment.

*Restriction(s):* Psychology students only.

*Department(s):* Department of Psychology

## Public Health

The Master of Public Health (MPH) program is a five-semester professional degree with concentration in epidemiology, environmental public health, infectious diseases, and zoonotic, foodborne and waterborne diseases. This program is of interest to individuals holding an undergraduate degree in science or applied science seeking a career in public health. A Graduate Diploma is also offered for those individuals with public health-related experience that wish to increase their knowledge or acquire focused learning.

### Administrative Staff

#### Graduate Program Coordinator

Andrew Papadopoulos (110 Former VMI, Ext. 53894)  
apapadop@uoguelph.ca

#### Graduate Program Assistant

Ariah Easley (2509 Stewart Building, Ext. 54005)  
mphinfo@uoguelph.ca

#### Graduate Program Assistant

Christina Voll (2509 Stewart Building, Ext. 54780)  
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### Graduate Faculty

#### Cathy Bauman

Assistant Professor, Population Medicine

#### Olaf Berke

Associate Professor, Population Medicine

#### Patrick Boerlin

Associate Professor, Pathobiology

#### Catherine Dewey

Professor, Population Medicine

#### Amy Greer

Assistant Professor, Population Medicine

#### Sherilee Harper

Assistant Professor, Population Medicine

#### Claire Jardine

Assistant Professor, Pathobiology

#### Andria Jones-Bitton

Assistant Professor, Population Medicine

#### Scott A. McEwen

Professor, Population Medicine

#### Jennifer McWhirter

Assistant Professor, Population Medicine

#### Andrew Papadopoulos

Associate Professor, Population Medicine and Coordinator, Master of Public Health Program

#### David Pearl

Associate Professor, Population Medicine

#### Andrew Peregrine

Associate Professor, Pathobiology

#### Zvonimir Poljak

Associate Professor, Population Medicine

#### Jan Sargeant

Professor, Population Medicine

#### Anita Tucker

Assistant Professor, Population Medicine

#### Scott Weese

Professor, Pathobiology

#### Jeffery Wichtel

- Professor and Dean, Ontario Veterinary College

### MPH Program

The objective of the MPH program is to prepare students for careers in public health. The curriculum is based on the core competencies for public health in Canada. Required courses will prepare students in all aspects of public health practice. Additional elective courses will provide students with the opportunity to develop added strength in specific areas, namely epidemiology, environmental public health, infectious disease, and zoonotic, foodborne, and water-borne diseases. Courses will incorporate case-based material and community-engaged exercises to provide students with the opportunity to use a variety of problem-solving and communication skills. Further information can be found at the MPH program website: <http://www.ovc.uoguelph.ca/mph/>

### Admission Requirements

Eligible applicants include those with an honours BSc in Biomedical Sciences, Biological Sciences or Public Health, or those with a DVM, BScN or MD professional degrees (or their equivalent). Students with an honours degree without a biological or health focus will be required to complete the distance education BSc course PATH\*3610 Principles of Disease by the conclusion of the first semester of their degree program. Candidates should have earned a B+ average in their honours BSc degree or at least a B- average in a professional degree (e.g., BScN, DVM, or MD). All applicants should submit a one-page statement of interest and career goals in public health. Students will be admitted into the Fall semester. Additional information can be found at: <https://ovc.uoguelph.ca/mph/prospective-students>

### Degree Requirements

The MPH program at the Ontario Veterinary College will typically consist of five consecutive semesters of full-time study. Full-time students will take three semester-length courses for four semesters (total 12 courses), the Public Health Capstone course and a 12 to 16-week practicum in a public health practice setting. Students will begin their program in September. Students can complete the program in four semesters if they choose by adding one additional elective to their course load during each of the Fall and Winter first-year and Fall second-year semesters (four courses per academic semester).

Students will complete at least six (0.50 credit) courses before they begin their practicum placement. The practicum will provide an opportunity to add function to the knowledge base achieved during the didactic portion of the program. A poster and public presentation developed from data gathered during the practicum will illustrate the cumulative experience during the Public Health Capstone course. This is a residency program as core courses and many electives are not offered through distance education. Students may enroll part-time while they continue to work in their public health or regulatory careers. Part-time students will normally take one or two courses per semester. Please note that since this is a non-thesis based degree, applicants are not required to obtain an advisor prior to applying. One will be assigned once students have been admitted into the program.

### Graduate Diploma

This stand-alone diploma consists of four courses, including Applied Public Health Research, and at least two required courses and one elective course. Students may request a transfer from the Graduate Diploma into the MPH and if accepted, will receive credit for the courses taken. Students interested in this option must apply to the MPH prior to initiating graduation procedures from the Graduate Diploma.

### Admission Requirements

Eligible applicants include those with an honours BSc in Biomedical Sciences, Biological Sciences, or Public Health, or those with a DVM, BScN or MD professional degrees (or their equivalent). Students with an honours degree without a biological or health focus will be required to complete the distance education BSc course PATH\*3610 Principles of Disease by the conclusion of the first semester of their degree program. Candidates should have earned a B average in an honours degree or in a professional degree. All applicants should submit a one-page statement of interest and career goals in public health. Students will be admitted into the Fall semester. Additional information can be found at <https://ovc.uoguelph.ca/mph/prospective-students>

### Diploma Requirements

The Graduate Diploma program at the Ontario Veterinary College consists of four courses, including Applied Public Health Research, at least two required courses, and one elective course. Typical duration of the Graduate Diploma program is two semesters.

### Collaborative Specializations

#### International Development Studies

The MPH program participates in the collaborative specialization in International Development Studies (IDS). Students in this option must register in the MPH program and IDS. Those faculty members whose research and teaching expertise includes aspects of international development studies may serve as advisors for MPH students. Please consult the International Development Studies listing for a detailed description of the MPH collaborative specialization and the special additional requirements for each of the participating departments.

### Courses

#### Required Courses

PABI*6500	[0.50]	Infectious Diseases and Public Health
POPM*6200	[0.50]	Epidemiology I
POPM*6510	[0.50]	Community Health Promotion
POPM*6520	[0.50]	Introduction to Epidemiological and Statistical Methods
POPM*6530	[0.50]	Health Communication
POPM*6540	[0.50]	Concepts in Environmental Public Health
POPM*6550	[0.50]	Public Health Policy and Systems
POPM*6560	[1.00]	Public Health Practicum
POPM*6570	[0.00]	Public Health Capstone
POPM*6580	[0.50]	Public Health Administration

**Electives**

Four electives (or 2.0 credits) are required. Choose at least two electives from the following list. The remaining course may also be selected from this list or from those listed elsewhere in the Graduate Calendar. Students taking Public Health Practicum II (1.0 credit) are required to take only two additional 0.5 credit elective courses. The MPH program coordinator must approve all electives in advance.

EDRD*6100	[0.50]	Disaster Planning and Management
EDRD*6690	[0.50]	Program Evaluation
PABI*6550	[0.50]	Epidemiology of Zoonoses
POPM*6210	[0.50]	Epidemiology II
POPM*6350	[0.50]	Safety of Foods of Animal Origins
POPM*6950	[0.50]	Studies in Population Medicine
POPM*6590	[1.00]	Public Health Practicum II
POPM*6600	[0.50]	Applied Public Health Research

## Public Issues Anthropology

The Department of Sociology and Anthropology at the University of Guelph offers a program leading to an [MA in Public Issues Anthropology](#). See the [department website](#) for more details on the program and admissions requirements.

### Administrative Staff

#### Chair

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#### Edward J. Hedican

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BA Keio, MA Minnesota, PhD Pittsburgh - Professor

#### Belinda Leach

BA Carleton, MA, PhD Toronto - Professor

#### Thomas (Tad) McIlwraith

BA Toronto, MA UBC, PhD University of New Mexico - Associate Professor

#### Renée Sylvain

BA Wilfrid Laurier, MA, PhD Toronto - Associate Professor

### MA Program

#### Admission Requirements

Applicants must possess an Honours BA (4 years) degree or its equivalent with at least a 'B+' average in the final two undergraduate years. Students who do not meet departmental requirements, e.g., students whose undergraduate degree does not include basic courses in sociology and/or anthropology, may be admitted provisionally.

#### Degree Requirements

The MA program allows students to become actively involved in advanced studies and research in Anthropology. Students enrol in one of two study options: 1) thesis, or 2) course work and major research paper.

#### Thesis

Students must complete a minimum of 2.0 credits, conduct research, and write a thesis.

#### Course Work and Major Research Paper (MRP)

Students must complete a minimum of 4.0 credits (including 1.0 credit the Major Paper course ANTH\*6660) and write a major paper.

All students are required to attend a Public Issues Anthropology seminar (ANTH\*6000) in their first semester and the pro-seminar (ANTH\*6700) in their first two semesters. They must also master basic theory and methodological skills. This is normally fulfilled through the successful completion of the courses ANTH\*6080 and ANTH\*6140. Students typically begin their studies in the Fall semester.

### Collaborative Specializations

#### International Development Studies

The Department of Sociology and Anthropology participates in the MA collaborative specialization in International Development Studies (IDS). Students in this option register in an MA program in the department and IDS. Those faculty members whose research and teaching expertise includes aspects of international development studies may serve as advisors for MA students. Please consult the International Development Studies listing for a detailed description of the MA collaborative specialization and the special additional requirements for each of the participating departments.

### Courses

#### Core courses

##### ANTH\*6000 Public Issues Anthropology F [0.50]

This course will examine the interface between anthropological and public understandings of public issues, with sensitivity to the presence or absence of anthropological insights. The course will assure that students become well versed in how to synthesize the resources of various branches of the discipline.

*Restriction(s):* Restricted to incoming students in the program.

*Department(s):* Department of Sociology and Anthropology

##### ANTH\*6080 Anthropological Theory F [0.50]

An examination of classical and contemporary anthropological theory, including an emphasis on the most recent directions in the discipline.

*Department(s):* Department of Sociology and Anthropology

##### ANTH\*6140 Qualitative Research Methods W [0.50]

An examination of the methods of qualitative research, including participant observation and unstructured interviews, as well as the ethical considerations of fieldwork. Other topics, such as comparative and historical methods, may be included.

*Department(s):* Department of Sociology and Anthropology

##### ANTH\*6700 Pro-seminar F-W [0.00]

The pro-seminar concerns matters involved in graduate studies and later work as a professional anthropologist, including how to form a graduate advisory committee, assistantship responsibilities, presentation skills, exploration of careers in anthropology, writing grant proposals, reports and articles, and teaching.

*Department(s):* Department of Sociology and Anthropology

### Elective courses

##### ANTH\*6270 Diversity and Social Equality U [0.50]

This course will examine a range of approaches used in the study of intergroup relations, with special emphasis on struggles over influence and power. Students will acquire a deeper understanding of the complex intersection, as well as the overlap among forms of identity and group mobilization based on ethnic, linguistic, regional, class, gender, racial and other forms of social division. The course may also cover native issues and policies related to multiculturalism, equity and local or regional autonomy.

*Department(s):* Department of Sociology and Anthropology

##### ANTH\*6420 Global Agro-Food Systems, Communities and Rural Change U [0.50]

This course will reflect recent sociological interests in food studies and global agro-food systems, resources and the environment, community sustainability, rural-urban linkages, the transnationalization of labour regimes, and social movements in the rural context. The course will encourage students to take a comparative and historical approach, focussing on cross-national and inter-regional studies where possible, and to examine how class, gender, race and ethnicity play out in each particular substantive topic comprising the rural field.

*Department(s):* Department of Sociology and Anthropology

##### ANTH\*6460 Gender and Development F [0.50]

Cross-cultural and historical changes in gender relations and the roles/positions of women brought about by industrialization and the development of the world system. Critical examination of the predominant theories of gender relations, in so far as these inform development research and action in societies with different socio-economic systems. Introduction to the latest theories and research in the area of women and development, as well as with social and political actions undertaken by women themselves. This is one of the two alternative core courses for the International Development Studies collaborative specialization.

*Department(s):* Department of Sociology and Anthropology

##### ANTH\*6480 Work, Gender and Change in a Global Context U [0.50]

This course will consider some of the theoretical frameworks available for examining work, workers and work places in the context of globalization, economic restructuring, and shifts in public policy. Using case studies of particular work worlds, the course may include topics such as changing patterns of work and employment in comparative contexts, labour regimes, industrial and organizational change, organizations and protest, education for work, and the regulation of work. The course will focus on the dialectical relationship between the configurations of gender, class, race and ethnicity and the transformation of work.

*Department(s):* Department of Sociology and Anthropology

##### ANTH\*6550 Selected Topics in Theory and Research U [0.50]

This course will be offered with varying content focusing on theory or research.

*Department(s):* Department of Sociology and Anthropology

##### ANTH\*6600 Reading Course U [0.50]

A program of directed reading, complemented with the writing of papers or participation in research. Reading courses are arranged by students through their advisors or advisory committees and must be approved by the chair of the department. This course may be repeated provided different content is involved.

*Department(s):* Department of Sociology and Anthropology

##### ANTH\*6660 Major Paper U [1.00]

The major paper is an extensive research paper for those who do not elect to complete a thesis. It may be taken over two semesters.

*Department(s):* Department of Sociology and Anthropology



## Rural Planning and Development

Rural Planning and Development has a four-part mission of teaching, research, training and outreach. The MSc programs are offered in the following fields:

- Canadian Rural Planning and Development
- International Rural Planning and Development

### Administrative Staff

#### Director, SEDRD

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### Graduate Faculty

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#### John F. Devlin

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#### John E. FitzGibbon

BA McMaster, MSc Wales, PhD McGill, MCIP - Professor

#### Ryan Gibson

BA, MRD Brandon, PhD Memorial - Assistant Professor

#### Dave Guyadeen

BURPI Ryerson, MPA Western, PhD Waterloo - Assistant Professor

#### Sheri Longboat

BES Waterloo, BEd Brock, MA, PhD Wilfrid Laurier - Assistant Professor

### Associated Graduate Faculty

#### F. Harry Cummings

BA Western Ontario, MA, PhD Clark, MCIP - Retired Professor, School of Environmental Design & Rural Development, Univ of Guelph

#### John FitzSimons

BA Wales, MA McMaster, PhD Western Ontario - Associate Professor

### MSc (Planning) Program

Rural Planning and Development provides the opportunity for graduate study, research and professional development in: 1) Canadian rural planning and development; or 2) International rural planning and development. The program leads to an MSc (Planning) degree. It is a professionally accredited (Canadian Institute of Planners) program that requires substantial commitment to professional performance and ethics.

Graduate students in the MSc (Planning) program find employment in rural planning departments, governments, non-governmental organizations, and private consulting firms in Canada and overseas. Graduates are prepared for both local development and planning as well as regional, provincial and national-level research and policy planning in international and Canadian contexts.

The program goal is to ensure that students have the knowledge and skill to conduct interdisciplinary research and, in a professional capacity, guide processes of change in rural planning and development.

Where appropriate, faculty from other academic units participate in an advisory capacity in students' research programs.

### Admission Requirements

The program is open to qualified graduates from all disciplines including geography, international development, sociology, agriculture, environmental studies, landscape architecture, economics and planning. Applicants are required to demonstrate their specific interest in the program and relevant work experience in rural planning and development. A four-year honours degree with a B- average is considered the normal basis for admission.

### Degree Requirements

Students enrol in one of two study options: 1) thesis or 2) course work or course work and major research paper.

### Canadian Rural Planning and Development

This field offers an all course work option; major research paper (MRP) option and a thesis option. All three are aimed at providing substantive professional, contextual and specialized knowledge and skill in the domestic rural planning and development context.

All students enrolled in this field are required to complete a set of core courses that provide a foundation for rural planning and development research and practice in the Canadian context.

#### Thesis

Students must complete:

RPD*6170	[0.50]	Rural Research Methods
RPD*6380	[0.50]	Application of Quantitative Techniques in Rural Planning and Development
RPD*6240	[0.50]	Planning and Development Theory
RPD*6260	[0.50]	Land Use Planning Law
RPD*6250	[0.50]	Foundations in Rural Planning Practice

In addition the student is required to complete an additional five (5) 0.5 credit elective courses in consultation with their advisory committee.

#### Course Work and Major Research Paper (MRP)

Students must complete:

RPD*6170	[0.50]	Rural Research Methods
RPD*6380	[0.50]	Application of Quantitative Techniques in Rural Planning and Development
RPD*6240	[0.50]	Planning and Development Theory
RPD*6260	[0.50]	Land Use Planning Law
RPD*6250	[0.50]	Foundations in Rural Planning Practice
RPD*6360	[1.00]	Major Research Paper

In addition the student is required to complete an additional seven (7) 0.5 credit elective courses in consultation with their advisory committee.

#### Course Work

Students must complete:

RPD*6170	[0.50]	Rural Research Methods
RPD*6380	[0.50]	Application of Quantitative Techniques in Rural Planning and Development
RPD*6240	[0.50]	Planning and Development Theory
RPD*6260	[0.50]	Land Use Planning Law
RPD*6250	[0.50]	Foundations in Rural Planning Practice

In addition the student is required to complete an additional nine (9) 0.5 credit elective courses in consultation with their advisory committee.

Students may develop an area of specialization with their advisory committees through course work, selection of elective courses, and student research leading to the major research paper or thesis. An internship is not a field requirement but is strongly recommended. The program makes available a set of options to assist in developing the area of emphasis.

In the delivery of the Canadian rural planning and development field, the program draws on courses and faculty from other units on campus as well as on the resources of the school. The field of rural planning and development (Canadian) is formally recognized by the Canadian Institute of Planners, and three faculty within the program along with two faculty from other programs within the School of Environmental Design and Rural Development are Registered Professional Planners.

### International Rural Development Planning

This field prepares students for research and practice in international rural planning and development. Students may choose the course work option; major research paper (MRP) option or the thesis option.

All students enrolled in this field are required to complete a set of core courses and electives that provide a foundation for international rural planning and development research and practice.

#### Thesis

Students must complete:

RPD*6170	[0.50]	Rural Research Methods
RPD*6380	[0.50]	Application of Quantitative Techniques in Rural Planning and Development
RPD*6240	[0.50]	Planning and Development Theory
RPD*6030	[0.50]	International Rural Development Planning: Principles and Practices
RPD*6291	[0.50]	Rural Development Administration

In addition the student is required to completed an additional five (5) 0.5 credit elective courses in consultation with their advisory committee.

#### Course Work and Major Research Paper (MRP)

Students must complete:

RPD*6170	[0.50]	Rural Research Methods
RPD*6380	[0.50]	Application of Quantitative Techniques in Rural Planning and Development
RPD*6240	[0.50]	Planning and Development Theory
RPD*6030	[0.50]	International Rural Development Planning: Principles and Practices
RPD*6291	[0.50]	Rural Development Administration
RPD*6360	[1.00]	Major Research Paper

In addition the student is required to complete an additional seven (7) 0.5 credit elective courses in consultation with their advisory committee.

### Course Work

Students must complete:

RPD*6170	[0.50]	Rural Research Methods
RPD*6380	[0.50]	Application of Quantitative Techniques in Rural Planning and Development
RPD*6240	[0.50]	Planning and Development Theory
RPD*6260	[0.50]	Land Use Planning Law
RPD*6250	[0.50]	Foundations in Rural Planning Practice

In addition the student is required to complete an additional nine (9) 0.5 credit elective courses in consultation with their advisory committee.

Students may develop an area of specialization with their advisory committees through course work, selection of elective courses, student research. The program makes available a set of options to assist in developing the area of emphasis.

In the delivery of the International rural planning and development field, the program draws on courses and faculty from other units on campus as well as on the resources of the School. The field of rural planning and development (International) is formally recognized by the Canadian Institute of Planners, and three faculty within the program along with two faculty from other programs within the School of Environmental Design and Rural Development are Registered Professional Planners.

### MPLAN Program

Rural Planning and Development provides the opportunity for graduate study, applied research and professional development in: 1) Canadian rural planning and development; or 2) International rural planning and development. The program leads to a Master of Planning (MPLAN) degree.

This 3-5 semester program is geared towards more experienced graduates working for an agency or non-governmental organization abroad or in Canada; or for mature Canadian planners working in a municipal planning environment, for other levels of government, in professional consulting, non-governmental organizations or other contexts or for graduates of related professional programs. It is explicitly designed for individuals wishing to upgrade their professional training to the Masters level without necessarily withdrawing from the work force for an extended period of time.

This degree may also be completed at a distance. Please consult with the program's Graduate Program Coordinator for more details.

### Admission Requirements

The program is open to:

1. Qualified graduates from relevant disciplines (minimum B- average) with 4-5 years of relevant experience. Relevant experience is determined by the admissions committee.
2. Graduates from a professional program in Planning, Landscape Architecture, Architecture or Engineering (minimum B- average).

All applicants are required to demonstrate their specific interest in the program and their work and educational experience relating to rural planning and development.

### Degree Requirements

- Two (2.0) credits earned from the MSc (Planning) course list from SEDRD, related to their research interest, chosen with the advice of their Advisory Committee.
- Senior Planning and Development (listed as RPD\*6290) is required.
- A 0.5 credit earned from an open elective.
- Course selection will emphasize either the International field or the Canadian field.
- The candidate will also complete a Major Research Paper.

### Collaborative Specializations

#### International Development Studies

Rural Planning and Development participates in the International Development Studies (IDS) collaborative specialization. The MSc degree for students in this program will have the specialist designation rural planning and development: international development studies. Please consult the [International Development Studies listing](#) for a detailed description of the collaborative specialization including the special additional requirements for each of the participating departments.

### Courses

#### Core Courses

<b>RPD*6030 International Rural Development Planning: Principles and Practices U [0.50]</b>
This course presents the scope and nature of international development planning and alternative roles for development planners; has a rural emphasis; reviews the evolution of development planning from macroeconomic beginnings to more integrated local planning approaches; examines the development planning process and its organizational and spatial dimensions; compares policy, program, project, sectoral and integrated area planning; and compares rural development planning in market, mixed and state-driven societies. <i>Department(s):</i> School of Environmental Design and Rural Development
<b>RPD*6170 Rural Research Methods U [0.50]</b>
The course provides rural planning and development professionals with a number of theoretical frameworks and practical approaches to problem solving in rural Canadian and international contexts. The course content provides an introduction to hypothesis development, data collection, analytical frameworks, research management, and information synthesis and presentation methodologies that are appropriate to the practicing rural planner and developer. It views the roles of the researcher and research as interventionist and intervention in the rural community. Research methods are discussed as an integral and supporting part of the planning and development process. <i>Department(s):</i> School of Environmental Design and Rural Development
<b>RPD*6240 Planning and Development Theory U [0.50]</b>
Examines basic concepts, theories and perspectives in rural planning and development. A conceptual examination of 'rural', 'planning' and 'development' precedes an examination of how rural planning and development is viewed from alternative, often conflicting theories of rural change and planned intervention. The implications for practice are discussed. <i>Department(s):</i> School of Environmental Design and Rural Development
<b>RPD*6250 Foundations in Rural Planning Practice F [0.50]</b>
This course provides an introduction to rural planning practice. This includes: i) Concepts in Public Administration - The structure, responsibility and functions of public sector administration and government. ii) The workings of local government. iii) Rural Planning Practice - An introduction to planning and development in rural regions and small municipalities. <i>Department(s):</i> School of Environmental Design and Rural Development
<b>RPD*6260 Land Use Planning Law U [0.50]</b>
An introduction to the legal tools used to regulate the use of land and other resources. Zoning, subdivision controls, development control, land banking, expropriation, planning appeals, official maps, etc. An intensive study of the Ontario Planning Act and related legislation. <i>Department(s):</i> School of Environmental Design and Rural Development
<b>RPD*6291 Rural Development Administration U [0.50]</b>
This course explores the administration of rural development by considering the main organizational types delivering rural programs. The structure and behaviour of these organizations, their interactions, and their respective sectors will be considered. Students will also be introduced to administrative planning tools. <i>Department(s):</i> School of Environmental Design and Rural Development
<b>RPD*6360 Major Research Paper U [1.00]</b>
Students not pursuing the thesis route must satisfactorily complete a Major Research Paper. The paper will be supervised by a faculty committee. Content of the paper will generally focus on the placement of a problem in rural planning and development practice using appropriate methodological and analytical procedures. Note: This is a one semester course and must be completed in the semester of registration. <i>Restriction(s):</i> For Major Paper option only. Instructor consent required. <i>Department(s):</i> School of Environmental Design and Rural Development
<b>RPD*6380 Application of Quantitative Techniques in Rural Planning and Development U [0.50]</b>
Analysis and application of standard quantitative, statistical and computer-based techniques utilized in rural planning and development. Problems of data collection, analysis and interpretation. <i>Department(s):</i> School of Environmental Design and Rural Development

## Elective Courses

Students are to select their electives from the following list of RPD and EDRD knowledge and skills courses. This list of electives is modified from time to time by the RPD Graduate Program Committee, and the student should contact the Graduate Program Committee for the current list of available electives. An RPD core course from outside your field can also be taken as an elective. Two electives may be selected from other courses offered within SEDRD (e.g. CDE or LARC) or by other University departments which are not included below.

### RPD\*6070 Project Development: Principles, Procedures, and Selected Methods U [0.50]

This course introduces students to the principles, procedures and methods in developing a project. It examines the project cycle: identification, preparation, appraisal, implementation/supervision, monitoring and evaluation. It gives an understanding of the major methods involved and teaches selected methods. The focus is on the international, rural context and on small non-farm projects: small industries, small physical infrastructure and social projects.

*Department(s):* School of Environmental Design and Rural Development

### RPD\*6080 Environment and Development: Biophysical Resources and Sustainable Development in Rural Environments U [0.50]

This course will examine the problems and potential for ecologically sustainable development in the context of rural development planning particularly in the Third World environments. The course critically examines the strategic planning approaches and methods which involve the interaction between social systems and natural ecosystems in the context of planned intervention and change in rural environments.

*Department(s):* School of Environmental Design and Rural Development

### RPD\*6220 Planning and Development Policy Analysis U [0.50]

Planning and development policy has experienced a significant evolution. This course examines the history of policy, and the theory, methods and processes of policy development and governance in planning and management of environment and resources.

*Department(s):* School of Environmental Design and Rural Development

### RPD\*6280 Advanced Planning Practice W [0.50]

This course explores current issues, techniques, legislation and processes that are relevant to rural planning practice. A number of specific municipal (local and regional) rural planning examples will be presented. Comparisons between different jurisdictions will be reviewed. Students will be engaged in project-based learning.

*Prerequisite(s):* RPD\*6250

*Department(s):* School of Environmental Design and Rural Development

### RPD\*6290 Special Topics in Rural Planning and Development U [0.50]

Selected study topics focus on the nature of rural planning and development issues and/or practices in Canadian and/or International small communities and rural environments. Among the topics which may be addressed are: rural land use planning, ecological restoration, gender analysis in development planning, GIS in agricultural development, micro-credit, physical/site planning and design, project management.

*Restriction(s):* Instructor consent required.

*Department(s):* School of Environmental Design and Rural Development

### RPD\*6310 Environmental Impact Assessment U [0.50]

This course deals with the role of environmental impact assessments and statements in the planning, development and operation of resource projects. Topics discussed include the philosophical and institutional basis for environmental impact assessments, methods used and the effects of such assessments on resource development projects.

*Department(s):* School of Environmental Design and Rural Development

### RPD\*6320 Water Resource Management U [0.50]

The course provides an assessment of the processes and principles which underlie comprehensive water resource planning and integrated basin management. It also undertakes to evaluate current practice in the context of integrated planning. There is extensive use of Canadian and international practice.

*Department(s):* School of Environmental Design and Rural Development

### RPD\*6370 Economic Development Planning and Management for Rural Communities U [0.50]

Theories and perspectives of local economic development, particularly community-based planning for rural economic development. Economic development within a community development framework, and challenges of sustainable development. Interdisciplinary perspectives and alternative approaches to professional planning practice, strategic planning, management and organizational design/development issues. Alternative economic concepts and perspectives are critically examined. Includes international case studies.

*Department(s):* School of Environmental Design and Rural Development

### RPD\*6390 Rural Social Planning U [0.50]

This course will provide students who have an interest in social development with an avenue for linking that interest to the policy, planning and intervention process.

*Department(s):* School of Environmental Design and Rural Development

### RPD\*6410 Readings in Rural Planning U [0.50]

A program of supervised independent study related to the student's area of concentration. Nature and content of the readings course are agreed upon between the student and the instructor, and are subject to the approval of the student's advisory committee and graduate committee.

*Restriction(s):* Instructor consent required.

*Department(s):* School of Environmental Design and Rural Development

### RPD\*6450 Recreation and Tourism Planning and Development U [0.50]

This course is intended to instruct the student in the principles of planning for recreation and tourism development. Emphasis is placed on the economic and social benefits and costs that accrue from tourism and recreation development. Planning principles are applied to this context.

*Department(s):* School of Environmental Design and Rural Development

EDRD*6000	[0.50]	Qualitative Analysis in Rural Development
EDRD*6050	[0.50]	Farming Systems Analysis and Development
EDRD*6100	[0.50]	Disaster Planning and Management
EDRD*6630	[0.50]	Regional Planning
EDRD*6690	[0.50]	Program Evaluation

## Rural Studies

Rural Studies core faculty are from within the School of Environmental Design & Rural Development (Capacity Development and Extension, Landscape Architecture, Rural Planning and Development).

The program focuses on two fields:

- **Sustainable Rural Communities** Sustainable rural communities are characterized by long-term well-being based on the integration of economic, social and environmental factors in their planning and activities. Four sectors of sustainable rural communities have been designated: environment and sustainability, social structure and processes, human resource development, and sustainable rural economic development.
- **Sustainable Landscape Systems** The sustainable landscape systems field examines structure, process, and change in the rural landscape through research on bio-physical and socio-cultural sectors.

A number of different disciplines are represented and an interdisciplinary approach is taken to integrate across subject areas. Students may choose among fields and choose a sector within the field for relatively more-intensive study.

### Administrative Staff

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### Graduate Faculty

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### Associated Graduate Faculty

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#### Glen C. Filson

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#### John FitzSimons

BA Wales, MA McMaster, PhD Western - Retired Faculty, School of Environmental Design and Rural Development, Univ of Guelph

## PhD Program

The PhD program is offered in the following fields: 1) sustainable rural communities; and 2) sustainable landscape systems. The objective of the program in Rural Studies is to provide opportunities for advanced studies and research on the integration of socio-cultural and bio-physical components for capacity development, design, or planning of landscape systems and rural communities. Graduates are prepared to become leading specialists in addressing sustainable landscapes and rural communities issues. Interdisciplinary research is emphasized, building on the disciplines of capacity development and extension, landscape architecture, and rural planning and development within SED RD.

### Admission Requirements

To be considered for admission, an applicant must have a master's degree (or the equivalent) from a recognized university in a relevant discipline. Master's graduates in a range of humanities, social-science and applied-science disciplines are eligible for consideration for admission. As examples, master's graduates in geography, sociology, planning, landscape architecture, environmental science, capacity development and extension, and international development may be particularly suitable. Applicants who have not completed courses relevant to rural studies or gained experience in rural communities may be required to do so prior to admission or as part of initial phases of the PhD program.

The program's admission policy is governed by the availability of graduate advisors and other resources and by the need to admit applicants from a variety of disciplines and backgrounds. The interaction of students with diverse backgrounds will greatly enhance the interdisciplinary approaches in the program. The program also seeks to achieve the significant participation of women and aboriginal people from North America and international students. The co-ordinator of the program receives applications directly from prospective students or through prospective advisors and ensures that application files are complete for review by the admission committee. The committee then consults with prospective advisors and recommends applicants for admission to the Office of Graduate Studies. Applicants should consult the coordinator for the deadline for admission.

### Degree Requirements

#### Advisory Committee

Each doctoral student has an advisory committee composed of faculty members from a range of disciplines pertinent to the field, specialization and research topic. Each committee consists of at least three members. Committees are broadly based with at least two major disciplines represented by its members. The advisor and the advisory committee provide guidance to allow for the student's intellectual growth in the program.

The advisory committee assesses and approves the thesis-research proposal which is to be prepared by the student by the end of the second year, concurrent with preparation for the qualifying examination.

#### Course Requirements

The minimum course and credit requirements for the PhD in rural studies consist of a common 2.0-credit core of two integrative 1.0-credit courses (Sustainable Rural Systems, and Integrative Research Methods), a 0.25-credit research seminar, and one elective graduate 0.5-credit course or the RST\*6500 Special Topics course. Additional courses may be required by the student's advisory committee. Make-up courses may be required prior to admission to the PhD program or early in the program. All courses will normally be completed prior to the qualifying examination. All or most of the courses should be taken in the first year of study.

To foster the interdisciplinary nature of the program, some courses are team taught. Attention is also paid to the sequencing of courses to promote interdisciplinarity.

#### Qualifying Examination

The qualifying examination for the PhD program in rural studies assesses the acceptability of the intellectual capability and research potential of students. The examination committee is constituted to represent a range of disciplines pertinent to the field.

The qualifying examination is used to determine if the student has an advanced level of knowledge and competence in the area(s) of specialization related to their research. The areas of specialization typically focus on one of the program fields, however, it is acceptable to have an area of specialization outside of these fields as long as it is agreed upon by the graduate student, Program Coordinator, and the Advisory Committee. The qualifying examination has both written and oral components. The written component is based on the common core subject area of the field and the student's selected sector. The oral examination is devoted to discussion of the written materials. The examination evaluates the student's ability to integrate disciplinary knowledge within the field and to undertake interdisciplinary research. The qualifying examination must be completed by the end of semester five.

### Courses

#### Common Core Courses

##### RST\*6000 Sustainable Rural Systems F-W [1.00]

Sustainable development theory in the rural communities and environment context.

*Department(s):* School of Environmental Design and Rural Development

**RST\*6100 Integrative Research Methods F-W [1.00]**

Research design and evaluation with a focus on measures of sustainability and on interdisciplinary applications.

*Department(s):* School of Environmental Design and Rural Development

**RST\*6300 Research Seminar U [0.25]**

*Department(s):* School of Environmental Design and Rural Development

**Sector Core Courses****RST\*6500 Special Topics U [0.50]**

*Department(s):* School of Environmental Design and Rural Development

## Sociology

The Department of Sociology and Anthropology offers programs of study leading to the degrees of MA and PhD in Sociology in the following fields:

- **Environment, Food, and Communities (MA, PhD)** This field reflects sociological interests in understanding societal-ecological interactions more broadly. The specific focus may include environmental/natural resources/food systems and/or environmental justice/community sustainability. Students specializing in this field will be encouraged to draw on established methodologies in the field, including the comparative and historical approach. Attention will be given to the ways in which structure/power/culture and class/gender/race and ethnicity play out in at least one of the substantive topics comprising this field.
- **Work and Organization (MA, PhD)** This field reflects sociological interests in changing patterns of work and employment in comparative contexts, labour markets, gender and work, industrial and organizational change, economic restructuring and work, organizations and protest, education for work, and the regulation of work. These trends are located in the broader processes of globalization, economic restructuring and fundamental shifts in public policy. Students specializing in this field will be encouraged to focus on the dialectical relationship between the configurations of gender, class, race and ethnicity, and the transformation and re-organization of work.
- **Crime and Social Control (MA, PhD)** This field reflects sociological interests into how crime is defined, measured, explained and reacted to by society. Within this field students will be exposed to scholarly material on a broad range of topics including: cyberbullying, victimization, homelessness, intimate partner violence, drug policy, school violence, feminist criminology, critical criminology, restorative justice, sociology of risk, policing, the social construction of crime, inmate re-integration, youth justice, wrongful convictions, and life course criminology.
- **Identities and Social Inclusion (MA, PhD)** This field reflects sociological interests in the study of intergroup relations, with special emphasis on struggles over influence and power. Students specializing in this field will acquire a deeper understanding of the complex intersection as well as the overlap of forms of identity and group mobilization based on ethnic, linguistic, regional, class, gender, racial and other forms of social division. The field also provides students with the opportunity to study Indigenous issues and policies related to multiculturalism, equity and local or regional autonomy.

See the Department website at <http://www.sociology.uoguelph.ca/> for additional information.

### Administrative Staff

#### Chair

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### Graduate Faculty

#### Ryan Broll

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#### Myrna Dawson

BA York, MA, PhD Toronto - Professor and Canada Research Chair

#### Elizabeth Finnis

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#### Karine Gagne

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#### Paulina Garcia-del Moral

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#### Mervyn Horgan

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#### Sally Humphries

BA, MA, PhD York - Professor

#### Linda Hunter

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#### Satsuki Kawano

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#### Lisa Kowalchuk

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#### Belinda Leach

BA Carleton, MA, PhD Toronto - Professor

#### Saara Liinamaa

BA British Columbia, MA, PhD York - Assistant Professor

#### Madonna R. Maidment

BA, MA Memorial, PhD Carleton - Associate Professor

#### Thomas (Tad) McIlwraith

BA Toronto, MA UBC, PhD University of New Mexico - Associate Professor

#### Mavis Morton

BA Carleton, MA, PhD York - Associate Professor

#### Erin Nelson

BA, PhD Guelph, MA Waterloo - Assistant Professor

#### William O'Grady

BA, MA Carleton, PhD Toronto - Professor

#### Patrick Parnaby

BA, MA Queen's, PhD McMaster - Associate Professor

#### Vivian Shalla

BA Laurentian, MSc Montreal, PhD Carleton - Associate Professor

#### Sharada Srinivasan

MA, Tata Institute of Social Sciences, MA, PhD Erasmus Univ. Rotterdam, - Associate Professor, Canada Research Chair in Gender, Justice and Development

#### Ron Stansfield

BSc McMaster, BA, MA Toronto, PhD York - Associate Professor

#### Renée Sylvain

BA Wilfrid Laurier, MA, PhD Toronto - Associate Professor

#### Jeji Varghese

BSc, MA, PhD Alberta - Associate Professor and Graduate Program Coordinator

#### David Walters

BA, MA Western, PhD McMaster - Associate Professor

#### Anthony R. Winson

BA Western, MA, PhD Toronto - Professor

#### Carolyn Yule

BA UBC, MA, PhD Toronto - Assistant Professor

### MA Program

The MA program permits students to become actively involved in research, teaching and professional practice. The objective of the program is to offer opportunities for advanced studies and research in Sociology and is offered in the following fields: 1) environment, food and communities; 2) work and organization; 3) crime and social control; and 4) identities and social inclusion.

### Application Procedure

Graduate students are admitted each Fall semester (approximately 10 - 15 students). Students are admitted into the program in the Fall semester only. The program is offered on a full-time basis only. The on-line application and application information can be found at <http://www.uoguelph.ca/graduatestudies/apply> Program offices should be consulted for admission deadlines.

### Admission Requirements

Applicants must possess an Honours BA (4 years) degree or its equivalent with at least a B+ average in the final two years of undergraduate studies. Students who do not meet departmental requirements, e.g., students whose undergraduate degree does not include basic courses in Sociology, may be admitted provisionally and required to complete appropriate make-up courses from offerings in the undergraduate program.

### Degree Requirements

Students enrol in one of two study options: 1) course work and major paper option, or 2) thesis option. Students begin their studies in the Fall semester.

#### Thesis

Students must complete a minimum of 2.0 credits and write a thesis. All students are required to master basic theory and methodological skills. This is fulfilled through the successful completion of the courses SOC\*6140 and SOC\*6070 in the Fall semester and SOC\*6130 in the Winter semester.

All students are required to pass SOC\*6700, Pro-Seminar. This is a two semester course (Fall and Winter) and is graded as SAT/UNSAT. This course is intended to introduce students to the department, the university, and the profession of Sociology.

#### Course work and Major Research Paper

Students must complete a minimum of 4.0 credits (including 1.0 credit in SOC\*6660) and write a major paper. All students are required to master basic theory and methodological skills. This is fulfilled through the successful completion of the courses SOC\*6140 and SOC\*6070 in the Fall semester and SOC\*6130 in the Winter semester.

All students are required to pass SOC\*6700, Pro-Seminar. This is a two semester course (Fall and Winter) and is graded as SAT/UNSAT. This course is intended to introduce students to the department, the university, and the profession of Sociology.

## PhD Program

The doctoral program comprises four fields within the discipline of Sociology that build on current faculty strengths. These fields are: 1) environment, food and communities; 2) work and organization; 3) crime and social control; and 4) identities and social inclusion.

### Degree Requirements

All students in the PhD program are required to successfully complete at least four courses during the first two semesters of study, including the PhD professional seminar SOC\*6750, Advanced Topics in Sociological Theory SOC\*6800, and Advanced Issues in Mixed Research Methodologies SOC\*6200. Students must also successfully complete a qualifying exam and a research proposal, and produce and orally defend a dissertation on a topic that has been approved by the advisory committee.

### Admission Requirements

Normally, only applicants with a recognized MA degree in Sociology and with high academic standing (80% or higher) in their graduate-level studies will be admitted into the program.

Students are expected to have successfully completed Master's-level courses in sociological theory as well as Master's-level qualitative and quantitative methodology courses in Sociology. It is also expected that students will have taken courses across the breadth of Sociology.

### Admission Procedure

Graduate students are admitted into the program in the Fall semester only. The program is offered on a full-time basis only. Program offices should be consulted for admission deadlines. The on-line application and application information can be found at <http://www.uoguelph.ca/graduatestudies/apply>

### Collaborative Specializations

#### International Development Studies

The Department of Sociology and Anthropology participates in the MA and PhD collaborative specialization in International Development Studies (IDS). Please consult the International Development Studies listing <http://www.uoguelph.ca/cids/> for a detailed description of the MA and PhD collaborative specialization and the special additional requirements for each of the participating departments.

### Courses

#### General

##### SOC\*6070 Sociological Theory F [0.50]

Classical and contemporary theoretical perspectives and their inter-relationships. A central concern will be to develop the student's ability to assess theory critically and to understand how theory and research relate to each other.

*Department(s):* Department of Sociology and Anthropology

##### SOC\*6140 Qualitative Research Methods F [0.50]

An examination of the methods of qualitative research, including participant observation and unstructured interviews, as well as the ethical considerations of fieldwork. Other topics, such as comparative and historical methods, may be included.

*Department(s):* Department of Sociology and Anthropology

##### SOC\*6130 Quantitative Research Methods W [0.50]

The application of multiple regression to data generated by non-experimental research, e.g., survey data and data from other sources (census, archival). In large part a course in theory construction, a thorough grounding in the mechanics and statistical assumptions of multiple regression is followed by its application to the construction of structural equation (or causal) models representing substantive theories in sociology and related disciplines.

*Department(s):* Department of Sociology and Anthropology

##### SOC\*6200 Advanced Issues in Mixed Research Methodologies W [0.50]

This course will examine the foundations and a range of approaches used in mixed methods sociological research. Students will acquire a deeper understanding of how using a mixed methods research approach in sociological research can enhance scholarly rigour in a theoretically informed research project.

*Restriction(s):* Students in the PhD program in Sociology only

*Department(s):* Department of Sociology and Anthropology

##### SOC\*6700 Pro-seminar F-W [0.00]

The pro-seminar concerns matters involved in graduate studies and later work as a professional sociologist, including how to form a graduate advisory committee, assistantship responsibilities, presentation skills, exploration of careers in sociology, writing grant proposals, reports and articles, and teaching.

*Restriction(s):* Students in the MA program in Sociology only

*Department(s):* Department of Sociology and Anthropology

##### SOC\*6750 PhD Professional Seminar F-W [0.50]

This professional seminar provides PhD students in Sociology opportunities to develop professional skills; develop and foster an intellectual culture; facilitate cohort building, mentoring and provide peer support; and contribute to the intergenerational transmission of knowledge.

*Restriction(s):* Students in the PhD program in Sociology only

*Department(s):* Department of Sociology and Anthropology

##### SOC\*6800 Advanced Topics in Sociological Theory F [0.50]

This course focuses on close readings of, and critical engagement with, select classical and contemporary sociological theories. Students will develop advanced understandings of the philosophical underpinnings of different theoretical approaches and of the ontological and epistemological assumptions of sociological inquiry more generally.

*Prerequisite(s):* MA in Sociology

*Restriction(s):* Students in the PhD program in Sociology only

*Department(s):* Department of Sociology and Anthropology

### Environment, Food and Communities

##### SOC\*6420 Global Agro-Food Systems, Communities and Rural Change U [0.50]

This course will reflect recent sociological interests in food studies and global agro-food systems, resources and the environment, community sustainability, rural-urban linkages, the transnationalization of labour regimes, and social movements in the rural context. The course will encourage students to take a comparative and historical approach, focusing on cross-national and inter-regional studies where possible, and to examine how class, gender, race and ethnicity play out in each particular substantive topic comprising the rural field.

*Department(s):* Department of Sociology and Anthropology

### Work and Organization

##### SOC\*6480 Work, Gender and Change in a Global Context U [0.50]

This course will consider some of the theoretical frameworks available for examining work, workers and work places in the context of globalization, economic restructuring, and shifts in public policy. Using case studies of particular work worlds, the course may include topics such as changing patterns of work and employment in comparative contexts, labour regimes, industrial and organizational change, organizations and protest, education for work, and the regulation of work. The course will focus on the dialectical relationship between the configurations of gender, class, race and ethnicity and the transformation of work.

*Department(s):* Department of Sociology and Anthropology

### Crime and Social Control

##### SOC\*6350 Society, Crime and Control U [0.50]

This seminar course surveys classical theoretical perspectives and more recent theoretical developments in the sociology of crime. It will examine the assumptions and logical structure of each perspective and justifications of particular criminal justice/public policy responses. The course will also critically assess recent empirical research relevant to each perspective.

*Department(s):* Department of Sociology and Anthropology

### Identities and Social Inclusion

##### SOC\*6270 Diversity and Social Equality U [0.50]

This course will examine a range of approaches used in the study of intergroup relations, with special emphasis on struggles over influence and power. Students will acquire a deeper understanding of the complex intersection, as well as the overlap among forms of identity and group mobilization based on ethnic, linguistic, regional, class, gender, racial and other forms of social division. The course may also cover native issues and policies related to multiculturalism, equity and local or regional autonomy.

*Department(s):* Department of Sociology and Anthropology

### Other

##### SOC\*6400 Special Topics in Sociology U [0.50]

Special topics in sociology will critically examine and evaluate contemporary issues/debates in sociology by looking at contemporary research and the associated theoretical and methodological frameworks/perspectives. Course content is unique in each offering.

*Department(s):* Department of Sociology and Anthropology

**SOC\*6460 Gender and Development F [0.50]**

Cross-cultural and historical changes in gender relations and the roles/positions of women brought about by industrialization and the development of the world system. Critical examination of the predominant theories of gender relations, in so far as these inform development research and action in societies with different socio-economic systems. Introduction to the latest theories and research in the area of women and development, as well as with social and political actions undertaken by women themselves. This is one of the two alternative core courses for the collaborative International Development Studies program.

*Department(s):* Department of Sociology and Anthropology

**SOC\*6520 Social Movements and Collective Action F [0.50]**

Students will critically review the major theoretical perspectives on social movements and collective action, and consider their relevance in understanding the emergence, tactics, composition and impact of movements in a variety of national contexts. The specific movements to be examined via empirical scholarship will vary each year, but readings will represent several main kinds of collective demands ranging from the redress of oppression of particular groups, to struggles to sustain and enhance societal and human welfare.

*Restriction(s):* Must be enrolled in a graduate program

*Department(s):* Department of Sociology and Anthropology

**SOC\*6550 Selected Topics in Theory and Research U [0.50]**

This course will be offered with varying content focusing on theory or research.

*Department(s):* Department of Sociology and Anthropology

**SOC\*6600 Reading Course U [0.50]**

A program of directed reading, complemented with the writing of papers or participation in research. Reading courses are arranged by students through their advisors or advisory committees and must be approved by the chair of the department. This course may be repeated provided different content is involved.

*Department(s):* Department of Sociology and Anthropology

**SOC\*6660 Major Paper U [1.00]**

The major paper is an extensive research paper for those who do not elect to complete a thesis. It may be taken over two semesters.

*Department(s):* Department of Sociology and Anthropology

**SOC\*6810 Reading Course U [0.50]**

A program of supervised independent reading, complemented with the writing of papers or participation in research. Reading courses are arranged by students in consultation with their advisor or advisory committee and must be approved by the chair of the department.

*Restriction(s):* Students in the PhD program in Sociology only

*Department(s):* Department of Sociology and Anthropology

**SOC\*6820 Directed Readings U [0.50]**

A program of directed readings related to the student's field of specialization. The nature and content of the course are agreed upon by the student and instructor in consultation with the student's advisor or advisory committee. The course must be approved by the chair of the department.

*Restriction(s):* Students in the PhD program in Sociology only

*Department(s):* Department of Sociology and Anthropology



## Studio Art

The Master of Fine Arts (MFA) Program in Studio Art prepares students for careers as professional contemporary artists and art educators. The program equally supports interdisciplinary and media-specific practices. It promotes risk-taking, commitment, and critical insight as integral components of an integrated art practice. Studio visits, visiting speakers, and lively group seminars in contemporary art theory and pedagogy augment the individual development of artwork. Faculty advisors work closely with students in directing individual artwork and research projects. Students are also provided with opportunities to connect with the broader arts community. As a culminating highlight, each semester concludes with intensive formal critiques involving all graduate faculty members and fellow students, as well as specially invited critically acclaimed artists and art professionals.

### Administrative Staff

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### Graduate Faculty

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#### Robert Enright

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#### Kim Kozzi (FASTWÜRMS)

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#### Nestor Kruger

AOCA Ontario College of Art - Assistant Professor

#### Martin Pearce

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#### Sandra Rechico

BEd Alberta - Associate Professor

#### Dai Skuse (FASTWÜRMS)

BFA Queen's - Associate Professor

#### Monica Tap

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### Additional Faculty in the School of Fine Art and Music

#### Amanda Boetzkes

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#### Susan Douglas

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#### James Harley

BMus Western Washington, DMus McGill - Associate Professor

#### Sally A. Hickson

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#### Dominic Marner

BA Regina, MA Victoria, PhD East Anglia, Norwich UK - Associate Professor

#### Christina Smylitopoulos

BA Victoria, MA University of York, PhD McGill - Assistant Professor

### MFA Program

The Master of Fine Arts Program in Studio Art equally supports interdisciplinary and media specific practices, such as drawing, painting, printmaking, photography, video, performance, sculpture, and alternative practices. Although studio practice is emphasized, the program also includes courses in art theory, criticism, history and pedagogy. A thesis exhibition is also required. The objective of the program is to prepare students as professional artists and art educators.

The MFA program is intended to produce a high level of professional competence and personal originality in the informed practice of a studio discipline. In response to the numerous and divergent approaches to the making of visual art, the MFA program provides an individually oriented education that is primarily concerned with the development of independent studio work while encouraging a critical awareness of the cultural context and its ideological complexities.

In addition to intense involvement with studio practice, students will be required to demonstrate pertinent knowledge and judgement about the visual arts in presentations, discussions, and written papers within the required course work.

### Admission Requirements

Admission to the MFA program in studio art may be granted on the recommendation of the School of Fine Art and Music to the following applicants:

1. Holders of a BFA degree (honours equivalent), or an Honours BA (or its equivalent in fine art or visual arts); or
2. In exceptional cases, holders of a degree in another field who have completed a minimum of six one-semester courses in fine art or visual arts; or
3. Students who have satisfied the requirements for transfer from the provisional-student category.

**Specific Application Materials for Admission. Each applicant must submit the following:**

1. Documentation of artwork: 20 digital images or up to a 10 minutes DVD or a combination of the two. (For detailed submission information please see the 'How to Apply' section of the School of Fine Art and Music [website at .](#))
2. A single-page statement that outlines the applicant's interest in art, as well as career objectives and reasons for wishing to study in the University of Guelph's MFA program in studio art.
3. Two letters of reference should be written by studio professors who know you and your work well. An acceptable alternative to one such letter may be from the department chair on behalf of the department in which you have studied, or from a professional in the field of contemporary art who is familiar with your abilities.
4. A current curriculum vitae, including education, exhibitions, grants, residencies, and involvement in the art community, including volunteer work.

It is highly recommended that applicants complete at least eight semesters of courses in art history, cultural studies, or related areas prior to applying. Serious interest in, and substantial familiarity with contemporary issues in the visual arts is expected.

### Degree Requirements

The MFA degree at the University of Guelph requires a professional level of studio practice, and a sophisticated awareness of contemporary discourse in visual arts, as well as detailed knowledge of the selected field of specialization. Each degree candidate will complete a thesis. The MFA thesis consists of a solo exhibition, a brief supporting paper, and an oral examination.

The following are some of the specific degree requirements for the MFA degree in studio art (see the Degree Regulations section of this calendar for complete degree regulations):

#### Minimum Duration

The minimum duration is at least four semesters of full-time study.

#### Core Courses

A total of 10.0 credits is required for the completion of this program. In addition to individually oriented studio courses, students are required to complete four MFA seminars; two graduate courses in art theory and criticism courses; and two teaching practicum courses.

A maximum of two courses outside the School of Fine Art and Music may be substituted for courses in art history, theory and criticism. The courses selected must be acceptable to the school and the Assistant Vice-President (Graduate Studies) for graduate credit. All 12 "substantive" courses comprise the candidate's prescribed studies, in which the student must obtain an overall average grade of 'B-' or higher.

#### Additional Courses

In addition to the prescribed studies, the student may undertake to achieve satisfactory standings in ancillary courses supportive of the special discipline. These may be undergraduate or graduate level courses.

#### Exhibition/Paper

Each degree candidate must present an exhibition or performance of their studio work, as well as a critical paper between 4,000 and 5,000 words in length that articulates the aesthetic, historical, theoretical, and technical issues pertinent to their artwork. The submitted studio work must demonstrate a professional level of competence and a significant aesthetic investigation, as approved by the candidate's master's examination committee.

#### The Master's Examination

At the time of the exhibition, the MFA candidate will be expected to successfully complete a final oral examination devoted chiefly to the MFA exhibition with reference to the supporting critical paper. This is a school examination identified as the master's examination.

## School Regulations

In addition to meeting the university's MFA regulations regarding thesis format, the candidate must submit appropriate visual documentation of the MFA exhibition as well as the supporting critical paper, to the director of the School of Fine Art and Music for inclusion in the school's archives.

## Courses

<b>FINA*6510 Introduction to Graduate Studio F [1.50]</b>
A qualifying open-studio course to determine the student's interests and level of performance. The student will come in contact with a variety of faculty and may choose to work in a number of areas during this period. <i>Department(s):</i> School of Fine Art and Music
<b>FINA*6515 MFA Studio I W [1.50]</b>
Sustained work at an independent level under the supervision of the chair of the student's advisory committee. <i>Prerequisite(s):</i> FINA*6510 <i>Department(s):</i> School of Fine Art and Music
<b>FINA*6530 MFA Teaching Practicum I F [0.50]</b>
This course will give the MFA student supervised teaching experience in a studio discipline. In addition, a seminar component will consider theoretical and practical issues relevant to the teaching of studio art. Prerequisite: admission to the MFA program. <i>Department(s):</i> School of Fine Art and Music
<b>FINA*6531 MFA Teaching Practicum II F [0.50]</b>
Continuation of teaching practicum under the guidance of a faculty member. The practicum seminar will consider theoretical and practical issues relevant to the teaching of studio art such as educational goals, course and curriculum planning, academic evaluation, health and safety policies, and appropriate materials and equipment. <i>Prerequisite(s):</i> FINA*6530 <i>Department(s):</i> School of Fine Art and Music
<b>FINA*6540 MFA Seminar I F [0.50]</b>
Examination of critical issues in the visual arts relevant to studio practice <i>Department(s):</i> School of Fine Art and Music
<b>FINA*6545 MFA Seminar II W [0.50]</b>
Continuation of issues examined in FINA*6540 <i>Prerequisite(s):</i> FINA*6540 <i>Department(s):</i> School of Fine Art and Music
<b>FINA*6551 Seminar in Art Theory and Criticism I W [0.50]</b>
Selected topics in art theory and criticism with particular relevance to studio practice. <i>Prerequisite(s):</i> Admission to MFA program or permission of instructor. <i>Department(s):</i> School of Fine Art and Music
<b>FINA*6610 MFA Studio II F [1.50]</b>
Continuation of FINA*6515 <i>Prerequisite(s):</i> FINA*6515 <i>Department(s):</i> School of Fine Art and Music
<b>FINA*6615 MFA Studio III W [1.50]</b>
Continuation of FINA*6610 <i>Prerequisite(s):</i> FINA*6610 <i>Department(s):</i> School of Fine Art and Music
<b>FINA*6640 MFA Seminar III F [0.50]</b>
Continuation of FINA*6545 <i>Prerequisite(s):</i> FINA*6545 <i>Department(s):</i> School of Fine Art and Music
<b>FINA*6641 MFA Seminar IV W [0.50]</b>
Continuation of FINA*6640 <i>Department(s):</i> School of Fine Art and Music
<b>FINA*6652 Individual Study in Art Theory and Criticism W [0.50]</b>
Students will pursue special study under the guidance of a faculty member with appropriate expertise. <i>Prerequisite(s):</i> Approval of the co-ordinator of the MFA program. <i>Department(s):</i> School of Fine Art and Music

## Additional and Elective Courses

<b>FINA*6550 Selected Topics in Fine Art U [0.50]</b>
Seminar in a fine art topic in a subject to be specified by the instructor. <i>Prerequisite(s):</i> Admission to the MFA program. <i>Department(s):</i> School of Fine Art and Music

<b>FINA*6651 Individual Study in Contemporary Art U [0.50]</b>
Students will pursue special study under the guidance of a faculty member with appropriate expertise <i>Prerequisite(s):</i> Approval of the co-ordinator of the MFA program. <i>Department(s):</i> School of Fine Art and Music

## Theatre Studies

### Administrative Staff

#### Director

Ann Wilson (425 MacKinnon, Ext. 53268)  
annwilso@uoguelph.ca

#### Graduate Program Coordinator

Gregor Campbell (431 MacKinnon, Ext. 53255)  
gregorc@uoguelph.ca

#### Graduate Program Assistant

Olga Petrik (427 MacKinnon, Ext. 56315)  
petriko@uoguelph.ca

### Graduate Faculty

#### Elaine Chang

BA British Columbia, MA, PhD Stanford - Associate Professor

#### Alan Filewod

BA York, MA Alberta, PhD Toronto - Professor

#### Daniel Fischlin

BFA, MA Concordia, PhD York - Professor and University Research Chair

#### Patricia Flood

BFA Alberta - Associate Professor

#### Mark Fortier

BA Windsor, MA Toronto, PhD York, LLB Toronto - Professor

#### Sky Gilbert

BFA York, MA, PhD Toronto - Associate Professor

#### Mark Lipton

BA Concordia, MA, PhD New York - Associate Professor

#### Kimberley McLeod

BA Queen's, MA Alberta, PhD York - Assistant Professor

#### Daniel O'Quinn

BSc, MA Western, PhD York - Professor

#### Paul W. Salmon

BA Western, MA Toronto, PhD Western - Assistant Professor

#### Judith Thompson

BA, Queen's, Cert. National Theatre School - Professor

#### Ann Wilson

BA, MA, PhD York - Associate Professor and Director

### MA Program

The Masters of Arts Degree in Theatre Studies is a research-based degree that offers students the opportunity of working with award winning theatre scholars and practitioners. The program applies several dynamic approaches to theatre studies that merge theory and practice. Students take five courses, including two mandatory courses and three elective courses. The required courses include i) THST\*6220, which provides a context for the discipline and establishes a consistent discourse for students working in the program; and ii) THST\*6150, which introduces students to the theory and practice of theatre-historical analysis, and situates selected aspects of theatre history as a practice and an institution. The degree provides opportunities for students to pursue in depth an area of specialized research.

Elective courses are subject to the special interests of faculty research and practice; these courses will rotate regularly among core faculty. For their electives students may take any graduate course offered in English or Theatre Studies, or may apply to take graduate courses in other programs, however, it is strongly recommended that at least two of the three electives come from the Theatre Studies course offerings in the Winter Semester.

### Admission Requirements

In addition to the minimum requirements stated elsewhere in the Graduate Calendar, applicants to the MA Program in Theatre Studies would normally be expected to have a baccalaureate degree in an honours program (or equivalent) in drama or literature from a recognized post-secondary institution with at least a 78% or higher in the last two years of study. Students with degrees with excellent academic records in other related disciplines will also be considered. In very exceptional circumstances, an applicant may lack the required Honours degree but may be assessed as qualified to undertake the MA program in Theatre Studies on the basis of other experience and practice. For details, contact the Graduate Program Coordinator.

Applicants are not required to write the Graduate Record Examination. Successful applicants will be admitted in the Fall Semester, the Program's only entry point. Program offices should be consulted for admission deadlines.

Applicants whose first language is not English are required to submit documentation of English language proficiency at the time of application.

### Degree Requirements

Students enrol in one of two study options: 1) course work and major paper, or 2) thesis.

### Thesis

Students must complete the required: THST\*6220 and THST\*6150 in the student's first semester, plus one Theatre Studies elective course plus an original research-based thesis (approx. 20,000 to 25,000 words)

### Course Work and Major Paper (MRP)

Students must complete the required: THST\*6220 and THST\*6150 in the student's first semester, plus three Theatre Studies elective courses, plus either THST\*6500 (approx. 7,500 words) or THST\*6280. It is strongly recommended that at least two of the three electives come from Theatre Studies courses offered in the Winter Semester.

Both the thesis and the research paper may, with approval, and contingent upon faculty availability, be completed as exercises in creative writing accompanied by critical and theoretical commentary.

### Internship Opportunities

All students may apply to the Graduate Program Committee to include an internship as part of their program as a course, or as a component of the Major Research Paper or thesis. Internships are not guaranteed, and it is the responsibility of students to make arrangements with their hosts and submit a thorough application including a clear statement of how the internship articulates and supports their program of research.

### Library Resources

The University of Guelph's library resources are remarkable for all aspects of the study of drama and theatre, and particularly for archival and special collections in Canadian Theatre, theatre and performance history, theatre festivals, and individual authors. Applicants who wish to work with these collections are especially welcome.

### Courses

THST*6150 Theatre Historiography F [0.50]
This variable content course introduces students to the theory and practice of theatre historical analysis. The course is required of all students in the Theatre Studies MA Program. <i>Department(s):</i> School of English and Theatre Studies
THST*6210 Devising W [0.50]
This variable-content course addresses creative practice in the theatre as a site for the production of knowledge. It examines the theoretical and social issues of contemporary theatre practice. <i>Department(s):</i> School of English and Theatre Studies
THST*6220 Theatre Theory F [0.50]
This variable content course introduces students to a range of theoretical approaches and to advanced issues and methods within the fields of drama, theatre, and performance studies. The course is required for all students in the Theatre Studies MA Program. <i>Department(s):</i> School of English and Theatre Studies
THST*6230 Performance and Difference W [0.50]
This variable-content course introduces students to the most recent theoretical and critical international developments in the field of Theatre Studies and investigates sites of cultural diversity and difference. It provides opportunities for culturally specific studies of dramatic literature and performance. <i>Department(s):</i> School of English and Theatre Studies
THST*6250 Bodies and Space in Performance W [0.50]
This variable-content course introduces students to the social, ethical, phenomenological and environmental dimensions of the interaction of bodies and space in theatre practice and research. It provides a theorized context in which students may address questions of acting, directing, and design as research processes. <i>Department(s):</i> School of English and Theatre Studies
THST*6280 Independent Reading Course U [1.00]
Independent Reading Course <i>Department(s):</i> School of English and Theatre Studies
THST*6500 Research Paper U [1.00]
<i>Department(s):</i> School of English and Theatre Studies
THST*6801 Reading Course I U [0.50]
An independent study course, the nature and content of which is agreed upon between the individual and the person offering the course. Subject to the approval of the student's advisory committee and the graduate program committee. <i>Department(s):</i> School of English and Theatre Studies
THST*6802 Reading Course II U [0.50]
An independent study course, the nature and content of which is agreed upon between the individual and the person offering the course. Subject to the approval of the student's advisory committee and the graduate program committee. <i>Department(s):</i> School of English and Theatre Studies

## Tourism and Hospitality

The School of Hospitality, Food and Tourism Management offers programs of study leading to the MSc degree and Graduate Diploma. Graduates will appreciate how their practical knowledge, competencies and analytical skills can be applied through research to the identification of optimal solutions and justifiable recommendations for employers, customers or researchers.

### Administrative Staff

#### Director

Statia Elliot (201 MACS, Ext. 53971)  
statia@uoguelph.ca

#### Graduate Program Coordinator

HS Chris Choi (304 MACS, Ext. 53370)  
hwchoi@uoguelph.ca

#### Graduate Program Assistant

Melinda Heijl (MAC 102, Ext. 52899)  
trmhmsc@uoguelph.ca

#### Graduate Program Assistant

Cori Wells (MAC 104, Ext. 52143)  
trmhmsc@uoguelph.ca

### Graduate Faculty

#### Joachim E. Barth

BSc Guelph, MBA Wilfrid Laurier, MPS Cornell, PhD Cornell - Associate Professor

#### HS Chris Choi

BA Chung-Ang, MTA George Washington, PhD Texas A&M - Professor and Graduate Program Coordinator

#### Statia Elliot

BCom St. Mary's, MA McMaster, PhD Carleton - Associate Professor and Director

#### Joan Flaherty

BA Guelph, MA(English Literature), MSc (Adult and Extension Education) Guelph - Assistant Professor

#### Lianne Foti

BComm Guelph, MBA EDHEC, DBA Bradford - Assistant Professor

#### Kerry Godfrey

BSc Victoria, MSc Surrey, PhD Oxford Brooke - Professor

#### Mark Holmes

BComm, MSA Ryerson, PhD York - Assistant Professor

#### WooMi Jo

BS Kansas, MS Houston, PhD Kansas - Associate Professor

#### Marion Joppe

BA Waterloo, MLaw, PhD d'Aix-Marseille III - Professor

#### Nadège Levallet

MMGT Grenoble, MBA Ottawa, PhD Queen's - Assistant Professor

#### Bruce McAdams

BComm, MA Guelph - Assistant Professor

#### William Murray

BA Algonquin, MBA Guelph, PhD Saint Mary's - Assistant Professor

#### Norm O'Reilly

BSc Waterloo, MBA Ottawa, PhD Carleton - Assistant Dean, Executive Programs

#### Simon Somogyi

BWM, PhD Adelaide - Associate Professor

#### Erna van Duren

BA Waterloo, MSc, PhD, Guelph - Professor

### MSc Program

The objective of the program is to develop a solid academic background and underpinning in the field of tourism, alongside research, critical reasoning, problem solving and data analysis skills. The intention is to equip students with the necessary skills to identify optimal solutions and justifiable recommendations for employers, customers or other researchers. In so doing, graduates will develop demonstrable competence in the assessment of existing literature, research conceptualization and design, quantitative and qualitative research methods and data analysis techniques. Completion of the program can serve as a foundation for the pursuit of a PhD.

### Admission Requirements

All students entering the MSc are required to hold an undergraduate Honour's degree with a minimum B+ or equivalent, from a recognized post-secondary institution (see also Graduate Diploma in Tourism Research (GDip) for alternate admission requirements). In addition, they should have a GMAT score of 550 or better or a GRE score of 1200 (Minimum verbal score of 450) or better.

Applicants also need to have an academic or industry background in tourism, the social sciences, humanities or professional/business related programs in allied areas such as hospitality, travel, human resources, marketing or consumer studies. For applicants who did not major in these areas in their undergraduate degree or diploma, additional prerequisites may be required.

MSc applicants who believe their experiential learning may compensate for a lack of academic standing and thus not meet the University's minimum requirements may contact the Graduate Program Coordinator regarding alternative admissions criteria, which normally would require at least 5 years in a research or equivalent position in industry.

### Degree Requirements

All students will complete six courses, three core courses and three restricted electives, plus the thesis proposal and defence. The thesis is expected to be sufficiently meritorious to warrant publication in reputable refereed journals within the student's field and area of specialization. The three core courses cover topics dealing with the theories, methods, contemporary issues, and research applications in tourism and hospitality. The three restricted electives include: one quantitative methods course; one qualitative methods course; and one topic course. All are to be chosen in consultation with the School's Graduate Program Coordinator. It is intended that the topic will be related to and/or lead to the student's thesis proposal and subsequent research.

### Core Courses

TRMH*6100	[0.50]	Foundations of Tourism and Hospitality
TRMH*6200	[0.50]	Contemporary Issues in Tourism
TRMH*6310	[0.50]	Research Applications in Tourism and Hospitality
TRMH*6400	[1.00]	Thesis Proposal

### Restricted Electives

One of the following quantitative research methods courses:

TRMH*6290	[0.50]	Research Methods for Tourism and Hospitality
SOC*6130	[0.50]	Quantitative Research Methods
PSYC*6060	[0.50]	Research Design and Statistics

Or with permission

GEOG*6090	[0.50]	Geographical Research Methods I plus
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One of the following qualitative research methods courses:

MCS*6080	[0.50]	Qualitative Research Methods
ANTH*6140	[0.50]	Qualitative Research Methods
SOC*6140	[0.50]	Qualitative Research Methods
FRAN*6020	[0.50]	Qualitative Methods

plus

One of the following topic courses:

HTM*6300	[0.50]	Hospitality and Tourism Marketing
HTM*6600	[0.50]	International Tourism and Tourism Marketing
HTM*6630	[0.50]	Special Topics in Tourism
TRMH*6250	[0.50]	Tourism and Sustainable Development
TRMH*6270	[0.50]	Data Mining Practicum

Or other courses as appropriate depending on availability

Note: Candidates for the MSc who successfully complete at least 2.5 credits of course work, with a minimum 70% overall average grade, and no less than 65% in any single HTM course in the 2.5 credits, may be eligible to receive a Type 1 Graduate Diploma in Tourism Studies, if they choose to withdraw from the program.

### Graduate Diploma Program in Tourism Research

The objective of the Graduate Diploma is to provide highly focused training in tourism research, including theoretical concept assessment, conceptual model development, methodology selection, research design, data analysis, and presentation of results. The intention is to equip students with the necessary skills to identify optimal solutions and justifiable recommendations for employers, customers or other researchers. The diploma program is designed to meet the needs of students who want to extend their knowledge of tourism research beyond the level they obtained while taking their undergraduate degree. It also offers alternate entry criteria and the opportunity to transfer to the MSc, depending on individual academic performance in courses and an application.

### Admission Requirements

Applicants for the GDip in tourism research are required to have completed a four year honours degree with a minimum of B+ average or equivalent, from a recognized post-secondary institution.

All applicants should have a GMAT score of 550 or better or a minimum GRE score of 150 (Verbal) and 159 (Quantitative) (On the previous scale: Minimum 1200 with a minimum verbal score of 450 or better).

Applicants also need to have an academic or industry background in tourism, the social sciences, humanities or professional/business related programs in allied areas such as hospitality, travel, human resources, marketing or consumer studies. For applicants who did not major in these areas in their undergraduate degree or diploma, additional prerequisites may be required.

Any applicant who believes that their experiential learning may compensate for a lack of academic standing and thus not meet the University's minimum requirements may contact the Graduate Program Coordinator regarding alternative admissions criteria, which normally would require at least 5 years in a research or equivalent position in industry.

### Diploma Requirements

All students must complete three core courses and three restricted electives. The three core courses cover topics dealing with the theories, methods, contemporary issues, and research applications in tourism and hospitality. The three restricted electives include: one quantitative methods course; one qualitative methods course; and one topic course. All are to be chosen in consultation with the School's Graduate Program Coordinator.

### Core Courses

TRMH*6100	[0.50]	Foundations of Tourism and Hospitality
TRMH*6200	[0.50]	Contemporary Issues in Tourism
TRMH*6310	[0.50]	Research Applications in Tourism and Hospitality

### Restricted Electives

One of the following quantitative research methods courses:

MCS*6050	[0.50]	Research Methods in Marketing and Consumer Studies
SOC*6130	[0.50]	Quantitative Research Methods
PSYC*6060	[0.50]	Research Design and Statistics
TRMH*6290	[0.50]	Research Methods for Tourism and Hospitality

Or with permission

GEOG*6090	[0.50]	Geographical Research Methods I
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plus

One of the following qualitative research methods courses:

MCS*6080	[0.50]	Qualitative Research Methods
ANTH*6140	[0.50]	Qualitative Research Methods
SOC*6140	[0.50]	Qualitative Research Methods

Or with permission

FRAN*6020	[0.50]	Qualitative Methods
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plus

One of the following topic courses:

HTM*6300	[0.50]	Hospitality and Tourism Marketing
HTM*6600	[0.50]	International Tourism and Tourism Marketing
TRMH*6250	[0.50]	Tourism and Sustainable Development
TRMH*6270	[0.50]	Data Mining Practicum

Or other courses as appropriate depending on availability

### Transfer to MSc in Tourism and Hospitality

Candidates admitted to the graduate diploma who wish to transfer to the MSc once they have commenced their program of study, must achieve a minimum grade of 75% in the three compulsory courses, and no mark less than 70% across all courses.

### Courses

<b>TRMH*6100 Foundations of Tourism and Hospitality F [0.50]</b>
The course is designed to discuss theoretical concepts and theories which provide an understanding of societal, managerial and strategic aspects of tourism and hospitality. An emphasis will also be placed on key theories and concepts of relevant disciplines which may affect tourism and hospitality research.
<i>Department(s):</i> School of Hospitality, Food and Tourism Management
<b>TRMH*6200 Contemporary Issues in Tourism W [0.50]</b>
The course will acquaint students with the tourism industry. An overview of the scale and scope, involved stakeholders, and the organization of the industry will be examined and critiqued. An emphasis will be placed on the sustainable development and management of tourism resources and organizations.
<i>Prerequisite(s):</i> TRMH*6100
<i>Department(s):</i> School of Hospitality, Food and Tourism Management
<b>TRMH*6250 Tourism and Sustainable Development F [0.50]</b>
The course introduces students to the issues affecting planning and development of tourism by understanding tourism planning and sustainable development. Core elements include a discussion on tourism impacts (economic, social, cultural and environmental), issues of sustainability, carrying capacity, 'eco-tourism' and other 'alternative forms' of tourism.
<i>Department(s):</i> School of Hospitality, Food and Tourism Management
<b>TRMH*6270 Data Mining Practicum W [0.50]</b>
An applied course introducing popular concepts, methods and applications of data mining utilizing data warehoused at the government agencies and user friendly software and cases. This course covers various topics in data mining association rule, clustering, logistic regression, decision tree and artificial neural network.
<i>Prerequisite(s):</i> TRMH*6100 and PSYC*6060
<i>Co-requisite(s):</i> Must take one of these courses ANTH*6140, MCS*6080 or SOC*6140
<i>Department(s):</i> School of Hospitality, Food and Tourism Management

### TRMH\*6290 Research Methods for Tourism and Hospitality F [0.50]

This course looks at selected analytical techniques in tourism and hospitality research, both empirical and subjective, as well the nature of research questions and theory. The course is intended to help students make informed judgements about selected research tools and designs, and draw logical and substantive conclusions.

*Department(s):* School of Hospitality, Food and Tourism Management

### TRMH\*6310 Research Applications in Tourism and Hospitality W [0.50]

This course is designed to enhance the student's analytical capability, using both basic and advanced analytical techniques and tools of tourism and hospitality research. They learn to critically evaluate, enabling them to make effective judgments, choose proper statistical techniques, and draw logical and substantive conclusions.

*Prerequisite(s):* TRMH\*6100 and one of TRMH\*6290, MCS\*6050, SOC\*6130 or PSYC\*6060

*Co-requisite(s):* Must take one of these courses ANTH\*6140, MCS\*6080, FRAN\*6020 or SOC\*6140

*Department(s):* School of Hospitality, Food and Tourism Management

### TRMH\*6400 Thesis Proposal F,W,S [1.00]

The students engage in seminars to share experiences and reflections on the research process. This course is a development of the proposal: framing a research question, developing a methodological plan within a challenging interdisciplinary area such as tourism and hospitality, data planning and more.

*Prerequisite(s):* TRMH\*6100, TRMH\*6200, TRMH\*6310, one of TRMH\*6290, MCS\*6050, SOC\*6130 or PSYC\*6060 and one of ANTH\*6140, MCS\*6080, FRAN\*6020 or SOC\*6140

*Department(s):* School of Hospitality, Food and Tourism Management

## Veterinary Science

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The Doctor of Veterinary Science (DVSc) program involves members of the graduate faculty in the Departments of Biomedical Science, Clinical Studies, Pathobiology and Population Medicine of the Ontario Veterinary College. Admission, progress, and certification for graduation of students enrolled in the DVSc program is administered by the respective departments.

### Administrative Staff

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#### Associate Dean, Research and Innovation

Dr. Gordon Kirby (2638C OVC, Ext. 54948)

gkirby@ovc.uoguelph.ca

#### Assistant to Associate Dean, Research and Innovation

Daphne Summers (2653 OVC, Ext. 54406)

dsummers@uoguelph

### DVSc Program

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The DVSc is a unique post-professional degree. The DVSc program provides advanced discipline training and research at the doctoral level. It involves course and investigational work on an applied problem, together with advanced discipline training. Students enrolled in the program select one of the sixteen specializations (listed below) and register in the appropriate department. The departments and specializations are:

- Biomedical Sciences
  - Clinical Pharmacology
- Clinical Studies
  - Comparative medicine, small animal medicine, small animal surgery, large animal medicine, large animal surgery, emergency medicine and critical care, anesthesiology, radiology, neurology, oncology and clinical nutrition
- Pathobiology
  - Clinical pathology, anatomic pathology, laboratory-animal science, clinical microbiology, wildlife and zoo animal medicine and pathology, avian and exotic medicine and pathology and fish pathology.
- Population Medicine
  - Clinical epidemiology, ruminant health management, swine health management and theriogenology

### Admission Requirements

The normal basis for admission to DVSc studies is a DVM or equivalent degree that would allow the applicant to be eligible for licence to practice veterinary medicine in Ontario. The applicant must have achieved high academic standing according to the standards of the University of Guelph.

Students who meet the aforementioned requirements and possess either an acceptable graduate diploma, MSc degree, or PhD degree with 'B+' average standing may be admitted and granted credit for two semesters in the DVSc program.

A student enrolled in the graduate diploma program who achieves a superior record and shows a particular aptitude for applied studies may be authorized by the Board of Graduate Studies, on recommendation of the student's advisory committee, to transfer to the DVSc program without completing the graduate diploma program. This authorization must be granted no later than the end of the second semester of study. The transfer will be effective the following semester.

### Degree Requirements

A minimum of 2.50 course credits is required. A qualifying examination must be taken prior to the end of the sixth semester to assess the student's knowledge of the selected area of specialization and the basic sciences supporting this area. Candidates are required to develop investigational skills in their distinctive area of specialization by carrying out an original study, generally related to animal health. The research must make a significant contribution to the area of specialization, be written up as a thesis, and defended.

At least nine semesters of full-time study must be devoted to the DVSc program. Additional information on the DVSc program may be found in the calendar description of each participating department.

## Other Departments

### School of Languages and Literatures

Director:

Daniel Chouinard, 265 MacKinnon, ext. 54891/53883

The School offers the following undergraduate programs:

#### Département D'Études Françaises

Head : Dr. Frédérique Arroyas, 278 MacKinnon, ext. 52885/53884

#### Classics

Head: Dr. Padraig O'Cleirigh, 244 MacKinnon, ext. 53156/53883

#### European Studies

Coordinator: Dr. Dorothy Odartey-Wellington, 276 MacKinnon, ext. 53179/53883

#### German Studies

Head: Dr. Paola Mayer, 255 MacKinnon, ext. 58562/53883

#### Italian Studies

Head: Dr. Mary DeCoste, 284 MacKinnon, ext. 53187/53883

#### Spanish Studies

Head: Dr. Stephen Henighan, 274 MacKinnon, ext. 54489/53884

The School of Languages and Literatures presently offers a program in french for graduate students. Graduate students who are required by their departments to fulfil a language requirement other than french, should consult the Undergraduate Calendar. Classes in German, Greek, Italian, Latin and Spanish are all available. Any graduate student who considers their language ability sufficient to meet departmental requirements may submit to a test, in the first week of the Fall or the Winter semester. Requests should reach the Head of the program involved at least two weeks before the test. In the case of a pass, the School will report to the Assistant Vice-President (Graduate Studies) that the student has successfully passed a reading test in the language, and the student's record is annotated to that effect. Grades are not shown.

Examinations are offered in French, German, Greek, Italian, Latin or Spanish, and others may be considered. Several members of the faculty in the School are members of the graduate faculty of other departments and participate in their graduate programs as follows:

#### Frederique Arroyas

BA, MA, PhD Western Ontario - Associate Professor

#### Daniel Chouinard

BaSp, MA, PhD (Montréal) for SLAPSIE (MA in English/SETS) - Assistant Professor

#### Dawn M. Cornelio

BA, MA, PhD Connecticut - Associate Professor

#### Stephen Henighan

BA (Swarthmore), MA (C'DIA), PhD (Oxford) (MA in English/SETS) - Associate Professor

#### Margot Irvine

BA, MA, PhD Toronto - Assistant Professor

#### Padraig O'Cleirigh

BA, MA National Univ. of Ireland, PhD (Cornell) (MA/PhD in History) - Associate Professor

#### Dana Paramskas

BSL, MSL (Georgetown), PhD (Laval) (MA in English and Drama/SETS) - Professor

#### Joubert Satyre

BA State University Haiti, MEd, PhD Montreal - Associate Professor

#### Alain Thomas

BA York, MA, PhD Toronto - Associate Professor

### Music

Director of the School of Fine Art and Music

John D. Kissick (Zavitz 203, Ext. 56930)

The Music program does not presently offer programs for graduate students.

## **X. Collaborative Specializations**

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Collaborative specializations are intended to provide an additional multidisciplinary experience for students. Students complete the requirements of their home program plus those of the collaborative specialization.



## Artificial Intelligence

The Collaborative Specialization in Artificial Intelligence (AI) provides thesis-based masters students in Computer Science, Engineering, Mathematics and Statistics, and Bioinformatics with a diverse and comprehensive knowledge base in AI. Students wishing to undertake graduate studies at the masters level with emphasis on artificial intelligence will be admitted by a participating department and will register in both the participating department and in the collaborative specialization.

Students will learn from a multidisciplinary team of faculty with expertise in fundamental and applied deep learning and machine learning, while conducting AI-related research guided by a faculty advisor. By the end of this program, graduates will have comprehensive understanding of leading-edge AI techniques and will be able to apply this knowledge to solve real-world problems.

### Administrative Staff

#### Graduate Program Coordinator

Dr. Graham Taylor (3515 Thornbrough, Ext. 53644)

gtaylor@uoguelph.ca

TBD

Graduate Program Assistant (, Ext. )

### Graduate Faculty

#### Sarah J. Adamowicz

Associate Professor, Integrative Biology

#### R. Ayesha Ali

Associate Professor, Mathematics and Statistics

#### Luiza Antonie

Assistant Professor, Computer Science

#### Shawki Areibi

Professor, Engineering

#### Dan Ashlock

Professor, Mathematics and Statistics

#### Christine Baes

Assistant Professor, Animal Biosciences

#### Mohammad Biglarbegian

Associate Professor, Engineering

#### David Calvert

Associate Professor, Computer Science

#### Monica Cojocaru

Professor, Mathematics

#### Christopher Collier

Assistant Professor, Engineering

#### Rozita Dara

Assistant Professor, Computer Science

#### Fantahu Defersha

Associate Professor, Engineering

#### Ali Dehghantanha

Assistant Professor, Computer Science

#### Robert Dony

Associate Professor, Engineering

#### Hermann Josef Eberl

Professor, Mathematics and Statistics

#### Zeny Feng

Associate Professor, Mathematics and Statistics

#### David Flatla

Associate Professor, Computer Science

#### Andrew Gadsden

Assistant Professor, Engineering

#### Bahram Gharabaghi

Professor, Engineering

#### Karen Gordon

Associate Professor, Engineering

#### Andrew Hamilton-Wright

Associate Professor, Computer Science

#### Julie Horrocks

Professor, Mathematics and Statistics

#### Hadis Karimipour

Assistant Professor, Engineering

#### Stefan Kremer

Professor, Computer Science

#### Anna Lawniczak

Professor, Mathematics and Statistics

#### William Lubitz

Associate Professor, Engineering

#### Lewis Lukens

Associate Professor, Plant Agriculture

#### Pascal Matsakis

Professor, Computer Science

#### Edward McBean

Professor, Engineering

#### Medhat Moussa

Professor, Engineering

#### Khurram Nadeem

Assistant Professor, Mathematics and Statistics

#### Charlie Obimbo

Associate Professor, Computer Science

#### Michele Oliver

Professor, Engineering

#### Stacey Scott

Associate Professor, Computer Science

#### Fei Song

Associate Professor, Computer Science

#### Petros Spachos

Assistant Professor, Engineering

#### Deborah Stacey

Associate Professor, Computer Science

#### Graham Taylor

Associate Professor, Engineering

#### Dan Tulpan

Assistant Professor, Animal Biosciences

#### Fangju Wang

Professor, Computer Science

#### Mark Wineberg

Associate Professor, Computer Science

#### Simon Yang

Professor, Engineering

#### Yang Xiang

Professor, Computer Science

### Associated Graduated Faculty

#### Dirk Steinke

Associate Director Centre for Biodiversity and Adjunct Professor Integrative Biology

### MSc/MASc Collaborative Specialization

### Admission Requirements

Masters students in the Collaborative Specialization in Artificial Intelligence must meet the admission requirements of the participating department in which they are enrolled. The application process has two stages. First, prospective students will apply to their primary program of interest, identifying interest in the collaborative specialization as a focus. If the student is admitted to the primary program as a thesis student, the second stage is then admission to the collaborative specialization. All applications to participate in the Collaborative Specialization in Artificial Intelligence will be vetted by the specialization's Graduate Program Coordinator.

### Degree Requirements

Masters students in the collaborative specialization in artificial intelligence must complete:

UNIV\*6080 [0.25] Computational Thinking for Artificial Intelligence

UNIV\*6090 [0.50] Artificial Intelligence Applications and Society

One of the following Elective Core courses:

CIS\*6020 [0.50] Artificial Intelligence

ENG\*6500 [0.50] Introduction to Machine Learning

STAT\*6801 [0.50] Statistical Learning

Two of the following Complementary AI-related courses:

BIN\*6970 [0.50] Statistical Bioinformatics

CIS\*6050 [0.50] Neural Networks

CIS\*6060 [0.50] Bioinformatics

CIS\*6070 [0.50] Discrete Optimization

CIS\*6080 [0.50] Genetic Algorithms

CIS\*6100 [0.50] Parallel Processing Architectures

CIS\*6120 [0.50] Uncertainty Reasoning in Knowledge Representation

CIS\*6140 [0.50] Software Engineering

CIS\*6160 [0.50] Multiagent Systems

CIS\*6320 [0.50] Image Processing Algorithms and Applications

CIS\*6420 [0.50] Soft Computing

ENG\*6100 [0.50] Machine Vision

ENG\*6140 [0.50] Optimization Techniques for Engineering

ENG\*6570 [0.50] Advanced Soft Computing

MATH*6020	[0.50]	Scientific Computing
MATH*6021	[0.50]	Optimization I
MATH*6051	[0.50]	Mathematical Modelling
PHIL*6760	[0.50]	Science and Ethics
STAT*6841	[0.50]	Computational Statistical Inference

And an acceptable AI-related thesis. Requirements of this collaborative specialization may also serve as core and/or elective requirements in the student's home program.

## Courses

### Required Courses

<b>UNIV*6080 Computational Thinking for Artificial Intelligence U [0.25]</b>
This course will provide students with an overview of the mathematical and computational foundation that is required to undertake artificial intelligence and machine learning research. Students will also gain an understanding of the historical context, breadth, and current state of the field. Students are expected to have already taken undergraduate courses in probability & statistics, calculus, linear algebra, and data structures & algorithms (STAT*2120, MATH*1210, ENGG*1500, and CIS*2520, or equivalents).
<i>Department(s):</i> Office of Graduate Studies
<b>UNIV*6090 Artificial Intelligence Applications and Society U [0.50]</b>
This multidisciplinary, team-taught course provides an in-depth study of how artificial intelligence methodologies can be applied to solve real-world problems in different fields. Students will work in groups to propose solutions whilst considering social and ethical implications of artificial intelligence technologies.
<i>Prerequisite(s):</i> UNIV*6080
<i>Restriction(s):</i> Restricted to students in the collaborative specialization in Artificial Intelligence
<i>Department(s):</i> Office of Graduate Studies

### Elective Core

<b>CIS*6020 Artificial Intelligence U [0.50]</b>
An examination of Artificial Intelligence principles and techniques such as: logic and rule based systems; forward and backward chaining; frames, scripts, semantic nets and the object-oriented approach; the evaluation of intelligent systems and knowledge acquisition. A sizeable project is required and applications in other areas are encouraged.
<i>Department(s):</i> School of Computer Science
<b>ENGG*6500 Introduction to Machine Learning U [0.50]</b>
The aim of this course is to provide students with an introduction to algorithms and techniques of machine learning particularly in engineering applications. The emphasis will be on the fundamentals and not specific approach or software tool. Class discussions will cover and compare all current major approaches and their applicability to various engineering problems, while assignments and project will provide hands-on experience with some of the tools.
<i>Department(s):</i> School of Engineering
<b>STAT*6801 Statistical Learning U [0.50]</b>
Topics include: nonparametric and semiparametric regression; kernel methods; regression splines; local polynomial models; generalized additive models; classification and regression trees; neural networks. This course deals with both the methodology and its application with appropriate software. Areas of application include biology, economics, engineering and medicine.
<i>Department(s):</i> Department of Mathematics and Statistics

### Complementary AI-related

<b>BINF*6970 Statistical Bioinformatics W [0.50]</b>
This course presents a selection of advanced approaches for the statistical analysis of data that arise in bioinformatics, especially genomic data. A central theme to this course is the modelling of complex, often high-dimensional, data structures.
<i>Prerequisite(s):</i> Introductory courses in statistics, mathematics and programming
<i>Restriction(s):</i> Restricted to students in Bioinformatics programs. Students in other programs may consult with course instructor.
<i>Department(s):</i> Dean's Office, College of Biological Science
<b>CIS*6050 Neural Networks U [0.50]</b>
Artificial neural networks, dynamical recurrent networks, dynamic input/output sequences, communications signal identification, syntactic pattern recognition.
<i>Department(s):</i> School of Computer Science
<b>CIS*6060 Bioinformatics U [0.50]</b>
Data mining and bioinformatics, molecular biology databases, taxonomic groupings, sequences, feature extraction, Bayesian inference, cluster analysis, information theory, machine learning, feature selection.
<i>Department(s):</i> School of Computer Science

<b>CIS*6070 Discrete Optimization U [0.50]</b>
This course will discuss problems where optimization is required and describes the most common techniques for discrete optimization such as the use of linear programming, constraint satisfaction methods, and genetic algorithms.
<i>Department(s):</i> School of Computer Science
<b>CIS*6080 Genetic Algorithms U [0.50]</b>
This course introduces the student to basic genetic algorithms, which are based on the process of natural evolution. It is explored in terms of its mathematical foundation and applications to optimization in various domains.
<i>Department(s):</i> School of Computer Science
<b>CIS*6100 Parallel Processing Architectures U [0.50]</b>
Parallelism in uniprocessor systems, parallel architectures, memory structures, pipelined architectures, performance issues, multiprocessor architectures.
<i>Department(s):</i> School of Computer Science
<b>CIS*6120 Uncertainty Reasoning in Knowledge Representation U [0.50]</b>
Representation of uncertainty, Dempster-Schafer theory, fuzzy logic, Bayesian belief networks, decision networks, dynamic networks, probabilistic models, utility theory.
<i>Department(s):</i> School of Computer Science
<b>CIS*6140 Software Engineering U [0.50]</b>
This course will discuss problems where optimization is required and describes the most common techniques for discrete optimization such as the use of linear programming, constraint satisfaction methods, and meta-heuristics.
<i>Department(s):</i> School of Computer Science
<b>CIS*6160 Multiagent Systems U [0.50]</b>
Intelligent systems consisting of multiple autonomous and interacting subsystems with emphasis on distributed reasoning and decision making. Deductive reasoning agents, practical reasoning agents, probabilistic reasoning agents, reactive and hybrid agents, negotiation and agreement, cooperation and coordination, multiagent search, distributed MDP, game theory, and modal logics.
<i>Department(s):</i> School of Computer Science
<b>CIS*6320 Image Processing Algorithms and Applications U [0.50]</b>
Brightness transformation, image smoothing, image enhancement, thresholding, segmentation, morphology, texture analysis, shape analysis, applications in medicine and biology.
<i>Department(s):</i> School of Computer Science
<b>CIS*6420 Soft Computing U [0.50]</b>
Neural networks, artificial intelligence, connectionist model, back propagation, resonance theory, sequence processing, software engineering concepts.
<i>Department(s):</i> School of Computer Science
<b>ENGG*6100 Machine Vision U [0.50]</b>
Computer vision studies how computers can analyze and perceive the world using input from imaging devices. Topics covered include image pre-processing, segmentation, shape analysis, object recognition, image understanding, 3D vision, motion and stereo analysis, as well as case studies.
<i>Department(s):</i> School of Engineering
<b>ENGG*6140 Optimization Techniques for Engineering U [0.50]</b>
This course serves as a graduate introduction into combinatorics and optimization. Optimization is the main pillar of Engineering and the performance of most systems can be improved through intelligent use of optimization algorithms. Topics to be covered: Complexity theory, Linear/Integer Programming techniques, Constrained/Unconstrained optimization and Nonlinear programming, Heuristic Search Techniques such as Tabu Search, Genetic Algorithms, Simulated Annealing and GRASP.
<i>Department(s):</i> School of Engineering
<b>ENGG*6570 Advanced Soft Computing U [0.50]</b>
Neural dynamics and computation from a single neuron to a neural network architecture. Advanced neural networks and applications. Soft computing approaches to uncertainty representation, multi-agents and optimization.
<i>Prerequisite(s):</i> ENGG*4430 or equivalent
<i>Department(s):</i> School of Engineering
<b>MATH*6020 Scientific Computing U [0.50]</b>
This course covers the fundamentals of algorithms and computer programming. This may include computer arithmetic, complexity, error analysis, linear and nonlinear equations, least squares, interpolation, numerical differentiation and integration, optimization, random number generators, Monte Carlo simulation; case studies will be undertaken using modern software.
<i>Department(s):</i> Department of Mathematics and Statistics

**MATH\*6021 Optimization I U [0.50]**

A study of the basic concepts in: linear programming, convex programming, non-convex programming, geometric programming and related numerical methods.

*Department(s):* Department of Mathematics and Statistics

**MATH\*6051 Mathematical Modelling U [0.50]**

The process of phenomena and systems model development, techniques of model analysis, model verification, and interpretation of results are presented. The examples of continuous or discrete, deterministic or probabilistic models may include differential equations, difference equations, cellular automata, agent based models, network models, stochastic processes.

*Department(s):* Department of Mathematics and Statistics

**PHIL\*6760 Science and Ethics U [0.50]**

A consideration of the problems which arise in the conjunction of science and ethics.

*Department(s):* Department of Philosophy

**STAT\*6841 Computational Statistical Inference U [0.50]**

This course covers Bayesian and likelihood methods, large sample theory, nuisance parameters, profile, conditional and marginal likelihoods, EM algorithms and other optimization methods, estimating functions, Monte Carlo methods for exploring posterior distributions and likelihoods, data augmentation, importance sampling and MCMC methods.

*Department(s):* Department of Mathematics and Statistics

## International Development Studies

The International Development Studies (IDS) collaborative specialization provides a focal point for graduate teaching and research in the area of international development. The collaborative specialization combines training in a particular discipline with exposure to a broad range of social science perspectives. Faculty expertise encompasses various aspects of development in Asia, Africa, Eastern and Western Europe and the Americas. Students wishing to pursue a Master's or PhD degree with the designation "International Development Studies" must enter the collaborative specialization in International Development through a participating department.

### Administrative Staff

#### Acting Director

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#### Graduate Program Assistant

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### From Plant Agriculture

#### Graduate Program Coordinator

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### From Public Health

#### Graduate Program Coordinator

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### From Sociology and Anthropology

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#### Public Issues in Anthropology Graduate Program Coordinator

Satsuki Kawano (603 MacKinnon, Ext. 53912)

#### Graduate Program Assistant

Shelagh Daly (624 MacKinnon, Ext. 53895)

### Master's Collaborative Specialization

Students wishing to pursue a Master's degree with the designation "International Development Studies" must enter the collaborative specialization in International Development through a participating department.

### Admission Requirements

Students must meet the University's general requirement a four-year Honours degree, or equivalent, from a recognized post-secondary institution with a B- average over the last two years of full-time equivalent study. Note that some departments set their admission requirement higher than B-.

Students must have completed the following:

- One undergraduate course in economics.
- One undergraduate course in a social science discipline
- One course in social science research methods or equivalent.

### Degree Requirements

Students complete International Development Studies core requirements and the requirements of their home department. The following are requirements for select departments; consult the IDS Graduate website for other departments.

### IDS Master's Core Courses\*

IDEV*6200	[1.00]	Development Theory, Issues and Process
IDEV*6300	[0.50]	Research and Analysis in a Development Context

### Optional IDS Courses

Students in the collaborative specialization may undertake two optional interdisciplinary courses:

IDEV*6000	[0.50]	Regional Context
IDEV*6500	[0.50]	Fieldwork in International Development Studies

### Departmental or Program Requirements

Programs not listed below are designed by special arrangements. All departmental requirements are subject to change. Students should confirm the departmental course requirements with the respective Graduate Program Coordinator.

**Capacity Development and Extension (MSc)**

CDE*6070	[0.50]	Foundations of Capacity Building and Extension
CDE*6260	[0.50]	Research Design
One of:		
RPD*6380	[0.50]	Application of Quantitative Techniques in Rural Planning and Development
EDRD*6000	[0.50]	Qualitative Analysis in Rural Development
Two additional courses from the following CDE restricted electives group:		
CDE*6290	[0.50]	Special Topics in Capacity Building and Extension
CDE*6311	[0.50]	Community Engagement and Public Participation
CDE*6320	[0.50]	Capacity Building for Sustainable Development
CDE*6330	[0.50]	Facilitation and Conflict Management
CDE*6410	[0.50]	Readings in Capacity Building and Extension
CDE*6420	[0.50]	Communication for Social and Environmental Change
CDE*6690	[0.50]	Community Environmental Leadership
One open elective [0.50] (one IDS Master's Core Course will fulfill this requirement)		
A thesis OR		
CDE*6900	[1.00]	Major Research Paper
plus two more courses from the restricted electives group (see course list above)		

**Economics (MA)**

ECON*6000	[0.50]	Microeconomic Theory I
ECON*6020	[0.50]	Macroeconomic Theory I
ECON*6940	[1.00]	Research Project
One of:		
ECON*6050	[0.50]	Introduction to Econometric Methods
AND		
ECON*6180	[0.50]	Econometric Methods
OR		
ECON*6140	[0.50]	Econometrics I

**Engineering (MEng in Environmental Engineering or Water Resources Engineering)**

Six courses from the list of required graduate courses in Engineering (to be selected in consultation with advisor)

Plus one of:

ENGG*6950	[1.00]	Final Project in Environmental Engineering
ENGG*6900	[1.00]	Final Project in Water Resources Engineering

**Engineering (MAsc in Environmental Engineering or Water Resources Engineering)**

Three courses from the list of required graduate courses in Engineering (to be selected in consultation with advisor)

Plus:

Thesis

**English (MA)**

Four English courses and a thesis  
OR

Six English courses and		
ENGL*6803	[1.00]	Research Project

**Environmental Sciences (MSc)**

ENVS*6900	[0.50]	Research Seminar in Environmental Sciences
Two other courses in consultation with the department.		

Plus:

Thesis

**Family Relations and Applied Nutrition (MSc)****Applied Human Nutrition**

For all students in the MSc program in the field of Applied Human Nutrition, a minimum of 2.25 graduate credits will be chosen in consultation with the student's advisor and advisory committee including:

FRAN*6000	[0.50]	Research Methods
FRAN*6010	[0.50]	Applied Statistics
FRAN*6020	[0.50]	Qualitative Methods
FRAN*6550	[0.25]	Research Seminar

One additional [0.5] graduate elective course such as FRAN\*6610, FRAN\*6510 or another graduate level elective course related to the student's research specialization. It can be taken within Family Relations and Applied Nutrition or in other academic units of the university.

Students who enter the MSc-AHN program from a non-nutrition undergraduate program will also be required to take those undergraduate and/or graduate courses necessary to meet foundational knowledge in applied human nutrition. In addition, students must complete a research thesis.

**Food, Agricultural and Resource Economics (MSc or MFARE)****Thesis based MSc**

FARE*6380	[0.50]	Applied Microeconomics for Agricultural Economists
FARE*6970	[0.50]	Applied Quantitative Methods for Agricultural Economists

FARE*6910	[0.50]	Applied Policy Analysis I
FARE*6100	[0.50]	The Methodologies of Economics
FARE*6600	[0.50]	Food Security and the Economics of Agri-Food Systems in Developing Countries
FARE*6800	[0.00]	Seminar in Agricultural Economics
One additional course		
A thesis		
<b>Course Work and Major Research Paper MFARE</b>		
FARE*6380	[0.50]	Applied Microeconomics for Agricultural Economists
FARE*6910	[0.50]	Applied Policy Analysis I
FARE*6970	[0.50]	Applied Quantitative Methods for Agricultural Economists
FARE*6100	[0.50]	The Methodologies of Economics
FARE*6600	[0.50]	Food Security and the Economics of Agri-Food Systems in Developing Countries
FARE*6400	[0.50]	Advanced Topics in Agricultural Economics
FARE*6800	[0.00]	Seminar in Agricultural Economics
FARE*6140	[1.00]	Major Paper in Food, Agricultural and Resource Economics

One additional course

**Course Work MFARE**

In order to satisfy the degree requirements of the course work option, students will complete successfully the following courses:

FARE*6380	[0.50]	Applied Microeconomics for Agricultural Economists
FARE*6910	[0.50]	Applied Policy Analysis I
FARE*6970	[0.50]	Applied Quantitative Methods for Agricultural Economists
FARE*6100	[0.50]	The Methodologies of Economics
FARE*6600	[0.50]	Food Security and the Economics of Agri-Food Systems in Developing Countries
FARE*6800	[0.00]	Seminar in Agricultural Economics
along with three additional graduate courses approved by the student's advisory committee.		
Students in this option are restricted from taking FARE*6140		

**Geography (MA or MSc)**

GEOG*6090	[0.50]	Geographical Research Methods I
GEOG*6091	[0.50]	Geographical Research Methods II
One other Geography course (which can be taken from the IDS core)		
Either a thesis OR		
GEOG*6180	[1.00]	Research Project in Geography
plus one other Geography course not taken as part of the IDS core		

**History (MA)**

Three History courses

One of:

Thesis

HIST*6400	[1.00]	Major Paper
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**Latin American and Caribbean Studies (MA)**

LACS*6010	[0.50]	Latin American Identity & Culture
LACS*6020	[0.50]	Re-Imagining Community in Latin America
LACS*6030	[0.50]	Globalization & Insecurity in the Americas

Plus:

Thesis

Or:

LACS*6100	[1.00]	Research Project
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One other LACS course

**Management (MA)****Degree Requirements**

Students are required to take 8 courses (4.0 credits) plus the major research project (1.0 credit).

**Core Courses:**

MGMT*6100	[0.50]	Evidence Based Management Research
MGMT*6200	[0.50]	Leadership Assessment and Development

**Fields:****Management Research**

MGMT*6300	[0.50]	Business Consulting
MGMT*6400	[0.50]	Project Management
BUS*6800	[0.50]	Readings in Leadership I
BUS*6810	[0.50]	Readings in Leadership II
BUS*6820	[0.50]	Readings in Management
BUS*6840	[0.50]	Foundational Theories of Management

**Accounting**

ACCT*6100	[0.50]	Integrated Cases I
ACCT*6200	[0.50]	Integrated Cases II
ACCT*6300	[0.50]	Taxation
ACCT*6400	[0.50]	Performance Management
ACCT*6500	[0.50]	Assurance
ACCT*6600	[0.50]	Financial Management

Other courses from the Department of Management with permission from the Graduate Program Coordinator.

Restricted Electives:

One quantitative or qualitative research methods course (0.5 credits) with permission:

ANTH*6140	[0.50]	Qualitative Research Methods
FRAN*6020	[0.50]	Qualitative Methods
MGMT*6120	[0.50]	Quantitative Methods for Evidence Based Management
MGMT*6830	[0.50]	Applied Univariate Statistical Analysis for Management
MGMT*6840	[0.50]	Quantitative Research Methods: Multivariate Techniques
MGMT*6850	[0.50]	Qualitative Research Methods
PSYC*6060	[0.50]	Research Design and Statistics
SOC*6130	[0.50]	Quantitative Research Methods
SOC*6140	[0.50]	Qualitative Research Methods

Major Research Paper:

MGMT*6500	[1.00]	Major Research Project
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Philosophy (MA)

PHIL*6950	[0.50]	MA Seminar
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Additional philosophy courses in consultation with the department

Either a thesis or research paper (in conjunction with)

PHIL*6990	[1.00]	Major Research Project
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Political Science (MA)

IDS Requirements:

POLS*6900	[0.25]	Communications
POLS*6940	[0.75]	Research Design and Methods
POLS*6730	[0.50]	Development and Global Justice

One of:

Thesis

OR

POLS*6970	[1.00]	Major Paper
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plus one additional course from the Political Science Department (elective)

Population Medicine (MSc course work)

POPM*6200	[0.50]	Epidemiology I
POPM*6210	[0.50]	Epidemiology II
POPM*6250	[1.00]	Project in Epidemiology

Note

\*NB: A student's Population Medicine advisor may require a student to take POPM\*6100, Seminar.

Public Health (MPH)

PABI*6500	[0.50]	Infectious Diseases and Public Health
POPM*6200	[0.50]	Epidemiology I
POPM*6510	[0.50]	Community Health Promotion
POPM*6520	[0.50]	Introduction to Epidemiological and Statistical Methods
POPM*6530	[0.50]	Health Communication
POPM*6540	[0.50]	Concepts in Environmental Public Health
POPM*6550	[0.50]	Public Health Policy and Systems
POPM*6560	[1.00]	Public Health Practicum
POPM*6570	[0.00]	Public Health Capstone
POPM*6580	[0.50]	Public Health Administration

Public Issues in Anthropology (MA)

IDS Requirements:

ANTH*6080	[0.50]	Anthropological Theory
ANTH*6140	[0.50]	Qualitative Research Methods
ANTH*6000	[0.50]	Public Issues Anthropology

Either a Thesis and one additional course or

ANTH*6660	[1.00]	Major Paper
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and three additional courses

Rural Planning and Development (MSc Planning)

Departmental Requirements

RPD*6030	[0.50]	International Rural Development Planning: Principles and Practices
RPD*6170	[0.50]	Rural Research Methods
RPD*6240	[0.50]	Planning and Development Theory
RPD*6291	[0.50]	Rural Development Administration
RPD*6380	[0.50]	Application of Quantitative Techniques in Rural Planning and Development

Plus a thesis and one additional RPD course

OR

RPD*6360	[1.00]	Major Research Paper
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plus three additional RPD courses

Sociology (MA)

SOC*6070	[0.50]	Sociological Theory
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SOC*6700	[0.00]	Pro-seminar
One of:		
SOC*6130	[0.50]	Quantitative Research Methods
SOC*6140	[0.50]	Qualitative Research Methods
Plus a thesis and one additional Sociology course OR		
SOC*6660	[1.00]	Major Paper
Plus three additional Sociology courses		

PhD Collaborative Specialization

The collaborative specialization in International Development Studies (IDS) in a PhD program provides an opportunity for advanced students to engage with interdisciplinary development theories and to conduct research on international development issues based on approaches of selected academic disciplines. The collaborative specialization in IDS is undertaken jointly with a discipline-based degree. Students enter IDS through a participating department with a PhD program. At present these include Sociology; Plant Agriculture, Philosophy, Political Science; Population Medicine, Geography; Food, Agricultural and Resource Economics; Economics; History; Engineering; Environmental Sciences.

Based on the experience of faculty advisors in key participating departments, the program focuses on issues such as international political economy, food security, environmental dynamics and governance, gender inequality, rural development, long-term economic change, and other interdisciplinary cutting-edge topics in international development.

Admission Requirements

To be considered for admission, an applicant must have a recognized Bachelor's degree and a Master's degree in a relevant discipline or related interdisciplinary field. Applicants to the IDS collaborative specialization must meet the specific departmental admission requirements, which vary from one department to another. For information on the admission requirements and application deadlines of your selected department, please contact the relevant department directly.

In addition to the specific departmental admission requirements, applicants are expected to have a strong background in the social sciences a demonstrable track record of experience in the course-based study of development issues, development research and/or development practice and a stated research interest relating to international development.

Degree Requirements

Students complete requirements for the departmental degree as well as the IDS components which consist of two core courses, including an interdisciplinary course on theories and debates in development and a course on development research and practice. Students must obtain a minimum final grade of 75% in each of the two IDS PhD core courses to remain in the IDS collaborative specialization. While the students have to successfully complete these courses to remain in the IDS collaborative specialization, they do not have to pass a separate qualifying examination in addition to the departmental qualifying exam. Furthermore, the expectation is that the IDS students' PhD research will bridge two or more disciplines in a way that relates to the field of IDS. The departmental supervisor must have knowledge and understanding of International Development Studies as it relates to the requirements of the IDS collaborative specialization. One of the members on the student's advisory committee needs to be an appointed IDS affiliated faculty member approved by the IDS Admissions Committee.

For further information regarding course offering, please contact the IDS Graduate Program Assistant.

IDS PhD Core Courses

IDEV*6800	[0.50]	Theories and Debates in Development
IDEV*6850	[0.50]	Development Research and Practice

Departmental PhD Requirements

Departmental requirements are assigned in collaboration with the student's home department. See respective departmental web pages.

Courses

IDEV*6000 Regional Context U [0.50]
This reading course provides an opportunity for in-depth investigation about a particular region in preparation for a thesis, major paper or research project. The course normally is directed by the student's advisor.
Department(s): Dean's Office, College of Social and Applied Human Sciences
IDEV*6200 Development Theory, Issues and Process F-W [1.00]
This course will examine key issues in development, for example: social justice, poverty and inequality, sustainability, governance and inclusiveness, and how perspectives on these issues have changed over time and differ across disciplinary perspectives. The course will be writing-intensive and focus on the development of skills in oral communication of development issues.
Department(s): Dean's Office, College of Social and Applied Human Sciences

**IDEV\*6300 Research and Analysis in a Development Context S [0.50]**

Students will explore alternative approaches to development research and analysis across documentary, qualitative and quantitative methods and the ethical issues associated with research in a development context. The course involves guided readings and seminar based discussions related to development research. There will be emphasis on written and oral communication of development research and analysis to diverse audiences. The course will be taught over a two-week period at the start of the summer semester. Subsequently, students will reflect on their own positionality and the development context of their research of practicum through the remainder of the Summer semester and while engaged in this activity.

*Department(s):* Dean's Office, College of Social and Applied Human Sciences

**IDEV\*6500 Fieldwork in International Development Studies U [0.50]**

This course recognizes an intensive commitment to research in an archival repository, 'in the field' or at an appropriate development institution in Canada or abroad. The course normally is directed by the student's advisor in consultation with the advisory committee

*Department(s):* Dean's Office, College of Social and Applied Human Sciences

**IDEV\*6800 Theories and Debates in Development F [0.50]**

This course examines recent approaches in development theory explaining international inequality, poverty and long-term change. It also investigates selected current debates in international development – such as food security, trade, good governance, sustainability or gender – from various discipline-based and interdisciplinary perspectives, and analyzes selected regional experiences of development.

*Restriction(s):* Restricted to students in doctoral IDEV collaborative specializations.  
A minimum final grade of 75% is required to remain in the IDEV collaborative specialization.

*Department(s):* Dean's Office, College of Social and Applied Human Sciences

**IDEV\*6850 Development Research and Practice W [0.50]**

In this course students establish the linkages between their doctoral research topic and the wider field of development studies and practice. The course will examine development policies and projects, ethical issues related to (cross-cultural) development research, and relationships between research and development practice.

*Restriction(s):* Restricted to students in doctoral IDEV collaborative specializations.  
A minimum final grade of 75% is required to remain in the IDEV collaborative specialization.

*Department(s):* Dean's Office, College of Social and Applied Human Sciences

## Neuroscience

The Neuroscience collaborative specialization provides an opportunity for MSc/MBS/PhD students engaged in research in the rapidly expanding field of neuroscience, to combine their departmental degree program with multidisciplinary exposure to the field of neuroscience. This unique combination of multidisciplinary studies provides students with the best possible foundation for academic careers in neuroscience and related areas. The collaborative specialization includes participation from core faculty in the following departments: Animal Biosciences, Biomedical Sciences, Human Health and Nutritional Sciences, Integrative Biology, Molecular and Cellular Biology, Pathobiology, Population Medicine and Psychology. Students wishing to pursue a Master's or PhD degree with the designation Neuroscience must enter the collaborative specialization in International Development through a participating department.

### Administrative Staff

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### Graduate Faculty

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#### Andrew J. Bendall

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#### Nicholas J. Bernier

Professor, Integrative Biology

#### Elena Choleris

Professor, Psychology

#### Donald Dedrick

Associate Professor, Philosophy/Psychology

#### Mark J. Fenske

Associate Professor, Psychology

#### Christopher Fiacconi

Assistant Professor, Psychology

#### George Harauz

Professor and Canada Research Chair, Molecular and Cellular Biology

#### Andreas Heyland

Assistant Professor, Integrative Biology

#### Fiona James

Assistant Professor, Clinical Studies

#### Nina Jones

Associate Professor and Canada Research Chair, Molecular and Cellular Biology

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#### Jibran Khokhar

Assistant Professor, Biomedical Sciences

#### Frederic Laberge

Assistant Professor, Integrative Biology

#### Jasmin Lalonde

Assistant Professor, Molecular and Cellular Biology

#### Francesco Leri

Professor, Psychology

#### Ray Lu

Associate Professor, Molecular and Cellular Biology

#### David W.L. Ma

Associate Professor, Human Health and Nutritional Sciences

#### Neil J. MacLusky

Professor and Chair, Biomedical Sciences

#### Georgia Mason

Professor and Canada Research Chair, Animal Biosciences

#### Robert L. McLaughlin

Associate Professor, Integrative Biology

#### Daniel V. Meegan

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#### Jennifer Murray

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#### Terry Van Raay

Assistant Professor, Molecular and Cellular Biology

#### Tina Widowski

Professor, Animal Biosciences

#### Boyer D. Winters

Associate Professor, Psychology

#### John L. Zettel

Assistant Professor, Human Health and Nutritional Sciences

As a practical matter, any faculty member who is approved by the Board of Graduate Studies for graduate faculty status and is a member of a participating unit within the collaborative specialization will be able to advise a master's or doctoral student.

### Associated Graduate Faculty

#### Geoffrey Power

Contractually Limited Faculty, Human Health and Nutritional Sciences

### MSc/MBS Collaborative Specialization

The MSc/MBS collaborative specialization in Neuroscience enables students engaged in neuroscience research to combine their departmental degree program with a multidisciplinary specialization in the field of neuroscience.

### Admission Requirements

MSc/MBS students in the collaborative specialization in Neuroscience must meet the admission requirements of the participating department in which they are enrolled. The application process has two stages: first, application to the primary program of interest, identifying interest in the collaborative specialization as a secondary focus. If the student is admitted to the primary program, the second stage is then admission to the collaborative specialization.

### Degree Requirements

In addition to coursework in their respective departments, students in the MSc/MBS collaborative specialization must complete NEUR\*6000 as well as registering for NEUR\*6100 each term that they are in the collaborative specialization. In NEUR\*6100, students and faculty will meet once a month to discuss issues/ hear talks/ present research in neuroscience.

### PhD Collaborative Specialization

The PhD collaborative specialization in Neuroscience enables students engaged in neuroscience dissertation research to combine their departmental degree program with a multidisciplinary specialization in the field of neuroscience.

### Admission Requirements

PhD students in the collaborative specialization in Neuroscience must meet the PhD admission requirements for the participating department in which they are enrolled.

### Degree Requirements

If a student enters the PhD collaborative specialization in Neuroscience at the doctoral level, in addition, to coursework in their respective departments, students must complete NEUR\*6000, or show evidence of course equivalence in prior training. Students must be engaged in neuroscience dissertation research. During each term of their program of studies, doctoral students must enroll in NEUR\*6100. The seminar will meet monthly. Students must take their qualifying exams within five semesters of entering the program, as required by University graduate policies. One member on the qualifying exam committee must be a core member of the collaborative specialization in Neuroscience outside the student's home department or a faculty member from another university approved by graduate studies. As well one member of the student's advisory committee must be a core member of the neuroscience collaborative specialization outside the student's home department or a faculty member from another university approved by graduate studies.



## Courses

**NEUR\*6000 Principles of Neuroscience U [0.50]**

This course is designed to ensure that graduate students with diverse neuroscience backgrounds registered in the collaborative specialization in Neuroscience are exposed to the fundamentals in all areas of neuroscience.

*Department(s):* Department of Biomedical Sciences

**NEUR\*6100 Seminar in Neuroscience U [0.00]**

This course will expose graduate students to some of the major theories, issues and methodologies driving research in neuroscience. Students will learn to critically evaluate presentations by researchers in this field as well as to communicate the results of their own research.

*Department(s):* Department of Psychology

## Toxicology

The collaborative specialization is the focal point for graduate teaching and research in toxicology. Students wishing to undertake graduate studies at the masters or doctoral level with emphasis on toxicology will be admitted by a participating department and will register in both the participating department and in the collaborative specialization. The participating academic units include the Departments of Animal Biosciences, Biomedical Sciences, Chemistry, Food Safety and Quality Assurance, Human Health and Nutritional Sciences, Integrative Biology, Molecular and Cellular Biology, Pathobiology, Plant Agriculture and the School of Environmental Sciences.

### Administrative Staff

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#### Ronald Johnson

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#### P. David Josephy

Professor, Molecular and Cellular Biology

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#### Niel A. Karrow

Assistant Professor, Animal Biosciences

#### Gordon M. Kirby

Assistant Professor, Biomedical Sciences

#### Jibran Khokhar

Assistant Professor, Biomedical Sciences

#### Hung Lee

Professor, School of Environmental Sciences

#### Francesco Leri

Professor, Psychology

#### Richard A. Manderville

Associate Professor, Chemistry

#### Linda A. Parker

Professor, Psychology and Canada Research Chair

#### Leonard Ritter

Professor, School of Environmental Sciences

#### Cynthia Scott-Dupree

Associate Professor, School of Environmental Sciences

#### Paul K. Sibley

Assistant Professor, School of Environmental Sciences

#### E. James Squires

Professor, Animal Biosciences

#### Glen J. Van Der Kraak

Professor, Integrative Biology and Associate Dean, Research, CBS

## Masters Collaborative Specialization

### Admission Requirements

Masters students in the collaborative specialization in toxicology must meet the masters admission requirements of the participating department in which they are enrolled.

### Degree Requirements

Masters students in the collaborative specialization in toxicology must complete a minimum of 1.50 graduate credits, which must include the toxicology courses TOX\*6000 and TOX\*6200 and courses required by the participating department in which they are enrolled. It is expected that students' research (MRP or Thesis) or at least 30% of the courses in a course-based program be in the area of toxicology.

## Doctoral Collaborative Specialization

### Admission Requirements

Doctoral students in the collaborative specialization in toxicology must meet the doctoral admission requirements of the participating department in which they are enrolled.

### Degree Requirements

Doctoral students in the collaborative specialization in toxicology must meet all the academic requirements specified by the participating department in which they are enrolled. They must also complete the courses TOX\*6000 and TOX\*6200 if they, or equivalent courses, were not taken as part of a masters program. It is expected that the students' doctoral research be in the area of toxicology.

### Courses

TOX*6000 Advanced Principles of Toxicology S [0.50]		
An intensive course in the principles of modern aspects of toxicology, taught in a lecture/case study format.		
<i>Department(s):</i> Department of Chemistry		
TOX*6200 Advanced Topics in Toxicology W [0.50]		
Advanced topics in toxicology will include oral presentations by students, faculty members, and guest lecturers. The emphasis will be on advanced concepts and techniques in toxicology research with particular relevance to mechanistic, molecular and interpretive toxicology.		
<i>Restriction(s):</i> Credit may be obtained for only one of TOX*6200 or TOX*4200		
<i>Department(s):</i> Department of Chemistry		
TOX*6590 Biochemical Toxicology F [0.50]		
The molecular mechanisms of action of carcinogens and other toxic compounds. Enzymes of biotransformation, including a detailed study of cytochrome P-450. Interactions of reactive species with DNA and other macromolecules. (Credit may be obtained for only one of TOX*4590 and TOX*6590).		
<i>Department(s):</i> Department of Chemistry		

### Other courses

BIOM*6721	[0.25]	Special Topics in Pharmacology-Toxicology
BIOM*6722	[0.50]	Special Topics in Biomedical Pharmacology-Toxicology
CHEM*7310	[0.50]	Selected Topics in Biochemistry
CHEM*7600	[0.50]	Selected Topics in Organic Chemistry

## **XI. International, Aboriginal and Intercultural Support**

### **Centre for International Programs**

In keeping with the mission statement of the University of Guelph, the Centre for International Programs fosters international and intercultural learning among members of our campus community to stimulate a sense of partnership and global responsibility as scholars and citizens.

The Centre encourages the development of global awareness in academic offerings, helps to initiate study abroad opportunities for graduate students and promotes partnerships with universities around the world.

The Centre conducts pre-departure orientations on-line using DepartSmart for all students travelling outside of Canada for any University related activity. We also oversee the University's Safe International Travel Policy and the emergency response protocol for overseas programs. In addition, we administer the mandatory [Guard me insurance plan](#) for student travel.

The Centre's website <http://www.uoguelph.ca/cip> has information on internship, study and research opportunities overseas, scholarships and application forms for University of Guelph study abroad programs. For more information, call the Centre at (519) 824-4120, Extension 54876 or e-mail [CIP@uoguelph.ca](mailto:CIP@uoguelph.ca)

### **Office of Intercultural Affairs and Aboriginal Resource Centre**

The Office of Intercultural Affairs (OIA) and Aboriginal Resource Centre (ARC) in Student Life support the transition, learning and development needs of undergraduate and graduate international and Aboriginal students, students from racially diverse backgrounds and students of various faith perspectives at the University of Guelph <https://www.studentlife.uoguelph.ca/>

The Cultural Diversity Advisor, Amilah Baksh, provides counseling, advising and personal support for racialized and minority students on topics such as academics, building community and connection, and mental health concerns. Amilah is located in Student Life, University Centre Level 3. For more information email [baksha@uoguelph.ca](mailto:baksha@uoguelph.ca) or call (519) 824-4120, Extension 53681.

The International Student Advisor, Megan Sager, provides advising and personal support for international graduate students on topics such as living in Canada, finances, academics and the advisor-student relationship. Megan is located in Student Life, University Centre Level 3. For more information email [sagerm@uoguelph.ca](mailto:sagerm@uoguelph.ca) or call (519) 824-4120, Extension 53954.

The Aboriginal Student Advisor, Natasha Young, provides counselling, advising, and personal support for First Nations, Métis and Inuit graduate students on topics such as academics, finances, finding community and cultural connections. Natasha is located in the Aboriginal Resource Centre, Federal Building. For more information email [natasha.young@uoguelph.ca](mailto:natasha.young@uoguelph.ca) or call (519) 824-4120, Extension 52189.

The Multi-Faith Resource Team (MFRT) represents a number of faiths and works together to meet the religious and spiritual needs of the University community. Faiths include: Buddhist, Christian, Hindu, Jewish, Muslim, Sikh and Spiritual but not Religious. The MFRT works with students to help connect them to a community that meets their needs. For more information email [faith@uoguelph.ca](mailto:faith@uoguelph.ca) or call (519) 824-4120, Extension 58909.

OIA and ARC collaborate on the delivery of orientation sessions for graduate students, and offer a variety of guidance, community connections, information, and programs for students. ARC also offers workshops and training seminars to graduate students and faculty who plan to undertake research with Aboriginal communities.

## XII. Graduate Awards & Financial Assistance

Graduate students have a number of funding options. This section explains how employment, awards, grants, loans and bursaries may factor into your funding equation. It also includes a comprehensive listing of University of Guelph internal awards.

**Notice of Disclosure:** It is understood that merit award winners names will be released to donors and may be published as a condition of the award.

**The University reserves the right to amend awards subject to the availability of funds.**

### From the University of Guelph

Graduate students may expect to undertake teaching and research assistantships as an integral part of their academic programs. Before undertaking any kind of assistantship, however, graduate students must note that some fellowships, scholarships, and bursaries awarded by external agencies strictly limit the number of hours of service the holder may render to the university and/or limit the amount of money the holder may receive in some cases, from all sources. Students are responsible for abiding strictly by the terms of any such awards.

Financial assistance may be available to graduate students in several forms and combinations. These may include employment, research awards, scholarships and bursaries. Each of these is described briefly below. Students have the responsibility to ascertain precisely what remuneration will be received, if any, from the department or school in which they propose to register. The department or school has the responsibility to inform students about the duties they associate with that form of assistance.

When departments and schools make admission recommendations to the Office of Graduate and Postdoctoral Studies, they also decide what funding (if any) will be provided to each person selected. These funding decisions may include one or more of the following:

#### Employment

##### Graduate Teaching Assistant (GTA)

Students appointed as graduate teaching assistants will be asked to perform only teaching-related duties. These may include preparing and conducting tutorials, laboratories and seminars; grading assignments, reports and examinations, and performing other related duties. Students may hold a GTA in a department in which they are not registered.

A copy of the collective agreement between the university and CUPE local 3913 unit 1, covering GTA employment, is available for students appointed as GTAs. Students are expected to familiarize themselves with these regulations. The GTA rate of pay is established annually.

The university provides T4 and T4A tax information slips each year to students with GTAs. These forms document the appropriate taxable portions of GTA funding. These slips are mailed to students in late February each year, for the previous tax year.

##### Graduate Service Assistant (GSA)

The university provides a T4 tax information slip each year to students with GSAs. For income tax purposes, these forms document the money received through any GSA appointment(s). These slips are mailed to students in late February each year, for the previous tax year.

Typically, the services provided by GSAs fall into two categories: Work that is directly related to the academic enterprise but not properly a GTA or GRA. Examples of these services include the preparation of academic or administrative reports and the compilation of statistics for departmental use. This work may not contribute to the student's thesis research. A copy of the collective agreement between the university and CUPE local 3913 unit 1, covering GSA(i) employment, is available for students appointed as GSA(i)s. Students are expected to familiarize themselves with these regulations. The GSA(i) rate of pay is established annually. GSA(ii): Work that is not directly related to the academic enterprise. Examples of these services include locking/unlocking doors, cooking, cashiering, snow removal, and lifeguarding. Students are paid at the appropriate hourly rate set by Human Resources for the appropriate kind of work.

#### Awards

##### Graduate Research Assistantships (GRAs)

Graduate Research Assistantships (GRAs) are paid to graduate students in support of their scholarly activity/research and in the preparation of their thesis/major paper.

Funds to pay the GRA may be from research grants or contracts received by faculty members from external agencies or governments. In these cases, the student's research would contribute to the research of the faculty member under whose direction it is conducted and the dollar value of GRA stipends may depend on the external granting agencies' guidelines on support of graduate students through research operating grants. Alternatively, funding for the GRA may be from the University. Regardless, in either situation the GRAs must be approved by the department chair or school director on the recommendation of the advisor.

The University provides a T4A tax information slip each year to students with GRAs. For income tax purposes, the T4A documents the funds received through any graduate research assistantships. These slips are mailed to students in late February each year, for the previous tax year.

#### Scholarships

##### Note

Students must be registered full-time to be eligible for all internal awards, including travel grants, unless otherwise stated in the eligibility clause.

There is a complete list of internal awards grouped by student eligibility, i.e., by college or department affiliation and/or as awards for which students are eligible from across campus. The university reserves the right to amend these awards subject to the availability of funds.

Students are eligible for internal award consideration from the time they have accepted an offer of admission to a graduate program until they have graduated from that program; students must be registered in order to receive these awards. Students granted a leave of absence (see section 3.4) may defer acceptance of internal awards or interrupt acceptance of continuing awards until after the approved leave with the permission of the appropriate awards committee.

The university provides a T4A tax information slip to students each year. For income tax purposes, these forms document the money received by students in the form of awards, including department, school, college and university awards. These slips are mailed to students in late February each year, for the previous tax year.

Please note that Student Financial Services will apply all internal awards against outstanding balances on student's accounts unless prior arrangements have been made.

##### Travel Research Grants

##### Note

Students must be registered full-time to be eligible for all internal awards, including travel grants, unless otherwise stated in the eligibility clause.

Graduate students may receive travel research grants to assist them in their research. Travel research grants are given to cover your travelling expenses, including all reasonable amounts for meals and lodging, while away from home in the course of your research work.

The University provides a T4A tax information slip to students each year. Although it should be reported as income as provided in the Income Tax Act, you are able to deduct the full amount of the described expenses up to the amount of the grant. You should attach to your income tax return a list of the expenses you are deducting from the research grant. These expenses should only include those listed above. You do not have to attach receipts but should keep them in case you are later asked for them.

##### Entrance awards

Entry-level (semester-one) students in all departments are considered without award application for most internal awards prior to arrival and registration (see also college/school and university award descriptions). Students will normally be included in entrance-award competitions held after the date on which they accepted an offer of admission. It is strongly recommended that a completed application for graduate study be received at least six months prior to the date when the student hopes to begin graduate study. This will ensure consideration for all possible entrance awards for which the student is eligible. Students who apply less than six months in advance may miss some internal award competitions but will still be considered for appropriate awards not yet distributed.

##### ACCESS Awards

##### Terms and Conditions

The University established an endowment fund through generous donor contributions and has been matched by the provincial government's Ontario Student Opportunity Trust Fund (OSOTF) program and the Ontario Trust for Student Support (OTSS). The income generated from these endowments will be used to support financial aid programs. The awards created will be used to assist Canadian citizens or permanent residents who meet the Ontario residency requirements as mandated by the OSOTF/OTSS program. Students must complete a Financial Need Assessment Form in order to be considered. Please contact [Student Financial Services](#). Students must:

1. be a Canadian citizen or permanent resident;
2. be an Ontario resident as defined by:
  - lived in Ontario for at least 12 consecutive months up to the beginning of full-time post-secondary study; or
  - the student's spouse lived in Ontario for at least 12 consecutive months up to the beginning of the current year full-time post-secondary study period; or
  - the student's parent(s)/ stepparent(s)/legal guardian/official sponsor has lived in Ontario for at least 12 consecutive months up to the beginning of the current year full-time post-secondary study period;
3. demonstrate financial need as determined by the University of Guelph Needs Assessment procedures.

## In-course awards

Students continuing in a graduate program of study are automatically considered for some awards and must make application for others. A list and description of all internal awards is available at [About In-Course Scholarships](#)

## Bursaries

A limited number of emergency bursaries and/or student loans are available for students who unexpectedly find themselves in difficult circumstances. Students should discuss these unexpected difficulties/costs with their advisor and Graduate Program Coordinator. If unresolved financial difficulties remain, they should then proceed to Student Financial Services. These funds are specifically designed to cover emergency/acute/unexpected/one-time-only situations requiring compassion and are not designed to cover registration and living costs associated with the normal continuation of study.

## From Other Sources

### Awards

A listing and description of external scholarships/fellowships/ awards that students may hold while registered at Guelph are maintained on the Office of Graduate and Postdoctoral Studies website: <http://www.uoguelph.ca/graduatestudies/finance/extawards>

Internal deadline dates for the University of Guelph will be posted to the Office of Graduate and Postdoctoral Studies website in late August each year. Students interested in any of the external awards listed are urged to visit the appropriate agency website for the complete award information. Eligible students must apply in fall of the current year for scholarships which can begin in May, September or January of the following academic year.

**Eligibility for, terms, conditions and availability of the scholarships listed below are subject to change.**

### National - Master's

#### Tri-Council (CIHR, NSERC & SSHRC)

##### Canada Graduate Scholarships – Master's

The CGS M Program supports 2,500 students annually in all disciplines and is administered jointly by Canada's three federal granting agencies: the Canadian Institutes for Health Research (CIHR), the Natural Sciences and Engineering Research Council of Canada (NSERC), and the Social Sciences and Humanities Research Council of Canada (SSHRC). The selection process and post-award administration are carried out at the university level, under the guidance of the three agencies.

The annual competition is held in the fall. Eligible applicants must be Canadians or permanent residents and have at least an 'A-' average (first-class standing) in each of the last two years of full-time study or equivalent part-time study, as of August 31 of the year of application.

### National - Doctoral

#### Canadian Institutes of Health Research (CIHR)

##### Frederick Banting & Charles Best Doctoral Research Award

There is an annual competition for outstanding eligible candidates for the CIHR Doctoral scholarships. The Doctoral Research Award competition is in early fall and students apply directly to CIHR. Details on the application process can be found on the CIHR website in late August.

#### Natural Sciences and Engineering Research Council of Canada (NSERC)

##### Alexander Graham Bell Canada Graduate Doctoral Scholarships

There is an annual competition in September for outstanding eligible students pursuing masters or doctoral level studies. NSERC eligibility regulations are subject to change and may be found on their website at [http://www.nserc-crsng.gc.ca/Students-Etudiants/PG-CS/BellandPostgrad-BelletSuperieures\\_eng.asp](http://www.nserc-crsng.gc.ca/Students-Etudiants/PG-CS/BellandPostgrad-BelletSuperieures_eng.asp) Eligible applicants must be Canadians or permanent residents and have at least an 'A-' average (first-class standing) in each of the last two years of full-time study or equivalent part-time study, as of August 31 of the year of application.

Students currently registered at a Canadian university must apply for NSERC Postgraduate Scholarships (PGSD/CGSD) through the appropriate office at the university of registration and follow its procedures and deadline dates for application submission. At Guelph, applications for postgraduate scholarships are processed by the Office of Graduate and Postdoctoral Studies.

Students who are not currently registered (more than 12 months since the last month of registration) in a Canadian University must apply directly to NSERC and follow NSERC application procedures and submission deadlines. Applications are available on-line at: [http://www.nserc-crsng.gc.ca/Students-Etudiants/PG-CS/BellandPostgrad-BelletSuperieures\\_eng.asp](http://www.nserc-crsng.gc.ca/Students-Etudiants/PG-CS/BellandPostgrad-BelletSuperieures_eng.asp) just prior to the September application period.

## Social Science and Humanities Research Council of Canada (SSHRC)

### Joseph-Armand Bombardier Canada Graduate Doctoral Scholarships and SSHRC Doctoral Fellowships

There are annual competitions for eligible students each fall. SSHRC eligibility regulations are subject to change. Eligible applicants must be Canadians or permanent residents and have at least an 'A-' average (first-class standing) in each of the last two years of full-time study or equivalent part-time study, as of the end of August of the year of application.

Students registered at a Canadian university must apply for SSHRC scholarships through the appropriate office at the university in which they are registered and follow its application procedures and deadlines. At Guelph, applications for these scholarships are made through the Office of Graduate and Postdoctoral Studies.

Students who are not currently registered at a Canadian university must apply directly to SSHRC and follow SSHRC application procedures and submission deadlines. Applications are available on the SSHRC website at: <http://www.sshrc-crsh.gc.ca/funding-financement/index-eng.aspx>

### Vanier Canada Graduate Scholarships (CIHR, NSERC, SSHRC)

The Vanier Canada Graduate Scholarships (Vanier CGS) program is designed to attract and retain world-class doctoral students by offering them a significant financial award to assist them during their studies at Canadian universities. Vanier Scholars demonstrate leadership skills and a high standard of scholarly achievement in the social sciences and humanities, natural sciences and engineering, and health-related fields. Applicants to the Vanier Scholarships should also apply to the doctoral competition for the appropriate Tri-Council Agency. There is an annual competition for eligible students in September. Application instructions are available at: <http://www.vanier.gc.ca/eng/home-accueil.aspx>

## National - PostDoctoral

### Banting Postdoctoral Fellowships:

There are 70 fellowships awarded annually and they are distributed equally among the Canadian Institutes of Health Research (CIHR), Natural Sciences & Engineering Research Council (NSERC) and the Social Sciences & Humanities Research Council (SSHRC). Application forms and information on the process for all 3 agencies are available for Canadians, and permanent residents of Canada and foreign citizens on the Banting Postdoctoral Fellowship website. There are various application deadline dates and postdoctoral award programs; doctoral students should note that some awards require application up to one year before doctoral degree completion. At the University of Guelph, application packages which have been endorsed by the academic department and college are forwarded to the Office of Graduate and Postdoctoral Studies well in advance of the annual deadline. Check the Office of Graduate and Postdoctoral Studies website in late August for upcoming due dates.

### NSERC AND SSHRC POSTDOCTORAL FELLOWSHIPS:

Application forms are available for Canadians and permanent residents on the NSERC and SSHRC websites. There are various application deadline dates and postdoctoral award programs; doctoral students should note that some awards require application up to one year before doctoral degree completion.

## Provincial

### Ontario Graduate Scholarships (OGS)

These are awarded through an annual competition for students. OGS eligibility regulations are subject to change.

There are two competitions: (i) for applicants who are Canadians or permanent residents, and (ii) for international students who are in a graduate program in Ontario and on a student visa. Eligible applicants must have at least an 'A-' average (first-class standing) in the last two years of full-time study or equivalent part-time study, as of the end of August of the year of application.

Eligible undergraduate students must apply in fall of the current year for scholarships which can begin in May, September or January of the following academic year.

Continuing graduate students must apply in the fall before receiving an award for the second year of a master's program or any of the first five years of a doctoral program.

Students must apply for an OGS through the appropriate awards office at the institution where they plan to be registered and follow its procedures and deadline dates for application submission. The OGS is not transferable; it must be held at the institution that awards it. At Guelph, applications for OGS are made through the Office of Graduate and Postdoctoral Studies; students should investigate this opportunity early in September. Information can be found on the Office of Graduate and Postdoctoral Studies website at: <http://www.uoguelph.ca/graduatestudies/finance/extawards>

## Queen Elizabeth II Graduate Scholarships in Science and Technology (QEII-GSST)

The Ontario government, in partnership with the private sector, rewards excellence in graduate studies in science and technology through Queen Elizabeth II Graduate Scholarships in Science and Technology which are valued at \$15,000 per year. Full-time Canadian citizens or permanent residents who have a first class standing in each of their last two years of study are eligible for consideration. Students do not apply directly for these awards but are selected from the Ontario Graduate Scholarship applicant pool. The QEII-GSST is tenable with all other awards up to a total of \$10,000 per fiscal year and cannot be held at the same time as an Ontario Graduate Scholarship. It can be held for two years as master's student and for four years as a doctoral student to a lifetime maximum of four years.

### Ontario Graduate Scholarship and QEII-GSST Funding

Donors to the University of Guelph provide up to \$5,000/yr. and the Province of Ontario provides up to \$10,000/yr. for students awarded these annual scholarships and studying at Guelph. To date, the following named endowments and annual commitments have been generously created by private donors in support of this 2:1 government matching program, University-wide and within Colleges:

- Kenneth G. Murray OGS Fund
- Syngenta Graduate OGS Fund
- William Campbell OGS Fund
- Brian Ellsworth OGS Fund
- OAC1958 OGS Fund
- Bank of Nova Scotia OGS Fund
- BMO OGS Fund
- TD Financial Group OGS Fund
- Ilona Diener Memorial OGS Fund
- Dr. F. Michael Walsh OGS Fund
- OAC 1964 OGS Fund
- Gilbert's LLP OGS Fund
- History OGS Fund
- Imperial Tobacco Ltd OGS Fund
- Edward Y. Morwick OGS Fund
- Dr. and Mrs. K.F. Gregory OGS Fund
- Dr. Kiyoko Miyaniishi OGS Fund
- George and Lois Whetham OGS Fund

### Ontario Trillium Scholarships

The Ontario Trillium Scholarships (OTS) program is a significant initiative to attract more of the best qualified international students to Ontario for PhD studies. Academic merit is the defining criterion for the selection of OTS recipients by institutions. OTS recipients must have achieved a first-class average, as determined by each university, in each of the two years of full-time study prior to awarding of the OTS.

University of Guelph has 4 scholarships of \$40,000 annually that are renewable for up to 4 years. Students do not apply. All international students who meet the eligibility criteria will be considered.

### Grant

Some governments/agencies provide research support for students to enter and complete graduate degrees. Common examples would be (i) international government agencies funding students from their home country to study abroad, including in Canada (students should review what is available through their home country) and (ii) Canadian agencies funding study in specific areas of research (students should review opportunities through the office of research and/or appropriate office at the university in which they are registered).

### Student Loans

Each provincial government and the Canadian government provide loans for undergraduate and graduate education to Canadians and permanent residents (subject to minimum residency requirements). These funds are not available to international students. Students should review the student loan policies of their home province; student loan information is normally available through universities but students should note that provincial loan forms and initial application procedures may only be available through a student's home province.

### Bursaries

Some agencies, clubs and private organizations provide student bursaries for members and their immediate families; students should review what is available through any of these organizations.

## University-Wide Internal Awards

**The University reserves the right to amend awards subject to the availability of funds.**

### Aboriginal Graduate Scholarship (AGS) [E5958]

The Aboriginal Graduate Scholarships were established to encourage Aboriginal (First Nations, Inuit, Métis) students to pursue graduate studies in any discipline. Students apply by February 1st by submitting a one page cover letter that includes the applicant's full name, student ID # (if applicable), email address (if not a U of Guelph student yet), proposed/current graduate program, proposed/current department and provides a declaration of Aboriginal identity or affiliation, a Resume/CV and 2 letters of support from academic and/or community-based referees to the Awards Officers in the Office of Graduate Studies at [grschol@uoguelph.ca](mailto:grschol@uoguelph.ca). Students must maintain satisfactory progress for the duration of the scholarship.

**Donor(s):** University of Guelph

**Qualification(s):** Students entering or registered in any program who self-identify as Aboriginal (First Nations, Inuit, Métis) with at least a first-class (A-) average in the most recently completed two years of academic study. In-course students beyond semester level 3 as of the scholarship application deadline are ineligible to apply.

**Amount:** up to 5 awards of \$30,000 (payable over 6 semesters) for Master's and \$120,000 (payable over 12 semesters) for Doctoral

### Alastair Summerlee Scholarship [I5320]

Established by students, alumni, faculty, staff, retirees, volunteers and friends of Alastair Summerlee who made contributions to an endowment to honour and recognize his terms as President of the University of Guelph. This scholarship will be awarded to a graduate student contributing to civil society through international field work that is part of a course of study and preference is given to students working in Africa. This scholarship will provide opportunities for international travel, hands-on experiential learning, and help develop leaders to excel in international development priorities. Apply to the Office of Graduate and Postdoctoral Studies Awards Committee by May 1 with a CV, a one page summary of research proposal, a letter of reference and a one page letter outlining extracurricular and volunteer involvement in international field work.

**Donor(s):** Various donors

**Qualification(s):** Students registered full-time with a minimum 80% average

**Amount:** 1 award of \$15,000 (payable over 2 semesters)

### Arrell Scholarships [E5966]

The Arrell Scholarships of \$50,000 per year available to doctoral and masters level students to support research focused on agriculture and food. Selection will be based on outstanding academic achievement, relevance of proposed research and personal motivation to the goals of the Arrell Food Institute, and demonstration of commitment to public engagement, as evidenced in the CV. Award recipients will be expected to participate in collaborative projects with the Arrell Food Institute and other scholarship winners, and will be known as Arrell Scholars. Apply by December 15th by completing an application for admission to an eligible University of Guelph Graduate Program by the application deadline and submit: 1) a statement of research and personal motivation, 2) a letter of support from a prospective Guelph supervisor and 3) a CV, to the Office of Graduate and Postdoctoral Studies by emailing [grschol@uoguelph.ca](mailto:grschol@uoguelph.ca). Short-listed candidates will be asked to an interview with the scholarship selection committee. Award recipients must maintain satisfactory progress in their graduate program. This award cannot be held with the Ontario Graduate Scholarships/QEII- Graduate Scholarships in Science & Technology, Trillium Scholarships, the Brock Doctoral Scholarship, Dairy Farmers of Ontario Doctoral Research Assistantship or Tri-Council Scholarships, including the Vanier.

**Donor(s):** The Arrell Family Foundation

**Qualification(s):** Students entering a graduate program in the Summer, Fall or Winter semester following the application deadline with a minimum first-class (A-) admissions average, whose research aligns with the goals of the Arrell Food Institute.

**Amount:** up to 3 Master's student awards of \$100,000 (payable over 6 semesters), up to 3 Doctoral awards of \$200,000 (payable over 12 semesters)

### Arthur D. Latornell Graduate Scholarships [I5605]

Established to honour Arthur D. Latornell, OAC '50, who had a life-long special interest in resource management and conservation and in helping young people. One of the ten awards is available to a student whose research interest relates to resource remediation/reclamation. The recipient will be selected on the basis of academic achievement and/or quality of their graduate research. Apply to department/school by October 1 using the Latornell Graduate Scholarship Program Nomination Form.

**Donor(s):** Estate of Arthur D. Latornell

**Qualification(s):** Registered students with at least an "A-" average in the last 2 years whose research interest relates to resource management and/or resource conservation are eligible for at least nine of the awards. Students beyond semester 3 at the master's level, semester 6 at the doctoral level and semester 9 for a transfer from master's to doctoral level are ineligible.

**Amount:** 10 awards of \$5,000

**Arthur D. Latornell Graduate Travel Grants [T5606]**

Established to honour Arthur D. Latornell, OAC '50, who had a life-long special interest in resource management and conservation and in helping young people. One of the ten awards is available to a student whose research interest relates to resource remediation/reclamation. Apply to department/school by October 1 for the fall competition and March 1 for the winter competition using the Latornell Graduate Travel Grant Program Nomination form.

**Donor(s):** Estate of Arthur D. Latornell

**Qualification(s):** Students registered in any program with at least an "A-" average in the last 2 years whose research interests relate to resource management and/or resource conservation are eligible. Students beyond semester 6 at the master's level, semester 9 at the doctoral level, and semester 12 in the case of transfer from master's to doctoral level are ineligible. These travel grants are offered to assist students in attending conferences, courses, Co-op student exchanges or study abroad programs in these areas.

**Amount:** up to 40 awards varying amounts up to a total of \$27,000 annually

**Board of Graduate Studies: Research Scholarships [A5644]**

These awards are available to students in the College of Arts, the College of Business and Economics, and the College of Social & Applied Human Sciences, as well as selected departments in OAC each year. Students do not apply for these awards because departments nominate students to the Office of Graduate and Postdoctoral Studies each semester. All eligible students will be considered for nomination by their departments with preference given to entering and first-year students.

**Donor(s):** University of Guelph

**Qualification(s):** Full-time graduate students who have achieved at least a first-class average in the previous one-year of full-time, or equivalent, study.

**Amount:** several awards of awards of \$2,000

**Brinson Partners Inc. Bursaries [Z5701]**

Established to allow students with financial need to continue their studies as full-time students. Submit a completed Financial Need Assessment Form to Student Financial Services by January 10. ACCESS AWARD.

**Donor(s):** Brinson Partners Inc. with the aid of the Ontario government's OSOTF program

**Qualification(s):** Full time students with demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).

**Amount:** 2 awards of \$1,500

**Brock Doctoral Scholarship [E5906]**

The Brock Doctoral Scholarship is one of the most prestigious doctoral awards available at the University. We seek to attract scholars with potential to attain a high level of academic achievement and to make significant teaching and research contributions. Winners represent the very best in their College and at the University. It is hoped that award holders will be mentors for future Brock Doctoral Scholarship winners. Equally weighted selection criteria include: (i) sustained, outstanding academic performance; (ii) history of leadership and/or service in schools and the community; (iii) evidence of strong teaching and research skills (including publication record if appropriate for the discipline); (iv) demonstrated outstanding communication skills, and (v) excellent potential for research and teaching as assessed by the College Dean. One additional criterion may be considered with lesser weighting: provincial, national, international or otherwise significant awards related to the discipline of study. The number of semesters of funding (to a maximum of nine) awarded will be determined at the time of candidate selection and is subject to satisfactory semesterly program performance reviews. In the last semester of the initial award, the recipients may apply for up to three more semesters of support. Students entering or transferring to a doctoral program in May, September or January following the deadline date should apply to their College Dean by February 15th with a curriculum vitae; a one page personal statement; transcripts; 3 letters of reference; documentation of teaching, research, volunteer activities and leadership; which must then be forwarded to the Office of Graduate and Postdoctoral Studies by March 1st, with the Dean's written assessment of the candidate's research and teaching potential attached. Applicants should use this checklist, found under the 'Graduate Awards Forms' heading, to ensure they have fully completed the application requirements.

**Donor(s):** William and Anne Brock

**Qualification(s):** Students entering full-time doctoral study in May, September or January following the deadline date.

**Amount:** 1 award of \$37,500 per year for up to four years

**Burnbrae Farms Bursaries [Z5702]**

Students must apply with a completed Financial Need Assessment Form to Student Financial Services. The awards will be distributed in the winter semester. ACCESS AWARD. Preference will be given to students with a demonstrated interest in poultry science.

**Donor(s):** Burnbrae Farms with the aid of the Ontario government's OSOTF program

**Qualification(s):** Full-time graduate students with demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).

**Amount:** 2 awards of \$1,000

**Canadian Friends of the Hebrew University of Jerusalem Travel Scholarships [Z5908]**

The Canadian Friends of the Hebrew University of Jerusalem, with the assistance of the Ontario government's OSOTF program, have established these travel scholarships to assist students study at the Hebrew University of Jerusalem. Apply to Student Financial Services by June 30 for fall and/or winter travel, October 1 for winter travel and February 1 for summer travel with a completed Financial Need Assessment form and provide documentation that the Hebrew University of Jerusalem has approved both internal course enrolment requirements and the period of visit. In addition, include the LOP or approval from a program counsellor that indicates the courses taken at the Hebrew University of Jerusalem will be given credit towards the applicants Guelph program of study. ACCESS AWARD.

**Donor(s):** The Canadian Friends of the Hebrew University of Jerusalem with the aid of the Ontario government's OSOTF program

**Qualification(s):** Full-time graduate students approved to attend the Hebrew University of Jerusalem, as part of their Guelph undergraduate or graduate program of study. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).

**Amount:** up to 3 awards totalling \$7,500

**Care-a-thon Animal Welfare Research Scholarship [I5906]**

It is given to a student registered in the faculty of Graduate Studies whose research is likely to have the most practical application to the improvement of animal welfare. Apply OVC Awards Committee including supporting letter from advisor, transcript and description of research project.

**Donor(s):** The organizers of Care-a-thon, an annual animal welfare conference and fund raising event held at the Ontario Veterinary College.

**Qualification(s):** Full-time graduate students registered in the faculty of Graduate Studies and enrolled in any department, whose research is concerned with animal welfare.

**Amount:** 1 award of \$250

**Cecil H. Franklin Graduate Scholarship in Soil and Water Conservation [I5134]**

Apply to the Office of Graduate and Postdoctoral Studies by March 1 with the Cecil H. Franklin Graduate Scholarship in Soil and Water Conservation application.

**Donor(s):** Cecil H. Franklin

**Qualification(s):** Full-time MSc or PhD students whose research is related to soil and/or water conservation.

**Amount:** 1 award of \$6,000

**CFRU Volunteer Scholarship [I0215]**

The award is presented to the student who has made the most significant contribution to the operation and goals of CFRU. Apply to Student Financial Services by May 15 with a letter describing the contributions made as a volunteer with CFRU and how those contributions have supported the operation and furthered the goals of CFRU.

**Donor(s):** CFRU Alumni

**Qualification(s):** Students registered in any program with a minimum cumulative average of 70% who have volunteered at CFRU for at least one year.

**Amount:** 1 award of \$500

<b>Clan Fergusson Graduate Research Travel Grant [T5638]</b>	
Established in memory of deceased members of the Clan Fergusson Society of North America. The funds are used to provide travel grants to Guelph graduate students to visit Scotland for thesis research. Selection is by the Office of Graduate and Postdoctoral Studies Awards Committee in January each year, for travel by a registered student between February and the following January. Apply by October 17 to Office of Graduate and Postdoctoral Studies with the Clan Fergusson Research Travel Grant Application and a reference letter from the Primary Advisor.	
<b>Donor(s):</b>	<b>The Estate of Donald MacNish Fergusson, "a Scotsman to the Marrow..."</b>
<b>Qualification(s):</b>	Registered graduate students with at least a first-class ('A-') average in the most recent two years of study whose thesis research relates to Scottish studies are eligible, including study in drama, English, family studies, history, philosophy and sociology. Master's students may not be beyond semester 5 and doctoral students may not be beyond semester 7 at the time of travel. This grant may be held one time only.
<b>Amount:</b>	several awards totalling approximately \$1000
<b>Class of '72: 25th Reunion Bursaries [Z5703]</b>	
Students should apply to Student Financial Services for awards to be distributed in the winter. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).ACCESS AWARD.	
<b>Donor(s):</b>	<b>The Class of '72: 25th Reunion Fund with the aid of the Ontario government's OSOTF program</b>
<b>Qualification(s):</b>	Full-time graduate students who wish to study full-time, but who need financial support to do so.
<b>Amount:</b>	3 awards of \$1,000
<b>Class of OAC '60 Award for Outstanding Teaching Assistant [I5160]</b>	
Undergraduate and graduate students and faculty members are encouraged to make nominations at any time, accompanied by appropriate documentation. Nomination Forms should be submitted by March 1 to Office of Graduate and Postdoctoral Studies.	
<b>Donor(s):</b>	<b>The Class of OAC '60</b>
<b>Qualification(s):</b>	Full-time graduate students who nominated by undergraduate, graduate and faculty members for teaching duties completed in the previous calendar year (i.e. January to December).
<b>Amount:</b>	1 award of \$1,000
<b>CONACyT Tuition Scholarships [I5801]</b>	
In support of the CONACyT program, which provides funding for Mexican students attending the University of Guelph, scholarships valued at the difference between Canadian and International Tuition are available each year. Entering doctoral students may hold the award for up to twelve semesters, and entering master's students may hold the award for up to six semesters pending satisfactory progress. Application is not required. Selection will be based on highest academic performance over the last two years of study.	
<b>Donor(s):</b>	<b>The University of Guelph</b>
<b>Qualification(s):</b>	Entering full-time students from Mexico who are receiving sponsorship from CONACyT.
<b>Amount:</b>	up to 10 awards of variable value
<b>CSC Tuition Scholarship [E5321]</b>	
In support of the agreement between the China Scholarship Council (CSC) and the University of Guelph. No application required. Application will be made through the submission of the Recommendation for Admission to the Office of Graduate and Postdoctoral Studies by March 1 of each year. Conditional upon the ongoing funding by the CSC. The scholarship may only be held for up to twelve semesters and will not go beyond these time limits. The two scholarships will be reserved for students whose advisors have minimal research funding (unable to provide GRA funding).	
<b>Donor(s):</b>	<b>University of Guelph</b>
<b>Qualification(s):</b>	Students who are registered in or have graduated from a master's program anywhere in China, who have been accepted into doctoral studies and will receive funding from the China Scholarship Council (CSC).
<b>Amount:</b>	up to 6 awards of approximately \$5,300, up to 2 awards of approximately \$11,300

<b>D.F. Forster Medal - Doctoral [C5952]</b>	
The D.F. Forster Medal - Magisteriate and D.F. Forster Medal - Doctoral are the most prestigious convocating graduate awards at the University of Guelph. These medals are awarded annually to one convocating Master's student and one convocating PhD student who excel both academically and in extra-curricular activities. One Master's student and one PhD student is nominated every year by each College Awards Committee by May 1 of each year. The Senate Honours and Awards Committee will make the final selection and the medals will be awarded at Convocation in June. No application required.	
<b>Donor(s):</b>	<b>The University of Guelph</b>
<b>Qualification(s):</b>	Students graduating in June or who have graduated in the previous Fall or Winter from a PhD program who have achieved academic excellence during their program of graduate study.
<b>Amount:</b>	1 medal
<b>D.F. Forster Medal - Magisteriate [C5951]</b>	
The D.F. Forster Medal - Magisteriate and D.F. Forster Medal - Doctoral are the most prestigious convocating graduate awards at the University of Guelph. These medals are awarded annually to one convocating Master's student and one convocating PhD student who excel both academically and in extra-curricular activities. One Master's student and one PhD student is nominated every year by each College Awards Committee by May 1 of each year. The Senate Honours and Awards Committee will make the final selection and the medals will be awarded at Convocation in June. No application required.	
<b>Donor(s):</b>	<b>The University of Guelph</b>
<b>Qualification(s):</b>	Students graduating in June or who have graduated in the previous Fall or Winter from a Master's program who have achieved academic excellence during their program of graduate study.
<b>Amount:</b>	1 medal
<b>Dairy Farmers of Ontario Doctoral Research Scholarship [E5894]</b>	
Dairy Farmers of Ontario provides a research scholarship to an outstanding student entering or in Semester 1 or 2 of a doctoral program at the University of Guelph. The research assistantship is for three years of full-time doctoral study. The area of research will be in an area of interest to DFO, such as, but not limited to marketing initiatives aimed at growing the market for dairy products; economic and business aspects of milk production and marketing, milk quality and safety, the environment; as well as dairy cattle production research related to improving animal health, welfare and performance. Apply to the Office of Graduate and Postdoctoral Studies by completing the <u>DFO Doctoral Research Assistantships</u> application and submitting 2 sealed/signed letters of reference before February 1 or each year. Applicants to the scholarship must also have applied to a doctoral program at the University of Guelph with the intention of beginning in the upcoming May, September, or January semester.	
<b>Donor(s):</b>	<b>Dairy Farmers of Ontario</b>
<b>Qualification(s):</b>	Full-time doctoral applicants, studying an area of research which is of interest to DFO, and with at least a first-class (A-) average in the most recently completed two years of academic study.
<b>Amount:</b>	1 award of up to \$35,000 per year for each of 3 years
<b>Deans' Tri-Council Scholarship [A5250]</b>	
The Dean's Tri-Council Scholarship awarded in equal semesterly payments, in the semester in which the tri-council award is confirmed to begin and is held for the duration of award. Application is not required.	
<b>Donor(s):</b>	<b>The University of Guelph</b>
<b>Qualification(s):</b>	Full-time graduate students holding a Masters or Doctoral scholarship from NSERC, SSHRC or CIHR (recipients of Vanier or CGS-D are not eligible)
<b>Amount:</b>	several awards of \$5,000 per year
<b>Doug and Esther Ormrod Scholarships for Parents [I5633]</b>	
Established in celebration of Dr. Ormrod's twenty-six years as a faculty member and nine years as Dean of Graduate Studies (1986 - 1995). For outstanding graduate students with a child or children in day care (public or private) and beyond the first semester of full-time or part-time study at the time they hold this award. Apply by October 17 to the Office of Graduate and Postdoctoral Studies by completing the Doug and Esther Ormrod Scholarships for Parents application. Students may hold the award once while at Guelph in a master's program and once in a doctoral program of study.	
<b>Donor(s):</b>	<b>Dr. Ormrod, his wife Esther, OAC Class of '75, faculty, staff, friends and the university</b>
<b>Qualification(s):</b>	Students must be parents with a child or children in day care (public or private) and beyond the first semester of full-time or part-time study at the time they hold this award. Master's students may not be beyond semester 6 and doctoral students may not be beyond semester 9 at the time of application. Master's students may not be beyond semester 6 and doctoral students may not be beyond semester 9 at the time of application.
<b>Amount:</b>	up to 3 awards of \$500



**Ellen Nilsen Memorial Graduate Scholarship [E5847]**

The recipient of the Nora Cebotarev Memorial Scholarship (E8012) will automatically be awarded the Ellen Nilsen Memorial Graduate Scholarship. This award is not a continuing award and the recipient will receive this scholarship payment in their first registered semester. No application required.

**Donor(s):** Friends of Ellen Nilsen

**Qualification(s):** International female students from developing countries who have demonstrated a commitment to social change and are entering a University of Guelph graduate program in the upcoming academic year (summer, fall or winter semester).

**Amount:** 1 award of \$1,500

**Estill Family Graduate Scholarship in the Arboretum [I5961]**

Selection will be based on the strongest proposal and the strongest research potential as described by the referee. In the instance of a tie, the student with the highest GPA will be selected. Students may only receive this award once. Apply by October 15 to the Office of Graduate and Postdoctoral Studies (OGPS) at [grschol@uoguelph.ca](mailto:grschol@uoguelph.ca) with an [application form](#) accompanied by a letter (no more than 2 pages) outlining the proposed research and how it relates to the Arboretum and a reference letter supporting your research potential; and a research proposal. In your letter, include an estimate of how much time will be spent in the Arboretum, who will be supervising the work and how outcomes will be reported to the Arboretum.

**Donor(s):** The Estill Family

**Qualification(s):** Students registered in any graduate program at the University of Guelph who are conducting research in the Arboretum.

**Amount:** 1 award of \$5,000

**Fred Thompson Scholarship [E5113]**

Established in memory of David Frederick (Fred) Thompson, 1920-2005, who for 40 years was the Secretary of the Canadian Dairy and Food Industry Supply Association. Selection will be based on a combination of academic achievement and relevance of proposed research and its application in industry or the community. Apply to the Office of Graduate and Postdoctoral Studies Awards by March 1 with a description of no more than two pages of proposed research and its application in industry or the community and two academic references.

**Donor(s):** Food Industry Suppliers of Canada Scholarship Trust

**Qualification(s):** Canadian citizens or permanent residents entering or transferring to their first Masters program in May, September or January following the deadline date, and pursuing studies in a post farm gate related subject (any topic related to the food continuum, post farm gate; chemistry, microbiology, processing, engineering, functionality, nutrition, food safety and marketing).

**Amount:** 1 award of \$9,000 (payable over 2 years of study)

**Governor General's Academic Medal [C5607]**

The Governor General's Academic Medal program provides for one recipient of a gold medal to be selected by the University of Guelph for outstanding academic achievement at the graduate level of study each year. Upon the request of the Office of Graduate and Postdoctoral Studies in early April, each College will nominate one student to the Office of Graduate and Postdoctoral Studies Awards Committee. The nomination package should include the following: a summary letter from the College; a two-page summary of biographical information on the candidate to include basic information, the academic record, scholarly/research activities, and teaching experience; and two letters of reference. The decision of the Office of Graduate and Postdoctoral Studies Awards Committee will be based entirely on this information. No application is required.

**Donor(s):** The Chancellery, Rideau Hall

**Qualification(s):** All students who graduate from a graduate degree in the previous June, October and February convocations will be considered by their college or university school awards committee for nomination.

**Amount:** 1 medal

**Graduate Tuition Scholarships (GTS) [E5954]**

The Graduate Tuition Scholarships (GTS) were created to assist each college in growing their graduate programs. Approximately 50 scholarships annually; specific allocations to master's and doctoral students will be dependent on available budget. In any semester in which a student is receiving payment(s) from any of the following awards: Ontario Graduate Scholarships, Brock Doctoral Scholarship, Arrell Scholarships, Trudeau Doctoral Scholarships, Dairy Farmers of Ontario Doctoral Research Assistantship, or Tri-Council Scholarships, including the Vanier, they will forfeit the GTS payment to which they would otherwise have been entitled for that semester. However, subject to meeting all other eligibility criteria, the student will still receive any GTS payment(s) promised for any semester(s) before or after receipt of a non-tenable scholarship. Students must remain registered full-time and maintain satisfactory progress for the duration of the scholarship in order to maintain funding. Students do not apply; The GTS must be offered at or prior to the time of admission. College's will nominate a predetermined number of candidates to the Office of Graduate & Postdoctoral Studies by April 30 for the following academic year.

**Donor(s):** University of Guelph

**Qualification(s):** Canadian or permanent resident students entering a graduate program for the upcoming May, September, or January semester with a minimum 75% admission average.

**Amount:** 35 awards of up to \$8,000/year, up to \$16,000 total, payable over up to 6 semesters, 15 awards of up to \$8,000/year, up to \$32,000 total payable, over up to 12 semesters

**Gryphon Investment Counsel Bursaries [Z5707]**

Apply with a completed Financial Need Assessment Form to Student Financial Services by January 10. ACCESS AWARD.

**Donor(s):** Gryphon Investment Counsel with the aid of the Ontario government's OSOTF program

**Qualification(s):** Full-time graduate students with financial need. Additionally, students must meet the government-mandated terms for receipt of an [OSOTF](#) award (see General Statements on Awards).

**Amount:** 2 awards of \$1,500

**Guelph Compassionate Health & Dental Bursary [B5601]**

This bursary has been established and approved by the Student Health and Dental Committee to assist students facing unforeseen health and dental needs above and beyond the benefits offered through the University of Guelph's mandatory Student Health Plan, University of Guelph's Student Dental Plan or comparable personal dental plan. Apply to Student Financial Services, Manager, Student Awards, with: (1) a completed Financial Need Assessment form; (2) a letter from physician or dentist about the required procedure/treatment that indicate the nature of the unforeseen health or dental emergency and its impact on the student's studies; (3) cost estimates from the health or dental practitioner identified in the Regulated Health Professions Act/RHPA; (4) physician or dentist contact information; and (5) Insurance coverage – proof that this procedure is not covered under any provincial or private health coverage already, including the Student Health Plan Student. Applications will be reviewed throughout the semester to handle emergencies immediately. If approved for this bursary, a receipt will be required to be returned to our office once the procedure is completed, unless a receipt has been submitted with the application initially. Students may only receive the bursary once per academic year.

**Donor(s):** Student Health and Dental Plan Committee

**Qualification(s):** Students currently registered at the University of Guelph and/or be enrolled under the University of Guelph mandatory Student Health Plan. The student must require treatment for an unforeseen health and dental emergency, which is not currently or completely covered by the Student Health Plan, Student Dental Plan or comparable personal dental plan, and requires immediate intervention and treatment for which the consequences of not receiving treatment may impact on the student's academic progress.

**Amount:** several awards of various amounts to a maximum of \$1,000

**H.J. Heinz Company Foundation David Yeung Award in Human Nutrition [I5729]**

An endowment established to recognize Heinz Company employee, David Yeung, for his personal and professional contributions to the science of human nutrition. Selection will be based on: (a) overall grade point average and academic standing in all full time equivalent undergraduate courses completed during the student's program, and (b) relevance and appropriateness of the research work. Apply by letter outlining intended research, include a curriculum vitae and, if appropriate, a completed Financial Need Assessment Form to Student Financial Services by January 10. Candidates must fulfil the requirements of the Heinz Foundation (see [Graduate Awards Officer](#) at the Office of Graduate and Postdoctoral Studies for more information) to be eligible for this scholarship.

**Donor(s):** H.J. Heinz Company Foundation

**Qualification(s):** Students registered in the first year of a MSc program who are conducting research in the science of human nutrition and demonstrate financial need.

**Amount:** 1 award of \$1,750

**Herbert Armstrong Memorial Book Prize [I5632]**

Established in memory of Herbert Armstrong, Dean of Graduate Studies, 1968 - 1980. All student members of the Board of Graduate Studies are automatically considered. Membership on other university Senate committees and/or university academic committees during the same period may be taken into consideration. The selection committee is the Office of Graduate and Postdoctoral Studies Awards Committee. At the discretion of the committee, the prize may not be awarded every year. Application is not required.

**Donor(s):** Family and Friends of Herbert Armstrong

**Qualification(s):** Full-time graduate students with high academic achievement who have made a substantial contribution to graduate student life and to the university while serving as a member of the Board of Graduate Studies during the previous academic year (September to August).

**Amount:** 1 award of \$120

**Highdale Farms - Arthur and Rosmarie Spoerri Scholarship in Natural Sciences [E8006]**

No application required; the Office of Graduate & Postdoctoral Studies Awards Committee will consider all eligible students who have applied to a graduate program in the upcoming summer, fall, or winter semesters by April 15th annually and the student will the highest admission average will be awarded. Master's students will be considered in even numbered years and doctoral students will be considered in odd numbered years. The recipient must remain registered in a natural sciences program to receive the second installment of the scholarship.

**Donor(s):** Arthur and Rosmarie Spoerri of Nepean Ontario

**Qualification(s):** Canadian citizens or permanent residents pursuing studies in the natural sciences and entering their first Master's or Doctoral program in May, September or January following the deadline date for this scholarship. Students must have completed their respective undergraduate or Master's degree studies with a minimum 80% cumulative average.

**Amount:** 1 award of \$20,000 (payable over 2 years of study)

**ICI Scholarship in Biotechnology [I5130]**

Apply by March 1 to the Office of Graduate and Postdoctoral Studies by completing the ICI Scholarship in Biotechnology application.

**Donor(s):** I.C.I. Canada Inc.

**Qualification(s):** Full-time MSc or PhD student doing research in biotechnology who have a first-class ('A') average in the last two years of university work (courses and/or research) completed prior to May 1 each year.

**Amount:** 1 award of \$3,000

**International Doctoral Tuition Scholarship [E5982]**

The University of Guelph provides a scholarship valued at \$11,000 per year for up to four years to outstanding international doctoral students

**Donor(s):** The University of Guelph

**Qualification(s):** Students with a minimum A- or 80% admission average; students admitted with an average lower than 80% will be eligible upon successful completion of their qualifying exam, for the remainder of the four-year period of eligibility. Scholarships are not tenable with the International Graduate Tuition Scholarship, Ontario Trillium Scholarships, Ontario Graduate Scholarships, Brock Doctoral Scholarships, Arrell Scholarships, Vanier CGS-D, Dairy Farmers of Ontario, China Scholarship Council, CONACyT, Nora Cebotarev Memorial Scholarship, Science without Borders or any other third party funding (e.g., workplace funding, scholarships from a home government).

**Amount:** various 40,000: 11,000/ year for up to 4 years( 3 equal payments)

**Ivey Cook Bursaries [I3076]**

Apply to CSD using the "New Student Intake Form" and a letter explaining your situation and attach documentation showing the denied provincial funding. Recipients will be selected by the CSD Learning Disabilities Team on a first come first served basis, based on the validity and need for an assessment.

**Donor(s):** Suzanne Ivey Cook

**Qualification(s):** Students who have been denied funding through the Ontario Student Assistance Program (OSAP) or their provincial/territorial student aid program who require academic accommodation or support through the Centre for Students with Disabilities (CSD) and who are unable to pay for the required assessment.

**Amount:** several awards of up to \$1,000

**Leonard Connolly Exchange Scholarship [I0446]**

Established in honour of Prof. Leonard Connolly, professor of drama, Chair of the Department of Drama, 1981-88, and Associate Vice-President Academic, 1988-92. This scholarship is for an exchange student visiting the University of Guelph. Selection, by the Centre for International Programs, will be based on assessment of (a) a one-page submission describing the significance of the student visiting Guelph to the program of study at the partner exchange university, (b) two faculty references of one-page each, and (c) consistent high performance in the course work completed, as documented by a transcript of program grades to date, submitted by the home university. Apply to the Centre for International Programs by April 15th, for visiting during the subsequent Fall or Winter semesters.

**Donor(s):** Students, faculty, staff and friends of Prof. Leonard Connolly

**Qualification(s):** Full-time visiting students, registered at Guelph for at least one semester, from any country in the South (a list of eligible countries and exchange partner universities is available in the Centre for International Programs).

**Amount:** 1 award of \$1,000

**M. Frances Hucks Memorial Research Scholarship [Z5723]**

Established in memory of Mary F. Hucks, (MAC '26) and honorary class president of (MAC '30). The recipient will be the person with demonstrated financial need who has the highest academic performance over the most recent two years of full-time or equivalent university study. Masters or doctoral students may hold the scholarship once per degree. Apply with a completed Financial Need Assessment Form, a one page thesis research proposal and a one page letter of reference from the principal advisor to Student Financial Services by January 10. ACCESS AWARD.

**Donor(s):** The Estate of Mary F. Hucks with the aid of the Ontario Government's OSOTF program

**Qualification(s):** Full-time graduate students conducting research with a focus on human food, human nutritional health and/or biotechnology related to human food or nutrition with demonstrated financial need. Students cannot be beyond the start of the 12th month of study on January 10. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).

**Amount:** 1 award of \$5,000

**Madame Vigdis Finnbogadottir Scholarships [I5800]**

The University of Guelph provides two scholarships equal to the difference between international tuition and Canadian tuition for Icelandic students pursuing a graduate degree at the University of Guelph. Students will be nominated to the Office of Graduate and Postdoctoral Studies Awards Committee by the Icelandic Exchange Coordinator. Application is not required.

**Donor(s):** University of Guelph in honour of the visit of the former Icelandic President Madame Vigdis Finnbogadottir in 1998

**Qualification(s):** Full-time graduate Icelandic students pursuing a graduate degree at the University of Guelph are eligible up to their sixth semester of registration at the master's level, ninth at the doctoral level, and twelfth in the case of a transfer from master's to doctoral studies.

**Amount:** 2 awards of various amounts

**Mary I. Whitelock Bursaries [Z5695]**

Apply by January 10 to Student Financial Services with a completed Financial Need Assessment Form. ACCESS AWARD.

**Donor(s):** Estate of Mary I. Whitelock, a friend of the University, with the aid of the Ontario government's OSOTF program

**Qualification(s):** Full-time graduate students with demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statement on Awards)

**Amount:** 13 awards of \$2,000

<b>Nora Cebotarev Memorial Graduate Scholarship [E8012]</b>	
This award was made possible from an estate gift from Professor Nora Cebotarev. The award recipient will be selected on the basis of high academic achievement and a commitment to social change as demonstrated through past activities and experiences. To be considered, the candidate needs to have applied for admission through OUAC by February 1 for entry to a graduate program in the summer, fall, or winter semester following the nomination deadline. A nomination letter from the Graduate Coordinator confirming the candidate's suitability for this award, and a copy of the nominee's CV if not included in the application for admission, should be forwarded to the Office of Graduate & Postdoctoral Studies by February 15th. The recipient of the Nora Cebotarev Memorial Graduate Scholarship will also be awarded the Ellen Nilsen Memorial Graduate Scholarship (E5847). Under extenuating circumstances the award may be deferred for up to one academic year from time of initial award, with a deferred acceptance of entry to a University of Guelph graduate program.. The recipient of the Nora Cebotarev Memorial Graduate Scholarship will also be awarded the <u>Ellen Nilsen Memorial Graduate Scholarship</u> (E5847). Under extenuating circumstances the award may be deferred for up to one academic year from time of initial award, with a deferred acceptance of entry to a University of Guelph graduate program.	
<i>Donor(s):</i>	<b>The Estate of Nora Cebotarev</b>
<i>Qualification(s):</i>	International female students from developing countries who have demonstrated commitment to social change entering a graduate program in the upcoming academic year (summer, fall or winter semester).
<i>Amount:</i>	1 award of \$25,000 (payable over 6 semesters)
<b>Norma Valeriotte International Student Bursaries [I3009]</b>	
Preference given to a student from a country of focus as defined by CIDA (Canadian International Development Agency). Apply to the International Student Advisor with a completed Financial Need Assessment Form for International Students.	
<i>Donor(s):</i>	<b>Mrs. Norma L. Valeriotte</b>
<i>Qualification(s):</i>	International students registered in any graduate program beyond class level 3 with demonstrated financial need.
<i>Amount:</i>	Several of varying amounts
<b>Richard and Sophia Hungerford Graduate Scholarships [Z5724]</b>	
Established to support graduate students in financial need whose research interests relate to developing countries. Recipients will be selected on the basis of financial need, academic achievement, and the quality of their intended research in developing countries. Apply to Student Financial Services by January 10 including a one page summary of the research proposal, a completed Financial Need Assessment Form, and a letter of reference from the principal advisor. ACCESS AWARD.	
<i>Donor(s):</i>	<b>The estate of Richard and Sophia Hungerford with the aid of the Ontario government's OSOTF program</b>
<i>Qualification(s):</i>	Registered or incoming graduate students with at least a cumulative 80% average in their last two years are eligible with demonstrated financial need. Students are ineligible if beyond semester 5 at the masters level and semester 7 at the doctoral level. Additionally, students must meet the government-mandated terms for receipt of an <u>OSOTF</u> award (see General Statements on Awards).
<i>Amount:</i>	7 awards of \$5,000
<b>Richard and Sophia Hungerford Graduate Travel Grants [Z5725]</b>	
Students who meet the eligibility criterion will be awarded this travel grant based on the availability of overall funds in the endowment. Apply to Student Financial Services with a completed <u>Graduate Travel Award Application Form</u> and a completed Financial Need Assessment Form prior to departure. Application deadlines are October 1 for Winter travel, March 15 for Summer travel and June 30 for Fall travel. Students may not receive this award more than two times during their graduate studies and this grant cannot be held with the University of Guelph Travel Grant T5713. ACCESS AWARD.	
<i>Donor(s):</i>	<b>The estate of Richard and Sophia Hungerford with the aid of the Ontario government's OSOTF program</b>
<i>Qualification(s):</i>	Registered students with demonstrated financial need who: i) have been accepted into a travel program (i.e exchange, study abroad, LOP) offered by the Centre for International Programs who will be studying in a developing country; or ii) are registered in a field course taking place in a developing country; or iii) are conducting research related to developing countries and will be travelling to further expand their knowledge and/or contributing towards their research/thesis. Additionally, students must meet the government-mandated terms for receipt of an <u>OSOTF</u> award (see General Statements on Awards).
<i>Amount:</i>	various awards of \$500 to \$3,000

<b>Roy C. Anderson Graduate Scholarship [Z5629]</b>	
Established In honour of Roy C. Anderson, professor and former chair of the Department of Zoology. The recipient will be chosen on the basis of financial need and high academic achievement. A student may hold the award once. Submit a completed Financial Need Assessment Form, including a list of publications, brief research proposal, reference letter from thesis advisor and cumulative academic record to Student Financial Services by January 10. ACCESS AWARD.	
<i>Donor(s):</i>	<b>Dr. Denis H. Lynn and Dr. Patrick K. Woo with the aid of the Ontario government's OSOTF program</b>
<i>Qualification(s):</i>	Full-time students conducting research in parasitology; including all aspects of microbial, protozoan and metazoan infections in animals and plants. Additionally, students must meet the government-mandated terms for receipt of an <u>OSOTF/OTSS</u> award.
<i>Amount:</i>	1 award of \$500
<b>Scotiabank Bursaries [Z5709]</b>	
In order to allow students with financial need to continue their studies as full-time students, two bursaries are awarded. The awards will be distributed in the winter semester. Students must apply to Student Financial Services. ACCESS AWARDS	
<i>Donor(s):</i>	<b>Scotiabank with the aid of the Ontario government's OSOTF program</b>
<i>Qualification(s):</i>	Full-time graduate students with financial need. Additionally, students must meet the government-mandated terms for receipt of an <u>OSOTF</u> award (see General Statements on Awards).
<i>Amount:</i>	2 awards of \$1,500
<b>Sports Media and Sports Broadcasting Scholarships [I1035]</b>	
Apply by May 15th to Student Financial Services by submitting a one page letter outlining sports media or sports broadcasting experience in the past year. Letters can be emailed to awards@uoguelph.ca. Selection is based on highest cumulative average. If no applications are received preference will be given to a student minoring in Media and Cinema Studies and who have the highest GPA.	
<i>Donor(s):</i>	<b>Rogers Media Inc.</b>
<i>Qualification(s):</i>	Students registered in any program who have demonstrated experience in sports media and sports broadcasting. Preference to students involved in on campus activities in the sports media and/or sports broadcasting areas. To be awarded to an undergraduate student first, then to a graduate student if no undergraduate students apply.
<i>Amount:</i>	2 awards of \$2,500
<b>Stanley Saunders Scholarship for Music [I8009]</b>	
Matched by the University Graduate Scholarship Matching Program, this scholarship is provided through a generous bequest from Dr. Richard Carlton, faculty member in the Department of Sociology & Anthropology from 1972 to December, 1990. Selection is based on the quality of the proposal, the research findings of which are expected to be publishable in recognized humanities and/or social science journals. Preference will be given to research relating to the Renaissance, Baroque, Classical, and Romantic periods of music up to 1900. Apply to Office of Graduate and Postdoctoral Studies by March 1st, with an outline of the intended research, a curriculum vitae, and a detailed budget for the entire research project. Travel costs for a research project are an acceptable budget item.	
<i>Donor(s):</i>	<b>Dr. Richard Carlton</b>
<i>Qualification(s):</i>	For thesis graduate students whose research focus is furthering the fundamental understanding of the nature and function of music in human society.
<i>Amount:</i>	1 award of \$6,000
<b>University of Guelph ACCESS Scholarships [Z5688]</b>	
Apply by January 10 to Student Financial Services with a completed Financial Need Assessment Form. ACCESS AWARD.	
<i>Donor(s):</i>	<b>Alumni and friends of the University of Guelph with the aid of the Ontario government's OSOTF program</b>
<i>Qualification(s):</i>	Undergraduate, graduate or OAC(Guelph) diploma graduate students who wish to study full-time but who need financial support to do so. Additionally, students must meet the government-mandated terms for receipt of an <u>OSOTF</u> award (see General Statements on Awards).
<i>Amount:</i>	several awards of up to \$2,000

**University of Guelph Alumni Association Access Bursaries [Z5710]**

Established by the University of Guelph Alumni Association, with the assistance of the Ontario government's OSOTF program, to support students who wish to study full-time but who need financial support to do so. Apply with a completed Financial Need Assessment Form (N.A.F.) to Student Financial Services by January 10. Students will be considered for this award automatically once a N.A.F. has been submitted by the deadline date. ACCESS AWARD.

**Donor(s):** University of Guelph Alumni Association with matching funding through the Ontario Student Opportunities Trust Fund

**Qualification(s):** Students registered in any graduate program with demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an OSOTF/OTSS

**Amount:** 1 award of \$1,250

**University of Guelph International Student Bursary [B5778]**

The University of Guelph provides support to International graduate students that are faced with unexpected, or unforeseen financial shortfalls while registered on campus. Students should apply to the International Student Advisor by Nov. 1 for the fall semester; March 1 for the winter semester, and July 2 for the summer semester with a completed International Student Financial Need Assessment Form (N.A.F.). If students have an emergency situation, please contact the International Student Advisor, in Student Life, University Centre, Level 3.

**Donor(s):** The University of Guelph

**Qualification(s):** International students (defined as paying the International tuition fee) registered in any graduate program who have completed a minimum of three semesters and has demonstrated financial need.

**Amount:** several awards of various amounts

**University of Guelph Travel Grants [T5713]**

The University of Guelph, through the sale of Guelph London House, has established an endowment to provide travel grants to students. Preference will be given to students participating in the London Semester. Students may only receive this travel award once per degree. The value of the award will depend on the assessed financial need. The scholarship can cover additional costs of travelling outside of Canada including: airfare, administrative costs, and differential costs of accommodation. Apply to Student Financial Services with a completed Graduate Travel Grant Application Form and Financial Need Assessment Form by the appropriate deadline date. Application deadlines are October 1 for Winter travel, March 15 for Summer travel and June 30 for Fall travel.

**Donor(s):** The University of Guelph

**Qualification(s):** Graduate students who wish to study outside of Canada but need financial support to do so, and who have a minimum 70% cumulative average in the last two semesters of full-time equivalent study are eligible to apply.

**Amount:** several variable

**W.N. Vaughan Medal [C0299]**

A medal may be given annually to a student senator who has high academic standing and who has made a substantial contribution to student life and to the university, particularly through involvement in and commitment to Senate activities. Prospective candidates will be nominated by senators and the medal winner will be chosen by a committee selected by the Senate Bylaws and Membership Committee. The medal will be awarded at June convocation. No application is necessary.

**Donor(s):** Friends of Walter N. Vaughan

**Qualification(s):** Student senator in a full-time graduate program who has high academic standing and who has made a substantial contribution to student life and to the university, particularly through involvement in and commitment to Senate activities.

**Amount:** 1 medal

## College of Arts Internal Awards

The University reserves the right to amend awards subject to the availability of funds.

**Alastair J. Durie Research Travel Grant [T5975]**

Established by Dr. Kevin James in honour of Alastair J. Durie, pre-eminent scholar of Scottish tourism history and valued advisor to Guelph MA students. Selection will be based on academic standing, a research statement indicating the relation of the trip to the project and feasibility of proposed budget relating to travel costs. Apply by February 1, to the graduate office in the Department of History and include a budget, description of the travel and a research statement indicating the relation of the trip to the project.

**Donor(s):** Kevin James

**Qualification(s):** Students registered in any Master's or Doctoral programs who are required to travel for research to access historical texts. Preference for students specializing in tourism history.

**Amount:** 1 award of \$1,000

**Alexander H. Brodie Memorial Award [T5008]**

Application should be made to the Interdepartmental Committee on Scottish Studies.

**Donor(s):** Friends of the late professor Alexander H. Brodie

**Qualification(s):** Full-time graduate MA (or, if none are eligible, PhD) student for thesis research overseas related to Scottish studies.

**Amount:** 1 award of up to \$500

**Betty King Memorial Graduate Scholarship [I5002]**

This award commemorates the work of Betty King, a staff member in the former Department of English and the School of Literatures and Performance Studies in English from 1990 to 1998. Betty was particularly caring and helpful to graduate students in the College and significantly contributed to a supportive work environment for colleagues. The student assessed as having the highest academic performance (both in completed courses and in research progress to date) after the first two semesters of study in the program are completed, will be recommended by the SETS Graduate Awards Committee to the College of Arts Awards Committee. No application is required.

**Donor(s):** Friends and colleagues of Betty King

**Qualification(s):** Currently registered full-time MA students in the School of English and Theatre Studies (SETS) who are entering the third semester of study will be considered if they have not received internal and/or external awards totalling \$5000 or more during their first year of MA study.

**Amount:** 1 award of \$500

**Carole Stewart Arts Graduate Scholarship [E5911]**

Established in recognition of Carole Stewart's contributions to the College of Arts from 1966 to 2001, including terms as Chair of the Department of Philosophy, from 1985 to 1992, and Dean from 1993 to 2001. The award will be given based on highest academic average and will be rotated among programs in the following order: the School of Languages and Literatures, the School of Fine Art and Music, the Department of History, the Department of Philosophy and the School of English and Theatre Studies. No application is required.

**Donor(s):** Friends and Colleagues of Carole Stewart

**Qualification(s):** Full-time students entering any graduate program offered by the College of Arts.

**Amount:** 1 award of \$3,500

**CFUW Guelph – Graduate Scholarship in Studio Art [I5653]**

Established by the Canadian Federation of University Women – Guelph to assist women to obtain higher education. Applicants must submit portfolios to the Chair of the Fine Art & Music with a letter indicating the high school they attended by January 15th. Selection will be based on excellence in studio art and/or art history.

**Donor(s):** Canadian Federation of University Women - Guelph

**Qualification(s):** Students registered in full-time studies in the Master of Fine Arts, Studio Art program. Preference will be given to a practicing female artist. Additional preference will be given to students who have graduated from a secondary school in Wellington County.

**Amount:** 1 award of \$1,000

**College of Arts Graduate Research Bursary [Z5700]**

Apply by January 10 to Student Financial Services with a completed Financial Need Assessment Form and a letter outlining the importance of the proposed activity and the associated expenses to the Chair of the College of arts Awards Committee. The award may be divided between two students at the discretion of the Committee and may be awarded retroactively for travel in the previous semester. ACCESS AWARD.

**Donor(s):** Supporters of the College of Arts with the aid of the Ontario government's OSOTF program

**Qualification(s):** Full-time graduate students with demonstrated financial need with costs associated with a special activity, such as research travel or conference attendance. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).

**Amount:** 1 award of \$500

**Connie Rooke Scholarship [E5116]**

Selection will be based on demonstrated significant achievement in creative writing through submission of a portfolio to the Master of Fine Arts Creative Writing admissions committee. No application is necessary.

**Donor(s):** University of Guelph

**Qualification(s):** Graduate students entering the MFA in Creative Writing Program.

**Amount:** various awards of \$5,750 (payable over 3 semesters)

<b>Constance Rooke/HarperCollins MFA in Creative Writing Scholarship [E5235]</b>	
The recipient must have excellence in creative writing through submission of their portfolio to the Master of Fine Arts Creative Writing admissions committee. No application is necessary.	
<i>Donor(s):</i>	<b>HarperCollins Canada Limited</b>
<i>Qualification(s):</i>	Graduate students entering the MFA in Creative Writing Program.
<i>Amount:</i>	several awards of \$5,000
<b>D. S. Wilson Entrance Scholarship [E5665]</b>	
This scholarship is awarded to the student who demonstrates high academic performance and overall academic merit as indicated by the student's admission application. Applications for the Master of Theatre Studies Program will be considered as the application for this award. No application necessary.	
<i>Donor(s):</i>	<b>Dr. Ann Wilson</b>
<i>Qualification(s):</i>	Students entering the Master of English or Theatre Studies Program.
<i>Amount:</i>	1 award of \$2,000
<b>Department of History Graduate Essay Prizes [I5647]</b>	
Students do not apply; all theses and major papers will be considered. Instructors will nominate course essays. Prizes may not be given out in each category every year.	
<i>Donor(s):</i>	<b>Department of History</b>
<i>Qualification(s):</i>	Graduate students who have written (i) an outstanding thesis, (ii) an outstanding major paper, and (iii) an outstanding course essay during the preceding twelve months.
<i>Amount:</i>	up to three awards of \$100
<b>Edward Stewart Scholarship in Scottish Studies. [I5014]</b>	
Selection will be based on highest cumulative average. Application is not required.	
<i>Donor(s):</i>	<b>Friends and family of the late Dr. Edward Stewart, former Deputy Minister of Education and Secretary of Cabinet in the Ontario Government, to honour his lifelong interests in higher education, Scottish culture and history.</b>
<i>Qualification(s):</i>	Graduate students registered in their first or second year in the field of Scottish Studies (M.A. or Ph.D. Programs in History) with a minimum cumulative average of 80% upon entry to the program or after the first year of study.
<i>Amount:</i>	1 award of \$3,500
<b>Edward Y. Morwick Graduate Scholarship in Creative Writing [E8011]</b>	
Edward Y. Morwick, honorary alumni, Barrister and Solicitor, of Hamilton, Ontario, created this scholarship to encourage and reward a student entering the Master of Fine Arts, Creative Writing Program with high academic performance and who is dedicated to developing skills in the craft of creative writing. No application necessary.	
<i>Donor(s):</i>	<b>Edward Y. Morwick</b>
<i>Qualification(s):</i>	Graduate students entering the Master of Fine Arts Creative Writing Program.
<i>Amount:</i>	1 award of \$7,000 (payable over 6 semesters)
<b>Frank Watson Travel Scholarship [T5806]</b>	
Applicants will be eligible after the successful completion of their comprehensive examinations. Preference will be given to PhD students, but if no PhD students qualify, MA students with a minimum cumulative average of 80% (A-) will be considered. Selection will be based on relevance of intended travel to the student thesis work. Apply by February 1 for travel between April of current year and April of the following year to the Chair of Scottish Studies with an outline of the purpose and duration of travel to Scotland.	
<i>Donor(s):</i>	<b>Dr. Cecily Watson and the Scottish Studies Foundation</b>
<i>Qualification(s):</i>	MA and PhD students in the Scottish Studies Program who intend to visit Scotland for their thesis work.
<i>Amount:</i>	1 award of \$1,000
<b>Griffin Trust for Excellence in Poetry Scholarship [A5287]</b>	
Established in honour of Constance Rooke's leadership of the MFA in Creative Writing program, by Scott Griffin, Chairman and founder of The Griffin Trust for Excellence in Poetry, to support students focusing their studies on poetry. Selection will be based on academic merit as determined by quality of the individual student's admission application portfolio and/or academic performance in their first year of study.	
<i>Donor(s):</i>	<b>Scott Griffin</b>
<i>Qualification(s):</i>	Graduate students entering or registered in the Master of Fine Art in Creative Writing will be considered automatically for these awards.
<i>Amount:</i>	3 awards of up to \$2,500

<b>Helen O'Reilly History Scholarship [Z5928]</b>	
Established in honour of Helen O'Reilly, a mother who entered university as a mature student and went on to pursue graduate studies in history. Apply by January 10 to Student Financial Services with a completed Financial Need Assessment Form. ACCESS AWARD.	
<i>Donor(s):</i>	<b>The family of Helen O'Reilly with the aid of the Ontario Government's OSOTF program</b>
<i>Qualification(s):</i>	Graduate students registered with the Department of History with superior academic standing and demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).
<i>Amount:</i>	1 award of up to \$1,000
<b>Hisky Memorial Travel Grant [T5772]</b>	
This award is in honour of Lore and Bud Hisky who were founding members of the The Memphis Scottish Society I and the Wolf River Pipes and Drum Corps. Apply by February 1 for travel between April of current year and April of the following year to the Chair of Scottish Studies with an outline of the purpose and duration of travel to Scotland. Selection will be based on the excellence of the research project and relevance of intended travel to it.	
<i>Donor(s):</i>	<b>The Memphis Scottish Society</b>
<i>Qualification(s):</i>	Students who are writing a thesis or dissertation and planning to travel to Scotland or England to research topics related to Scottish History, Literature, Art, Language or Music or other specialties regarding Scotland with minimum average of 80% in the courses associated with the degree registered in. Preference will be given to a candidate in a PhD program.
<i>Amount:</i>	1 award of \$1,500
<b>International Emergency Medical Aid Assistance [B5200]</b>	
The University of Guelph provides support to International graduate students that are faced with unexpected, or unforeseen financial shortfalls due to a medical issue not covered by UHIP or the Student Dental/Medical insurance plans. Students should apply to the International Student Advisor, in the Centre for International Programs office, by completing an International <u>Student Financial Need Assessment Form (N.A.F.)</u> and submitting documentation to support the medical issue. These bursaries are awarded on an on-going basis.	
<i>Donor(s):</i>	<b>University of Guelph</b>
<i>Qualification(s):</i>	International students registered in a degree program and have completed a minimum 1.50 credits who have a medical emergency expenses not covered by UHIP or the Student Dental/Medical insurance plans and demonstrated financial need.
<i>Amount:</i>	Several awards of varying amounts
<b>Jane Nelson Stirling Cairns Grier Scholarship in Scottish Studies [I5017]</b>	
The scholarship has been established to encourage and support the study of Scottish History in Ontario, and particularly to recognize those students from other provinces who choose the University of Guelph for their graduate studies in Scottish History. No application is necessary.	
<i>Donor(s):</i>	<b>Ms. Jane Nelson Stirling Cairns Grier</b>
<i>Qualification(s):</i>	Students in first or second year of study in the field of Scottish Studies within the MA or PhD programs in History who demonstrates a keen interest in Scottish history and has a minimum academic standing of 80% upon entry to the program or after the first year of study.
<i>Amount:</i>	1 award of \$1,000
<b>John Black Graduate Travel Grant [T5649]</b>	
Established by friends and colleagues of John Black, Chief Librarian at Guelph (1984-95) and a founding faculty member (1966-95) in the Department of Political Studies. Selection will be based on academic standing, research potential and feasibility of proposed travel. Apply to the Office of Graduate and Postdoctoral Studies by October 17 using the John Black Graduate Travel Grant application. Applications may be submitted for future travel only and applications for previous travel will not be considered.	
<i>Donor(s):</i>	<b>Friends and Colleagues of John Black</b>
<i>Qualification(s):</i>	Master's students with at least an "A-" average in the last 2 years, registered in a Political Science program (POLS/CCJP), the Capacity Development and Extension program, or the collaborative International Development Studies program (any department) in class level 1 to 3 at the time of application and who plan to travel to conduct thesis research, attend a conference, or take a course.
<i>Amount:</i>	1 award of \$1,500

**John Galt Scholarships [Z5706]**

The John Galt Scholarships were established to attract the most promising graduate students to the MA and PhD programs in History. One scholarship of \$3,000 will be awarded to a student registered in the MA or PHD program offered by the Department of History with greatest financial need. Preference will be given to students registered in their first year of the program. Apply by letter with a completed Need Assessment Form to Student Financial Services by January 10. ACCESS AWARD.

**Donor(s):** The faculty of the Department of History with the aid of the Ontario government's OSOTF program

**Qualification(s):** Students registered in the MA or PhD program offered by the Department of History. Financial need has been demonstrated as determined by the University of Guelph Needs Assessment procedures. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).

**Amount:** 1 award of \$3,000

**Lambda Foundation Scholarship in LBGT Studies [I5033]**

This scholarship has been provided to encourage research on the subject of lesbian, bisexual, gay and transgendered (LBGT) peoples. The scholarship is based upon areas of research pertaining to the history, contributions, and issues by or about LBGT peoples. Preference will be given to an applicant who is involved in the LBGT community as demonstrated by a record of volunteer activities, active civil society memberships, or as attested by a letter of recommendation from a community group, or as evidenced by related previous academic pursuits. Projects must have been completed or research proposals accepted within the past calendar year. Apply to the Dean of Arts by December 15 including the research proposal or completed project, curriculum vitae, and any supporting letters referencing involvement in the LBGT community and/or faculty support. This scholarship may be held by a student only once.

**Donor(s):** The Lambda Foundation/Fondation Lambda, along with other donors.

**Qualification(s):** Students enrolled in a graduate program with a thesis, a research proposal, essay, independent research project or course work programs pertaining to LBGT studies, as broadly defined by the applicant.

**Amount:** 1 award of \$1,000

**Lin Coburn Memorial Graduate Scholarship [Z5933]**

The School of English and Theatre Studies Awards Committee will review applications received from Student Financial Services and contact selected applicants for copies of their academic portfolios, including but not limited to reviews of grades in courses completed to date, essays and papers submitted for those courses etc. Selection criteria include financial need for the first year of doctoral study and all academic performance in the previous degree of study. Students may hold the award only once. Apply by January 10 to Student Financial Services with a completed Financial Need Assessment Form and a letter (maximum of two pages), expressing interest in the award and listing any essays and/or other written materials from courses completed in the previous degree of study. ACCESS AWARD.

**Donor(s):** The family, colleagues and friends of Lin Coburn with the assistance of the Ontario government's OSOTF program

**Qualification(s):** Students registered in the MFA Creative Writing or MA in English. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).

**Amount:** 1 award of \$4,000

**Margaret Priest Graduate Scholarship [E8008]**

This scholarship is provided to a student entering the Master of Fine Art program with demonstrated exceptional studio work (drawing and architecture) as evidenced by portfolio submitted with application to the Master of Fine Art program.. No award application is necessary.

**Donor(s):** Margaret Priest, University of Guelph Professor Emerita and accomplished artist

**Qualification(s):** Graduate student entering the Master of Fine Art program with a minimum cumulative academic standing of 80%.

**Amount:** 1 award of \$3,000

**McClelland & Stewart Scholarship [I5356]**

The recipient will be selected on work to date and anticipated major project. No application is required.

**Donor(s):** McClelland & Stewart Ltd.

**Qualification(s):** Awarded to a full-time graduate student registered in the MFA Creative Writing Program.

**Amount:** 1 award of \$2,500

**Nancy Bailey Graduate Teaching Prize [I5667]**

Established In honour of retired Prof. Nancy Bailey in recognition of her excellence as a teacher. No application is necessary.

**Donor(s):** Department of English

**Qualification(s):** Students registered in a program offered by the School of English and Theatre Studies who provided teaching assistance in the previous winter, spring and/or fall semesters.

**Amount:** 1 award of \$100

**Paul M. Waters Memorial Scholarship [I5174]**

Graduate students currently enrolled in the Department of English should submit their nomination to the chair, Department of English. Selection of the winner will be made by the College of Arts awards committee and the dean of Graduate Studies.

**Donor(s):** The Paul M. Waters family, in honour of Paul Waters (MA '89)

**Qualification(s):** Graduate student who has completed two semesters in the English MA program and who has gained the respect of fellow graduate students both by demonstrating a high level of commitment to academic and community activities and by a light-hearted perspective toward all endeavours.

**Amount:** 1 award of \$650

**Peggy A. Pritchard and Dr. Andrew M. Kropinski Graduate Bursary [B5967]**

Established by Peggy A. Pritchard and her husband, Dr. Andrew M. Kropinski, upon Ms. Pritchard's retirement from the University of Guelph in 2016. Apply to the International Student Advisor with a completed International Graduate Student Financial Need Assessment Form (NAF).

**Donor(s):** Peggy Pritchard and Andrew Kropinski

**Qualification(s):** International graduate students from a developing country (as defined by CIDA Canadian International Development Agency) who demonstrate financial need with a preference given to female students.

**Amount:** 1 award of \$2,000

**Robert Carr-Wiggin Prize [I5673]**

Established in memory of Robert Carr-Wiggin, one of the first students to graduate from the PhD program in Philosophy. Awarded to a student in philosophy for the best paper that has been submitted to either a scholarly journal or a scholarly conference during the preceding year. Applicants must submit, to the Chair of the Philosophy Department, a copy of the paper, accompanied by a copy of the acceptance letter from the journal or conference; only one paper may be submitted by an applicant for consideration each May 1; the paper must have been accepted by the journal or conference during the previous twelve months. The award may not be given out each year. Selection is by the college awards committee on recommendation from the department awards committee; presentation is at the College of Arts awards luncheon each year.

**Donor(s):** Guelph Philosophical Society

**Qualification(s):** Full and part-time philosophy graduate students registered beyond the first semester of study.

**Amount:** 1 award of \$200

**Ruth and Eber Pollard Doctoral Scholarships in History [E5677]**

Ruth and Eber Pollard were passionate supporters of Canadian history research and in their estate they endowed funds to establish the Pollard Doctoral Scholarships in History. Preference will be given to students studying Canadian history. Selection will be based on high academic achievement and research performance, as demonstrated by transcripts, publication record and participation in scholarly activities such as conferences and symposia. No application is necessary.

**Donor(s):** The Estate of the late Ruth and Eber Pollard

**Qualification(s):** Students entering full-time doctoral study in History in May, September or January following the deadline date with a minimum cumulative average of 80% over their graduate studies.

**Amount:** 2 awards of \$10,500 (payable over 3 semesters of study)

**Shuebrook Graduate Scholarship [Z5916]**

This award was established in honour of Ron Shuebrook, Chair in the Department of Fine Art 1988 to 1993 and past Graduate Coordinator of the MFA program. This award was created to celebrate his passionate commitment and devotion to the development and well-being of the School of Fine Art and Music. Apply to Student Financial Services by January 10 with a completed Financial Need Assessment Form (N.A.F.). Students will be considered for this award automatically once a N.A.F. has been submitted by the deadline date. ACCESS AWARD.

**Donor(s):** Established by the colleagues and friends of Dr. Ron Shuebrook with the aid of the Ontario government's OSOTF program

**Qualification(s):** Students registered in the MFA program with demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).

**Amount:** 1 award of \$750

<b>St Andrew's Society of Montreal Research Travel Grant in Scottish Studies [T5100]</b>	
Preference will be given to students from Quebec. Applications should be made to the Scottish Studies Foundation Chair by February 1st detailing the research plan, itinerary and costs. Upon completion of the research trip, a report must be submitted to the St Andrew's Society of Montreal for publication in their newsletter.	
<i>Donor(s):</i>	<b>The St Andrew's Society of Montreal</b>
<i>Qualification(s):</i>	Graduate students studying in the field of Scottish Studies to undertake a research trip to Scotland.
<i>Amount:</i>	1 award of \$2,000

<b>St. Andrew's Society of Toronto Travel Grant [T5972]</b>	
Submit a research plan, itinerary and travel costs to the Chair of Scottish Studies by February 1st. Upon completion of the research trip, St. Andrew's Society of Toronto may invite the recipient of the travel grant to deliver a short talk relating to research undertaken at St. Andrew's Society of Toronto members meeting.	
<i>Donor(s):</i>	<b>St. Andrew's Society of Toronto</b>
<i>Qualification(s):</i>	Students studying in the field of Scottish Studies who are planning to travel for research purposes related to their program of study.
<i>Amount:</i>	1 award of \$1,200

<b>Ted Cowan Scholarship [T5650]</b>	
Awarded in even numbered years to support research travel for a Guelph student in Scottish studies. Prof. Cowan, for many years chair of Scottish studies in the Department of History, made major contributions to raising the awareness of Scottish studies both in the academic world and among the public as a whole. Submit an application, including proposed research trip budget and statement of research plan, to the graduate coordinator of the department of registration. Preference will be given to PhD students.	
<i>Donor(s):</i>	<b>Private donations and a grant from the Scottish Studies Foundation</b>
<i>Qualification(s):</i>	Scottish Studies PhD students who have completed or anticipate completing their qualifying examination, and MA students who have completed two semesters.
<i>Amount:</i>	1 award of \$500

<b>Tony Scherman Graduate Scholarship [E8007]</b>	
Graduate students with a minimum cumulative academic standing of 80% and demonstrated exceptional studio work (specifically in painting) as evidenced by a portfolio submitted with application to the Master of Fine Art program. Application is not required.	
<i>Donor(s):</i>	<b>Tony Scherman, Adjunct Professor of Fine Art, friend of the University and accomplished artist</b>
<i>Qualification(s):</i>	Graduate students entering the Master of Fine Art program.
<i>Amount:</i>	1 award of \$2,000

<b>TransCanada Institute Graduate Essay Prize [I5296]</b>	
Established in recognition of research excellence. Selection will be made based on the quality of an essay as demonstrated by its original and methodological treatment of its subject and submitted by the student's graduate adviser or graduate instructor. Submission should be forwarded in writing to the Dean of Arts by April 30 by a student's graduate instructor or supervisor along with three copies of the chosen essay.	
<i>Donor(s):</i>	<b>TransCanada Institute</b>
<i>Qualification(s):</i>	Graduate students registered in SETS who have submitted an essay which investigates postcolonial and diaspora theories, especially in relation to, though not exclusively about, Canadian literature.
<i>Amount:</i>	1 award of \$500

<b>Tri-University Doctoral Program Annual Prize for the Best Historiographical Paper [I5674]</b>	
This prize will be awarded each fall to the graduate student in the Tri-University doctoral program in History who has authored the highest quality historiographical paper submitted in a Tri-university seminar during the previous Fall, Winter, or Spring semesters. The selection committee may decide not to give the award in any year where, in the committee's judgement, there is not a paper of sufficiently high quality. Selection will be made by the Program Coordinating Committee.	
<i>Donor(s):</i>	<b>The Tri-University Doctoral Program in History</b>
<i>Qualification(s):</i>	For a graduate student in the Tri-University doctoral program in History.
<i>Amount:</i>	1 award of \$100

<b>Tri-University Doctoral Program Annual Prize for the Best Scholarly Paper or Article [I5675]</b>	
Apply to the Chair, Department of History, by September 1, submitting a copy of the paper or article and proof of its submission to a journal or conference. Selection will be made by the Program Coordinating Committee.	
<i>Donor(s):</i>	<b>Tri-University Doctoral Program in History</b>
<i>Qualification(s):</i>	Awarded to a graduate student in the Tri-University Program in History who has authored the best scholarly paper or article submitted for consideration by a conference or journal during the preceding academic year.
<i>Amount:</i>	1 award of \$100

<b>University Graduate Scholarship (COA) [I5766]</b>	
Awarded to students showing outstanding academic performance. Departments will nominate students to the College Awards Committee on the basis of research performance/potential, including progress in the program of study. Application is not required.	
<i>Donor(s):</i>	<b>University of Guelph</b>
<i>Qualification(s):</i>	Registered masters students up to their 6th semester and doctoral students up to their 12th semester or students who transfer from masters to doctoral up to their 15th semester, with a minimum of 75% average in the last year of full-time study, or equivalent.
<i>Amount:</i>	Numerous awards of varying amounts from \$500 to \$20,000

<b>William and Nona Heaslip Graduate Bursary [Z5941]</b>	
Preference will be given to a student whose primary research is on Rural History. Apply by January 10 by submitting a Financial Need Assessment Form to Student Financial Services and a thesis summary to the chair of the History Department. Selection will be based on the student who demonstrated the greatest financial need. ACCESS AWARD.	
<i>Donor(s):</i>	<b>Nona Heaslip with the aid of the Ontario government's OSOTF program</b>
<i>Qualification(s):</i>	Students registered in the MA or PhD program in History with demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an <a href="#">OSOTF/OTSS</a>
<i>Amount:</i>	1 award of \$5,000

<b>William Hughes Memorial Scholarship in Philosophy [E8001]</b>	
Professor Hughes was the founding member of the Philosophy Department at the University of Guelph, a professor from 1965 until his retirement in 1997. Selection will be made on the basis of the student's admission application materials and high academic standing. Application is not required.	
<i>Donor(s):</i>	<b>Friends and family of the late Professor William (Bill) Hughes</b>
<i>Qualification(s):</i>	Graduate students entering the PhD program in Philosophy.
<i>Amount:</i>	1 award of \$1,000

## College of Biological Science Internal Awards

The University reserves the right to amend awards subject to the availability of funds.

<b>Abell Pest Control Scholarship in Lyme Disease Research [I5980]</b>	
Selection will be based on the strongest research potential on lyme disease. Apply by May 1 to the Office of Graduate and Postdoctoral Studies Awards Committee ( <a href="mailto:grschol@uoguelph.ca">grschol@uoguelph.ca</a> ) with a research proposal no longer than two pages outlining your research and a CV. Include the name of the award and the award ID number in the subject line of your email.	
<i>Donor(s):</i>	<b>Abell Pest Control</b>
<i>Qualification(s):</i>	Students registered in any program offered by the College of Biological Science or the Ontario Veterinary College or the Ontario Agriculture College conducting research in Lyme disease.
<i>Amount:</i>	1 award of \$5,000

<b>Abell Pest Control Scholarship in Pollinator Research. [I5976]</b>	
Selection will be based on the strongest research potential in pollinators. Apply by May 1 to the Office of Graduate and Postdoctoral Studies Awards Committee ( <a href="mailto:grschol@uoguelph.ca">grschol@uoguelph.ca</a> ) with a research proposal no longer than two pages outlining your research and a CV. Include the name of the award and the award ID number in the subject line of your email.	
<i>Donor(s):</i>	<b>Abell Pest Control</b>
<i>Qualification(s):</i>	Students registered in any program who are conducting research in Pollinators. Preference will be given to students studying bees.
<i>Amount:</i>	1 award of \$5,000

**Alastair J. Durie Research Travel Grant [T5975]**

Established by Dr. Kevin James in honour of Alastair J. Durie, pre-eminent scholar of Scottish tourism history and valued advisor to Guelph MA students. Selection will be based on academic standing, a research statement indicating the relation of the trip to the project and feasibility of proposed budget relating to travel costs. Apply by February 1, to the graduate office in the Department of History and include a budget, description of the travel and a research statement indicating the relation of the trip to the project.

**Donor(s):** Kevin James

**Qualification(s):** Students registered in any Master's or Doctoral programs who are required to travel for research to access historical texts. Preference for students specializing in tourism history.

**Amount:** 1 award of \$1,000

**Arthur Richmond Memorial Scholarships [I5180]**

Established in memory of the late Arthur Richmond (OAC '23), horticulturist and teacher. One award each year is reserved for a student in the Plant Agriculture (Horticultural Sciences) program. Apply by May 1 to the Office of Graduate and Postdoctoral Studies by completing the Arthur Richmond Memorial Scholarships Application. The winners will be selected on the basis of academic excellence. The scholarships may only be held once at the master's level and once at the doctoral level.

**Donor(s):** The Estate of Nola Richmond

**Qualification(s):** Full-time master's students up to semester six and doctoral students up to semester nine in one of the following programs: Plant Agriculture, Integrative Biology, Molecular & Cellular Biology, or Environmental Sciences.

**Amount:** 4 awards of \$4,000

**Canadian Dairy Commission M.Sc. Scholarship [I5314]**

The Canadian Dairy Commission generously supports these scholarships to encourage and support dairy related graduate studies and to increase career opportunities in the Canadian Dairy industry among aspiring students. Selection will be based on academic excellence and strong research potential. Apply to the OAC Awards Committee (oacaward@uoguelph.ca) by August 15 with a two-page letter outlining the significance of your research to the dairy industry; a two-page research proposal; a CV and a letter of reference from your advisor outlining your academic excellence and research potential. Please include your name, student ID and the name of the scholarship on each page of your application. Recipients of this scholarship will be required to provide a one page outline of their proposed thesis to the OAC Awards Office to be included in the College's annual report to the CDC. This award is not tenable with the Brock Doctoral Scholarship, Arrell Scholarships, Trudeau Doctoral Scholarships, Dairy Farmers of Ontario Doctoral Research Assistantship, or Tri-Council Scholarships, including the Vanier.

**Donor(s):** Canadian Dairy Commission

**Qualification(s):** Students registered in a registered in a Master's program offered by OAC who are Canadian or Permanent Residents and who are conducting research related to the Canadian Dairy Industry in any of the following areas: 1. adding value to dairy ingredients; 2. developing new applications and dairy food products based on bio-medicine; 3. understanding the dairy matrix and the functionality of dairy products; 4. understanding the microbiology of milk and dairy products; 5. enhancing sustainable development and eco-efficiency; 6. controlling water cycle and reducing water usage; 7. improving farm efficiency; 8. reducing cost of milk production; 9. improving animal health and welfare; 10. reducing risks of antimicrobial resistance

**Amount:** 2 awards of \$20,000 (payable over 3 semesters starting in the Fall with the possibility of a one-time renewal to a maximum of \$40,000 over 6 semesters)

**Canadian Dairy Commission PhD. Scholarship [I5315]**

The Canadian Dairy Commission generously supports these scholarships to encourage and support dairy related graduate studies and to increase career opportunities in the Canadian Dairy industry among aspiring students. Selection will be based on academic excellence and strong research potential. Apply to the OAC Awards Committee (oacaward@uoguelph.ca) by August 15 with a two-page letter outlining the significance of your research to the dairy industry; a two-page research proposal; a CV and a letter of reference from your advisor outlining your academic excellence and research potential. Please include your name, student ID and the name of the scholarship on each page of your application. Recipients of this scholarship will be required to provide a one page outline of their proposed thesis to the OAC Awards Office to be included in the College's annual report to the CDC. This award is not tenable with the Brock Doctoral Scholarship, Arrell Scholarships, Trudeau Doctoral Scholarships, Dairy Farmers of Ontario Doctoral Research Assistantship, or Tri-Council Scholarships, including the Vanier.

**Donor(s):** Canadian Dairy Commission

**Qualification(s):** Students registered in a registered in a doctoral program offered by OAC who are Canadian or Permanent Residents and who are conducting research related to the Canadian Dairy Industry in any of the following areas: 1. adding value to dairy ingredients; 2. developing new applications and dairy food products based on bio-medicine; 3. understanding the dairy matrix and the functionality of dairy products; 4. understanding the microbiology of milk and dairy products; 5. enhancing sustainable development and eco-efficiency; 6. controlling water cycle and reducing water usage; 7. improving farm efficiency; 8. reducing cost of milk production; 9. improving animal health and welfare; 10. reducing risks of antimicrobial resistance

**Amount:** 2 awards of \$30,000 (payable over 3 semesters starting in the Fall with the possibility of a one-time renewal to a maximum of \$90,000 over 9 semesters)

**CBS Graduate Scholarship in Plant Science [Z5718]**

Apply by letter describing research project and research interest, accompanied by a curriculum vitae and completed Financial Need Assessment Form to Student Financial Services by January 10. ACCESS AWARD.

**Donor(s):** Alumni and friends of CBS with the aid of the Ontario government's OSOTF program

**Qualification(s):** Full-time MSc students not beyond semester 5 or a full-time PhD students not beyond semester 9, pursuing graduate studies in the area of Plant Science in the College of Biological Science with demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).

**Amount:** 1 award of \$500

**CFUW Scholarship for Women in Graduate Studies in Nutritional Sciences [I5341]**

Established by the Canadian Federation of University Women – Guelph to assist women to obtain higher education. Selection will be based on academic achievement, relevant research activities, demonstrated strong leadership abilities and extra-curricular activities related to nutrition and health or women's issues. Qualifying applicants will be invited to apply and will be asked to complete the application form provided at the time of invitation.

**Donor(s):** Canadian Federation of University Women, Guelph, ON

**Qualification(s):** Female students registered in a graduate program in the Department of Human Health and Nutritional Sciences and who are working on thesis project relevant to human nutrition. Preference will be given to students who have graduated from a secondary school in Wellington County

**Amount:** 1 award of \$1,000

**Dr. Donald Robert Phillips Molecular and Cellular Biology Scholarship [I5917]**

Established in memory of Beverly Phillips' brother, Dr. Donald Robert Phillips, OAC'66, a genetics researcher. While primary consideration will be given to contributions to research as evidenced by authorship of publications and conference presentations in the area of molecular biology, genetics, and cell biology, academic achievement at the graduate level will also be taken into account. Apply by February 28 to the Molecular and Cellular Biology Chair's office with a cover letter, application form (available from the Graduate Program Assistant), and two letters of support (one of which should be written by the student's advisor).

**Donor(s):** Established by the estate of Beverly Phillips in memory of her brother Dr. Donald Robert Phillips, OAC'66, a genetics researcher.

**Qualification(s):** Students registered in the Molecular and Cellular Biology graduate program.

**Amount:** 2 awards of \$4,250



**Elgin Card Terrestrial Scholarship in Terrestrial Animal Ecology [I5023]**

The scholarship may not be held in conjunction with any external awards that provide the student with \$10,000 per year or more. Apply to the Chair of Integrative Biology by September 30.

**Donor(s):** Ontario Waterfowl Research Foundation

**Qualification(s):** Students with high academic standing and demonstrated interest in the area of terrestrial zoology.

**Amount:** 1 award of \$4,000

**GFTC Legacy Fund Graduate Scholarships [I5949]**

In recognition of the Guelph Food Technology Centre's (GFTC) long association with the University of Guelph, the GFTC Board has created these scholarships to recognize academic excellence and encourage students to study and pursue post-graduate studies relevant to the food sector. Apply to the OAC Awards Office (oacaward@uoguelph.ca) by August 15 with a one-page letter stating relevance of past work experience, proposed research objectives and career aspirations to the food production and processing sector. Selection will be based on high academic achievement and relevance of student's past work experience, research objectives and career aspirations to the food production and processing sector.

**Donor(s):** Guelph Food Technology Centre

**Qualification(s):** Students registered in a their first year of course work Master's program in Food Safety and Quality Assurance Graduate, a MSc or PhD program in Food Science, Applied Human Nutrition, Nutrition and Nutraceutical Science, Food Agriculture and Resource Economics or an MBA.

**Amount:** 9 awards of \$10,000

**Hagen Graduate Scholarship [Z5719]**

If possible, one will be awarded to an MSc student and the other to a PhD student. Preference will be given to students with an interest in tropical and/or marine fish or aquaculture, doing their research in the Hagen Aqualab. Apply by letter describing the research project and research interest, accompanied by a curriculum vitae and completed Financial Need Assessment Form to Student Financial Services by January 10. ACCESS AWARD.

**Donor(s):** Rolf Hagen, founding president of Rolf C. Hagen Inc., Canadian pet food and products supplier, with the aid of the Ontario Government OSOTF program

**Qualification(s):** Eligible full-time MSc students registered in CBS, not beyond semester 5 and full-time PhD students registered in CBS, not beyond semester 9 studying aquatic biodiversity with at least a first class (A-) average in the previous two years of study with demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).

**Amount:** a number of awards of \$1,250

**Harold H. Draper Graduate Prize [I5157]**

Created in honour of Professor Draper, Chair of the Department of Nutritional Sciences from 1975-1985. No application is required.

**Donor(s):** Friends of Harold H. Draper

**Qualification(s):** Given to the graduate student who has presented the best seminar during the Departmental yearly seminar series.

**Amount:** 1 award of \$100

**International Emergency Medical Aid Assistance [B5200]**

The University of Guelph provides support to International graduate students that are faced with unexpected, or unforeseen financial shortfalls due to a medical issue not covered by UHIP or the Student Dental/Medical insurance plans. Students should apply to the International Student Advisor, in the Centre for International Programs office, by completing an International Student Financial Need Assessment Form (N.A.F.) and submitting documentation to support the medical issue. These bursaries are awarded on an on-going basis.

**Donor(s):** University of Guelph

**Qualification(s):** International students registered in a degree program and have completed a minimum 1.50 credits who have a medical emergency expenses not covered by UHIP or the Student Dental/Medical insurance plans and demonstrated financial need.

**Amount:** Several awards of varying amounts

**John R.M. Kelso Scholarship in Environmental and Fisheries Science [I5340]**

Established to recognize the late Dr. John R.M. Kelso's personal and professional contributions to the Fisheries profession. Selection will be based on: (a) overall grade point average and academic standing in all graduate courses as well as full time equivalent undergraduate courses completed during the student's program, (b) relevance and appropriateness of the research work, and (c) demonstration of participation in extracurricular activities related to environmental protection and fisheries stewardship, including but not limited to, membership in conservation, fisheries or environmental protection societies, involvement in research, educational, communication or other programs outside of university, dedicated to these goals. Financial need may also be considered. The application, including a letter outlining research, should be sent to Student Financial Services by January 10.

**Donor(s):** Family and friends of the late Dr. John R.M. Kelso, B.Sc.(Agr.) '67, and M.Sc. '69

**Qualification(s):** Students conducting research that examines the effects of anthropogenic stressors on fish community ecology (including but not limited to toxic chemicals, habitat degradation, or hydro power).

**Amount:** 1 award of \$2,000

**Middleton Graduate Teaching Assistant Prize [I5218]**

The Middleton Graduate Teaching Assistant Prize was established to honour Dr. A.L.A. Middleton, professor in the Department of Zoology from 1966 - 2001, for his contribution to undergraduate education at the University of Guelph. Recipients must demonstrate a commitment to and effectiveness in undergraduate teaching as evidenced by letters of support from course supervisors. Students may be nominated by faculty, departmental technicians, or undergraduate students. The nomination forms are available from the Chair's office and must be completed and returned by April 30th. The recipient's name will be engraved on a plaque which will be displayed in the Department of Integrative Biology.

**Donor(s):** Department of Integrative Biology

**Qualification(s):** Graduate Teaching Assistant in a Zoology or Biology course co-ordinated through the Department of Integrative Biology

**Amount:** 1 award of a plaque

**Morwick Scholarships in Aquatic Biology [E8023]**

Established by Ted Morwick, honorary Alumnus, in support of the conservation and protection of water resources. Apply by May 1 to the CBS Awards Committee with a research proposal no longer than two pages outlining your research, a copy of your relevant transcript. Include the name of the award and the award ID number in the subject line of your email. Selection will be based on the strongest research potential and the highest academic standing. Students can only win this award once. In order to receive the award payment in year 2, the student must be in good standing and continuing research in water. Transfers to a PhD program are not eligible to receive this award. Three Aquatic Biology scholarships shall be awarded on even calendar years starting in Fall 2018.

**Donor(s):** Mr. Edward Morwick

**Qualification(s):** Students entering a full-time MSc. or PhD within the College of Biological Science with a focus on water research in one of the three themed areas: Physiology, Ecology and Evolutionary Biology and with a minimum 80% admission average.

**Amount:** 3 awards of \$20,000 (\$10,000 paid in each of the fall of year 1 and fall of year 2)

**Norman James Scholarship in Aquatic Animal Ecology [I5064]**

The applicant must have high academic standing and demonstrate an interest in the area of aquatic animal ecology. The award may not be held in conjunction with any external awards that provide the student with more than \$10,000 per year. Apply by September 30th to the Department of Integrative Biology and include a transcript, a brief description of the research proposal and a supporting letter from the principal advisor.

**Donor(s):** Ontario Waterfowl Research Foundation

**Qualification(s):** Registered or incoming graduate students in the Department of Zoology with high academic standing and demonstrated interest in the area of aquatic animal ecology.

**Amount:** 1 award of \$4,000

**Peggy A. Pritchard and Dr. Andrew M. Kropinski Graduate Bursary [B5967]**

Established by Peggy A. Pritchard and her husband, Dr. Andrew M. Kropinski, upon Ms. Pritchard's retirement from the University of Guelph in 2016. Apply to the International Student Advisor with a completed International Graduate Student Financial Need Assessment Form (NAF).

**Donor(s):** Peggy Pritchard and Andrew Kropinski

**Qualification(s):** International graduate students from a developing country (as defined by CIDA Canadian International Development Agency) who demonstrate financial need with a preference given to female students.

**Amount:** 1 award of \$2,000

<b>Pharmacia Molecular and Cellular Biology Graduate Prize [I5170]</b>	
Awarded to the student who has presented the best poster at a scientific meeting during the current academic year. Posters must be exhibited by the student or designate during the last week of August. The best poster will be selected on the basis of academic merit. No application is required.	
<b>Donor(s):</b>	<b>Pharmacia Enzyme Freezer Program, Department of Molecular and Cellular Biology</b>
<b>Qualification(s):</b>	Students registered in the Molecular and Cellular Biology graduate program who have presented a poster at a scientific meeting during the current academic year.
<b>Amount:</b>	1 award of \$500

<b>Prof. A.W. Baker Memorial Bursaries [Z5717]</b>	
Apply by letter describing research project and research interests accompanied by a curriculum vitae and completed Financial Need Assessment Form to Student Financial Services by January 10. ACCESS AWARD.	
<b>Donor(s):</b>	<b>The estate of Margaret A. MacLean, through a bequest in honour and memory of her father the late Prof. A.W. Baker, Chair of the Department of Entomology, with the aid of the Ontario government's OSOTF program</b>
<b>Qualification(s):</b>	Graduate students with demonstrated financial need who are registered in the Faculty of Graduate Studies and enrolled in a department in the College of Biological Sciences or the Ontario Agricultural College. Full-time continuing or in-coming MSc students not beyond semester 5 or PhD students not beyond semester 9, studying or conducting research in entomology are eligible. Additionally, students must meet the government-mandated terms for receipt of an <u>OSOTF</u> award (see General Statements on Awards).
<b>Amount:</b>	various awards totalling \$3,000

<b>Roche Molecular Biochemical Award of Excellence [I5166]</b>	
No application is required.	
<b>Donor(s):</b>	<b>Roche Molecular Biochemicals</b>
<b>Qualification(s):</b>	Graduate student registered in the Department of Molecular and Cellular Biology who has presented the best graduate seminar during the academic year.
<b>Amount:</b>	1 award of \$500

## College of Business and Economics

The University reserves the right to amend awards subject to the availability of funds.

<b>Alastair J. Durie Research Travel Grant [T5975]</b>	
Established by Dr. Kevin James in honour of Alastair J. Durie, pre-eminent scholar of Scottish tourism history and valued advisor to Guelph MA students. Selection will be based on academic standing, a research statement indicating the relation of the trip to the project and feasibility of proposed budget relating to travel costs. Apply by February 1, to the graduate office in the Department of History and include a budget, description of the travel and a research statement indicating the relation of the trip to the project.	
<b>Donor(s):</b>	<b>Kevin James</b>
<b>Qualification(s):</b>	Students registered in any Master's or Doctoral programs who are required to travel for research to access historical texts. Preference for students specializing in tourism history.
<b>Amount:</b>	1 award of \$1,000

<b>Brenda York Memorial Scholarship [I5345]</b>	
Established in memory of Brenda York, MBA '00. Apply to the HFTM Awards Committee by January 31 using the standard HFTM Awards Application Form and include a list of activities and involvement within the broader community, particularly relating to the School of Hospitality, Food and Tourism Management.	
<b>Donor(s):</b>	<b>HAFA-HTM Alumni Association and Friends</b>
<b>Qualification(s):</b>	Students registered in the Hospitality, Food and Tourism Management specialization Master of Business Administration program. With a minimum average of 75%, demonstrated leadership, extracurricular activities and community involvement.
<b>Amount:</b>	1 award of \$1,000

<b>CBE Distinguished Scholar Medal - Graduate (Governor General's Gold Medal Nominee) [C5352]</b>	
To honour the outstanding achievements of a graduate student in the College of Business and Economics, a medal is presented to the College nominee for the Governor General's Gold Medal. No application required.	
<b>Donor(s):</b>	<b>Faculty, Staff, Alumni and Students, College of Business and Economics</b>
<b>Qualification(s):</b>	College of Business and Economics Governor General Gold Medal nominee
<b>Amount:</b>	1 medal

<b>CBE Distinguished Scholar Medal –Graduate (Forster Medal Nominee) [C5357]</b>	
To honour the outstanding achievements of a graduate student in the College of Business and Economics, a medal is presented to the College nominee for the Forster Medal. No application required.	
<b>Donor(s):</b>	<b>Faculty, Staff, Alumni and Students, College of Business and Economics</b>
<b>Qualification(s):</b>	College of Business and Economics Forster Medal nominee
<b>Amount:</b>	1 medal

<b>CBE Executive Graduate Scholarships [E5247]</b>	
The recipients must have demonstrated involvement in management, administration or leadership through submission of their professional portfolio to the MBA or MA (Leadership) admissions committees. No application required.	
<b>Donor(s):</b>	<b>University of Guelph</b>
<b>Qualification(s):</b>	Graduate students entering the MBA or MA (Leadership) programs.
<b>Amount:</b>	various awards ranging in values of \$500-\$10,000

<b>CBE Graduate Scholarship [I5986]</b>	
Selection is based on excellent academic performance in the last year of full-time, or equivalent, study. Departments will nominate student to the College Awards Committee on the basis of research performance/potential, including progress in the program of study. No application is required.	
<b>Donor(s):</b>	<b>The University of Guelph</b>
<b>Qualification(s):</b>	CBE masters students up to semester six with a minimum of 70% in the previous year of full time study AND/OR Doctoral students up to semester twelve with a minimum of 70% in the previous year of full time study.
<b>Amount:</b>	Several awards ranging in values from \$100 - \$10,000

<b>CBE Leadership Scholarship [Z5953]</b>	
Established by the Class of MA (Leadership) 2012, and supported by fellow Leadership alumni. Apply by January 10 to Student Financial Services with a completed Financial Need Assessment Form. Selection will be based on highest average. ACCESS AWARD.	
<b>Donor(s):</b>	<b>Class of MA (Leadership) 2012</b>
<b>Qualification(s):</b>	Students registered in any graduate program in the College of Business and Economics with demonstrated financial need. Preference will be given to students registered in the MA (Leadership) program. Additionally, students must meet the government-mandated terms for receipt of an <u>OSOTF/OTSS</u>
<b>Amount:</b>	1 award of \$1,000

<b>Connor, Clark and Lunn Financial Group MA (Leadership) Scholarship [E5759]</b>	
The recipient is selected on the basis of demonstrated exemplary community contributions and volunteerism that is beyond the requirements of their role, which may include, but are not limited to: extra-curricular activities, participating on a Board of Directors, committees, sports teams etc. Apply to the Executive Programs Awards Committee by November 24 with a 500 word statement outlining community and volunteer experience, a resume and a letter of reference from a community member attesting to your involvement in volunteer activities. In the event that there are no eligible applicants for the Winter entry point this scholarship may be awarded to an eligible applicant entering the MA (Leadership) program in the Summer or Fall semester.	
<b>Donor(s):</b>	<b>Connor Clark and Lunn Financial Group</b>
<b>Qualification(s):</b>	Students entering the MA (Leadership) program who have demonstrated leadership growth in extra-curricular activities.
<b>Amount:</b>	1 award of \$5,000

<b>Connor, Clark and Lunn Financial Group MBA Scholarship [E5758]</b>	
The recipient is selected on the basis of demonstrated exemplary community contributions and volunteerism that is beyond the requirements of their role, which may include, but are not limited to: extra-curricular activities, participating on a Board of Directors, committees, sports teams etc. Apply to the Executive Programs Awards Committee by March 31 with a 500 word statement outlining community and volunteer experience, a resume and a letter of reference from a community member attesting to your involvement in volunteer activities.	
<b>Donor(s):</b>	<b>Connor Clark and Lunn Financial Group</b>
<b>Qualification(s):</b>	Students entering the MBA (Sustainability, Hospitality and Tourism Management or Agribusiness) program who have demonstrated leadership growth in extra-curricular activities.
<b>Amount:</b>	1 award of \$5,000

<b>Department of Economics Graduate Scholarships [Z5689]</b>	
Apply by submitting a completed Financial Need Assessment Form to Student Financial Services by January 10. Selection will be made based on academic achievement. ACCESS AWARD.	
<i>Donor(s):</i>	<b>Friends of the Department of Economics , with the aid of the Ontario government's OSOTF program</b>
<i>Qualification(s):</i>	Entering or in-course graduate students with a demonstrated financial need who have a minimum application or cumulative in-course average of 75%. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).
<i>Amount:</i>	7 awards of \$500
<b>Dorothy Britton Memorial Master's Scholarships [E5169]</b>	
The recipients will be selected on the basis of high academic achievement. Preference will be given to entering students. No application is required.	
<i>Donor(s):</i>	<b>The estate Dorothy Britton, a graduate of the Macdonald Institute (1939)</b>
<i>Qualification(s):</i>	Several scholarships are available annually to students registered in an MSc program in the Department of Marketing and Consumer Studies with a minimum 80% average during the last two years of undergraduate study.
<i>Amount:</i>	several awards of awards of \$2,000
<b>Economics Alumni Masters Scholarship [E5862]</b>	
Students Entering a graduate program in the Department of Economics. No application is necessary.	
<i>Donor(s):</i>	<b>Department of Economics</b>
<i>Qualification(s):</i>	Full-time graduate student registered in the MA program in Economics. This award will be granted to the student with the highest admission average.
<i>Amount:</i>	1 award of \$1,000
<b>Economics Faculty and Alumni Scholarship [E8015]</b>	
Selection will be based on the with the highest admission average. No application is required.	
<i>Donor(s):</i>	<b>Faculty, friends and alumni of the Department of Economics with the assistance of the University of Guelph Graduate Scholarship Matching Program.</b>
<i>Qualification(s):</i>	Students with a minimum 80% admission average entering into the M.A. program or PhD program in the Department of Economics and Finance.
<i>Amount:</i>	1 award of \$4,500
<b>Elizabeth M. (Betty) Upton Memorial Research Travel Grant [T5637]</b>	
Established in memory of Elizabeth M. (Betty) Upton, a faculty member in the School of Hospitality, Food and Tourism Management , who played a key role in the development of the School and was instrumental in the development of the Institutional Foodservice Management major. Selection will be equally based on academic achievement, demonstrated relevance of the travel to the student's academic studies and cost of travel. Apply by May 15th to the HFTM Awards Committee including: a description of the travel, a description of the relevance of the travel to your program of study, and a budget including other expected sources of funding.	
<i>Donor(s):</i>	<b>Faculty and Alumni of HAFA and Family and Friends</b>
<i>Qualification(s):</i>	Students who have completed a minimum of two semesters in a graduate program offered by the School of Hospitality, Food and Tourism Management who will be participating in travel related opportunity through a University of Guelph recognized study abroad, exchange or letter of permission activity outside Canada, or to collect research data for their thesis or major paper; or to attend a relevant professional conference.
<i>Amount:</i>	1 award of up to \$1000

<b>GFTC Legacy Fund Graduate Scholarships [I5949]</b>	
In recognition of the Guelph Food Technology Centre's (GFTC) long association with the University of Guelph, the GFTC Board has created these scholarships to recognize academic excellence and encourage students to study and pursue post-graduate studies relevant to the food sector. Apply to the OAC Awards Office (oacaward@uoguelph.ca) by August 15 with a one-page letter stating relevance of past work experience, proposed research objectives and career aspirations to the food production and processing sector. Selection will be based on high academic achievement and relevance of student's past work experience, research objectives and career aspirations to the food production and processing sector.	
<i>Donor(s):</i>	<b>Guelph Food Technology Centre</b>
<i>Qualification(s):</i>	Students registered in a their first year of course work Master's program in Food Safety and Quality Assurance Graduate, a MSc or PhD program in Food Science, Applied Human Nutrition, Nutrition and Nutraceutical Science, Food Agriculture and Resource Economics or an MBA.
<i>Amount:</i>	9 awards of \$10,000
<b>Graduate Scholarships in Economics [I5936]</b>	
Selection is based on excellent academic performance as evidenced in research performance/potential and may include progress in the program of study. The Department of Economics will nominate candidates once a semester to the CBE Awards Committee for approval. No application is required.	
<i>Donor(s):</i>	<b>The University of Guelph</b>
<i>Qualification(s):</i>	Students registered in a masters program offered by the Department of Economics, up to semester six or doctoral program up to semester twelve, with a minimum of 70% average over the last year of full-time or equivalent study.
<i>Amount:</i>	several awards ranging in values of \$100-\$10,000
<b>Joan Doherty Memorial Graduate Scholarship [E5124]</b>	
Established by the family of Joan Doherty. The scholarship recipient will be selected based on highest admission average. No application required.	
<i>Donor(s):</i>	<b>Dr. William L. Doherty</b>
<i>Qualification(s):</i>	Students entering the Master of Science in Marketing and Consumer Studies program with a minimum 80% admission average.
<i>Amount:</i>	1 award of \$2,000
<b>John Black Graduate Travel Grant [T5649]</b>	
Established by friends and colleagues of John Black, Chief Librarian at Guelph (1984-95) and a founding faculty member (1966-95) in the Department of Political Studies. Selection will be based on academic standing, research potential and feasibility of proposed travel. Apply to the Office of Graduate and Postdoctoral Studies by October 17 using the John Black Graduate Travel Grant application. Applications may be submitted for future travel only and applications for previous travel will not be considered.	
<i>Donor(s):</i>	<b>Friends and Colleagues of John Black</b>
<i>Qualification(s):</i>	Master's students with at least an "A--" average in the last 2 years, registered in a Political Science program (POLS/CCJP), the Capacity Development and Extension program, or the collaborative International Development Studies program (any department) in class level 1 to 3 at the time of application and who plan to travel to conduct thesis research, attend a conference, or take a course.
<i>Amount:</i>	1 award of \$1,500
<b>Karen Finlay Gough Graduate Travel Grant [T5960]</b>	
Established by staff, faculty and friends in the department of Marketing and Consumer Studies in memory of Karen Finlay Gough to honour her passion for working with graduate students. She valued teaching and mentoring these students as an advisor as they completed their research for their thesis. This travel grant will support graduate students as they travel to collect data for their thesis or to present their research at a conference. Apply by January 31st to the Department of Marketing and Consumer Studies by email to mcsaward@uoguelph.ca including a budget and description of the travel and the benefit to be gained.	
<i>Donor(s):</i>	<b>Staff, faculty and friends in the Department of Marketing and Consumer Studies</b>
<i>Qualification(s):</i>	Students registered in the a master's degree with an emphasis in marketing and consumer studies who will be traveling to collect data for their thesis or traveling to present their research at a conference.
<i>Amount:</i>	1 award of \$1,000

<b>Louise McConkey Research Travel Grant [T5730]</b>	
One or more travel grants will be provided annually to undergraduate or graduate students in the Department of Marketing & Consumer Studies to defray travel costs related to the student's course of study. The recipients will be selected on the basis of the value of the travel to their studies. Apply to the Chair, Marketing and Consumer Studies including a budget and a description of the travel and the benefit to be gained. Please submit your application by email to mcsaward@uoguelph.ca.	
<i>Donor(s):</i>	<b>Estate of Louise McConkey, Mac '27 c/o Alumni House</b>
<i>Qualification(s):</i>	Students must have maintained a minimum 70% cumulative average in the last two full time equivalent semesters.
<i>Amount:</i>	one or more totalling approximately \$1,400 annually

<b>Mac-FACS-FRAN Alumni Association Graduate Scholarship [E5051]</b>	
Established in 1982. Preference will be given to students who have completed an undergraduate degree at the University of Guelph. No application is necessary.	
<i>Donor(s):</i>	<b>Mac-FACS-FRAN Alumni Association</b>
<i>Qualification(s):</i>	Full-time graduate student entering a program offered in the Department of Marketing & Consumer Studies or the residential MBA program in the School of Hospitality, Food and Tourism Management, with a minimum of 80% in the last two years of study.
<i>Amount:</i>	1 award of \$1,000

<b>Mac-FACS-FRAN Alumni Association Graduate Scholarship - Marketing &amp; Consumer Studies [E5050]</b>	
No application is necessary.	
<i>Donor(s):</i>	<b>Mac-FACS-FRAN Alumni Association</b>
<i>Qualification(s):</i>	Full-time student entering a graduate program in the Department of Marketing & Consumer Studies who has a minimum of 80% in the last two years of study.
<i>Amount:</i>	1 award of \$1,000

<b>MCS Outstanding M.Sc. Graduate Scholarship [I5631]</b>	
The recipient will be selected based on academic achievement, demonstrated leadership and extensive involvement in extracurricular activities. Applicants must submit a resume detailing all extra curricular activities and leadership roles to the Department of Marketing and Consumer Studies by April 1.	
<i>Donor(s):</i>	<b>The Department of Marketing and Consumer Studies</b>
<i>Qualification(s):</i>	Students registered in the M.Sc. program offered by Marketing and Consumer Studies Department who have completed their coursework with a minimum 80% cumulative average and participation in extracurricular activity.
<i>Amount:</i>	1 award of \$2,000

<b>Michael Nightingale Graduate Scholarship [Z5926]</b>	
Established to honour Professor Nightingale's many years of enlightened leadership as Director of the School of Hotel and Food Administration, Dean of the College of Family and Consumer Studies, and Founding Dean of the College of Social and Applied Human Sciences. Apply by submitting a completed Financial Need Assessment Form to Student Financial Services by January 10. ACCESS AWARDS	
<i>Donor(s):</i>	<b>Mac-FACS-FRAN Alumni Association, with the assistance of the Ontario government's OSOTF program</b>
<i>Qualification(s):</i>	Graduate students entering their second or subsequent semester of graduate study in a department within the College of Business and Economics with a minimum 80% average in the last two semesters completed and demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an <u>OSOTF</u> award (see General Statements on Awards).
<i>Amount:</i>	1 award of \$1,000

<b>Murray Selves Memorial Scholarship [I5857]</b>	
Established by the family and friends of the late Murray Selves, a graduate of OAC in 1957 and a recognized leader and creative entrepreneur in pork production in Ontario. Applicants must be involved in primary food production as their career employment activity. Preference may be given to Ontario residents. Academic standing and evidence of entrepreneurial and creative approaches in business management will be used to determine the recipient during phase I. Apply by letter to the Director of the EMBA Program by February 1.	
<i>Donor(s):</i>	<b>The family and friends of the late Murray Selves</b>
<i>Qualification(s):</i>	Awarded to a student completing phase I of the Executive MBA Program.
<i>Amount:</i>	1 award of \$1,500

<b>peopleCare Graduate Scholarship in Retirement and Senior Living [E5957]</b>	
Established to support students seeking further education in the senior/retirement living industry. Apply to CBE Awards Committee with a one page statement of interest explaining their contributions as either a volunteer or an employee within the senior/retirement living industry or within the healthcare industry with a focus on service provided to the elderly. Include a letter of reference from someone with knowledge of your work or volunteer experience. Selection will be made by the CBE Awards Committee based on the applicant's contributions as either a volunteer or an employee within the senior/retirement living industry or within the healthcare industry with a focus on service provided to the elderly as highlighted in the application letter and letter of reference.	
<i>Donor(s):</i>	<b>peopleCare Inc.</b>
<i>Qualification(s):</i>	Students entering either the MA Leadership Program or the MBA program in the College of Business and Economics Executive Programs whodemonstrate a significant contribution to the lives of the elderly either as a volunteer or employees working with seniors.
<i>Amount:</i>	1 award of \$5,000

<b>Scotiabank MA (Leadership) Scholarship [E5942]</b>	
Selection will be based on academic achievement and leadership as demonstrated by employment. Apply by March 31 with a CV; a 500 word statement describing leadership practice to date and the importance of leadership training in the not-for-profit sector; and a letter from the employer indicating that educational funding will not be provided by the company and the number of people employed by the NGO. An interview may be requested. In the event that there are no eligible applicants for the Summer entry point this scholarship may be awarded to an eligible applicant entering the MA (Leadership) program in the Fall semester.	
<i>Donor(s):</i>	<b>Scotiabank</b>
<i>Qualification(s):</i>	Students entering the MA (Leadership) program who are currently employed in a leadership role in the not-for-profit sector by a non-governmental organization (NGO) that employs fewer than 250 people and does not provide educational funding for their employees.
<i>Amount:</i>	1 award of \$15,000 (payable over 3 semesters)

<b>Sheraton Centre Toronto Hotel Graduate Scholarship [Z5679]</b>	
Apply by January 10 with a Financial Need Assessment Form. ACCESS AWARD.	
<i>Donor(s):</i>	<b>Sheraton Centre Toronto Hotel with the aid of the Ontario government's OSOTF program</b>
<i>Qualification(s):</i>	Graduate students registered in a program offered by the School of Hospitality, Food and Tourism Management who have completed their first semester with a minimum 70% average and demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an <u>OSOTF</u> award (see General Statements on Awards).
<i>Amount:</i>	1 award of \$1,500

## College of Engineering and Physical Sciences Internal Awards

The University reserves the right to amend awards subject to the availability of funds.

<b>(GWC)2 Seminar Prize [I5290]</b>	
This prize is administered by (GWC)2. The nomination by the supervisory committee at the time of the seminar presentation is to be based on the assessment of the supervisory committee and the member of the MSc/PhD class attending that seminar. No application is required.	
<i>Donor(s):</i>	<b>The Guelph-Waterloo Centre for Graduate Work in Chemistry and Biochemistry (GWC)2</b>
<i>Qualification(s):</i>	Any graduate (GWC)2 student who presents his/her MSc or PhD Seminar in the previous academic year.
<i>Amount:</i>	2 awards of \$200

<b>AdeptMind Inc. Scholarship [E5808]</b>	
The School of Engineering will nominate students based on high academic achievement and exceptional research. Application is not required. The recipient is eligible for all subsequent years of study, contingent on continued successful progress. The award will be given out once every 6 years.	
<i>Donor(s):</i>	<b>AdeptMind Inc.</b>
<i>Qualification(s):</i>	Students entering their first year of a PhD with research interests in artificial intelligence and/or machine learning are eligible.
<i>Amount:</i>	1 award of \$85,000 (\$25,000 in the first three years (2018, 2019 and 2020) and \$5,000 in the final two years (2021 and 2022)

<b>Alastair J. Durie Research Travel Grant [T5975]</b>	
Established by Dr. Kevin James in honour of Alastair J. Durie, pre-eminent scholar of Scottish tourism history and valued advisor to Guelph MA students. Selection will be based on academic standing, a research statement indicating the relation of the trip to the project and feasibility of proposed budget relating to travel costs. Apply by February 1, to the graduate office in the Department of History and include a budget, description of the travel and a research statement indicating the relation of the trip to the project.	
<i>Donor(s):</i>	<b>Kevin James</b>
<i>Qualification(s):</i>	Students registered in any Master's or Doctoral programs who are required to travel for research to access historical texts. Preference for students specializing in tourism history.
<i>Amount:</i>	1 award of \$1,000
<b>Barrett Family Graduate Scholarship [E5983]</b>	
The Barrett Family Foundation provides five scholarships of \$20,000 each to outstanding students entering a doctoral program at the School of Engineering in the College of Engineering and Physical Sciences. The area of applicant's proposed research will be in the area of sustainable food engineering as it relates to post-harvest food processing and manufacturing. Research areas could include, but are not limited to, improving packaging, increasing processing efficiencies, prolonging shelf life, improving quality and productivity, reducing waste and developing greener technologies. Complete and submit a covering letter outlining scholarship qualifications, 2 letters of reference and a research proposal outline.	
<i>Donor(s):</i>	<b>The Barrett Family Foundation</b>
<i>Qualification(s):</i>	Students entering a doctoral program in the School of Engineering in the College of Engineering and Physical Sciences, with at least a first class (A') average in the most recently completed two years of academic study and have research interests in the of Sustainable Food Engineering as it relates to post-harvest food processing and manufacturing are eligible to apply. Students must have applied for admission to a doctoral program in the School of Engineering in the upcoming Summer, Fall or Winter semesters.
<i>Amount:</i>	5 award of 20,000 (payable over the first 3 semesters)
<b>Brian and Diana Doody Graduate Scholarship in Engineering [E5971]</b>	
Selection will be based on academic excellence as demonstrated information from the admission application and with consideration given to students who demonstrate promising research. This award will not be available to students who have received \$10,000 or greater in funding from sources including University of Guelph awards, externally funded grants or graduate advisor funding.	
<i>Donor(s):</i>	<b>Brian and Diana Doody</b>
<i>Qualification(s):</i>	Students entering a Master of Applied Science Engineering (MASC) program with a minimum 80% cumulative undergraduate.
<i>Amount:</i>	1 10000 (payable over 6 semesters)
<b>Braker Canada Limited Graduate Scholarship (GWC)2 [I5009]</b>	
This scholarship became available in 1984 and is administered by (GWC)2. It is awarded annually on a competitive basis. Candidates will be considered on the basis of the quality of a research paper in the field of chemical instrumentation, published or in press, authored or co-authored by the student while registered in (GWC)2. Application or nomination is to the selecting committee by the deadline date each year. The application materials will include a copy of the paper in question and a letter from the student's supervisor documenting the degree of his/her contribution to this work.	
<i>Donor(s):</i>	
<i>Qualification(s):</i>	This competition is open to all graduate students registered in the Guelph-Waterloo Centre, provided that their research is in the field of chemical instrumentation.
<i>Amount:</i>	1 award of \$1,000
<b>Charles S. Humphrey Scholarship (GWC)2 [I5038]</b>	
The scholarship is administered by (GWC)2 and is awarded annually to a University of Guelph or University of Waterloo student who is a Canadian citizen and registered at the Guelph-Waterloo Centre for Graduate Work in Chemistry and Biochemistry (GWC)2. Selection will be based on ability and promise in research and academic achievement in at least two completed graduate courses. Students may hold the award, more than once. Nominations will be solicited from (GWC)2 faculty and the Graduate Officers, by January 31 each year. Nominated students must provide a curriculum vitae, a list of publications and a letter of support from the advisor and, where possible, one other faculty member to the Director of (GWC)2. Preference will be given to (i) PhD in Organic Chemistry; (ii) PhD in Inorganic Chemistry; (iii) MSc students registered in (GWC)2 in Organic Chemistry or Inorganic Chemistry who meet the selection criteria. No application is required.	
<i>Donor(s):</i>	<b>Charles S. Humphrey</b>
<i>Qualification(s):</i>	This competition is open to Canadian citizens who are registered in a full-time PhD program in the centre, preferably in organic chemistry.
<i>Amount:</i>	1 award of \$2,500

<b>College of Engineering &amp; Physical Sciences Graduate Dean's Scholarship [A5747]</b>	
The Deans' Scholarships are awarded to students showing outstanding academic and research performance. Departments will nominate students to the College Awards Committee on the basis of academic and research performance/potential, including progress in the program of study. Students can receive this award a maximum 2 times for Master's student and a maximum 3 times for doctoral students. Application is not required.	
<i>Donor(s):</i>	<b>College Engineering &amp; Physical Sciences</b>
<i>Qualification(s):</i>	Students in a master's program (maximum 4 semesters) or doctoral program (maximum 7 semesters) registered in the Fall semester, with a minimum of 80% average over the last year of full-time, or equivalent study.
<i>Amount:</i>	A minimum of 10 Master's awards of \$1,500 each, A minimum of 10 Doctoral awards of \$3,500 each
<b>David Holden Memorial Scholarship (GWC)2 [I5154]</b>	
Awarded annually to an outstanding graduate student currently enrolled in the Guelph-Waterloo centre. Nominations will be solicited from Centre faculty and the Graduate Officers by the deadline date each year.	
<i>Donor(s):</i>	<b>Friends, family and colleagues in honour of the late Prof. D.A. Holden</b>
<i>Qualification(s):</i>	Candidates must demonstrate strong overall abilities in both teaching and research, outstanding performance in MSc Seminar, CHEM 7940 or PhD Seminar, CHEM 7950, and breadth of interest in areas outside chemistry, such as art and music.
<i>Amount:</i>	1 award of \$750
<b>December 6th Memorial Graduate Scholarship [E5610]</b>	
This scholarship was established to foster women's participation in a profession which is largely comprised of men. Demonstrated financial need may also be considered. Apply to the director, School of Engineering, by November 1. Selection will be based on academic performance. Preference will be given to a student entering the graduate program.	
<i>Donor(s):</i>	<b>University of Guelph Faculty Association, in memory of the fourteen women murdered in December 1989 at Ecole Polytechnique</b>
<i>Qualification(s):</i>	Female students who are registered in the Faculty of Graduate Studies, enrolled in the School of Engineering who are a Canadian citizens or a permanent residents of Canada.
<i>Amount:</i>	1 award of \$2,250
<b>Dr. William Cairns Scholarship in Water Resource Engineering [E5944]</b>	
Established to honour alumnus Dr. Cairn's (BSc (Agr) '65) commitment to safe water. The scholarship is presented in odd numbered fiscal years (May to April) to a student entering a graduate program in water resource engineering who is judged to be the most innovative in area of research focus, according to the School of Engineering Graduate Committee. No application required.	
<i>Donor(s):</i>	<b>Trojan Technologies</b>
<i>Qualification(s):</i>	Students entering a Master's or Doctoral program in water resource engineering.
<i>Amount:</i>	1 award of \$5,000
<b>Dr. William Cairns Scholarship in Water-Related Chemistry [E5943]</b>	
Established to honour alumnus Dr. Cairn's (BSc (Agr) '65) commitment to safe water. The award is presented in even numbered fiscal years (May to April) to a student entering a graduate program in water-related chemistry who is judged by the Department of Chemistry to be the most innovative in area of research focus. No application required.	
<i>Donor(s):</i>	<b>Trojan Technologies</b>
<i>Qualification(s):</i>	Students entering a Master's or Doctoral program in water-related chemistry.
<i>Amount:</i>	1 award of \$5,000
<b>Engineering Alumni Scholarship [E5611]</b>	
Preference will be given to a student entering a PhD program as a new student to the University of Guelph. The recipient will be selected on the basis of previous academic performance, curriculum vitae, and letters of reference. Apply by June 1st to the Director, School of Engineering.	
<i>Donor(s):</i>	<b>The School of Engineering Alumni Fund</b>
<i>Qualification(s):</i>	Student registered in the Faculty of Graduate Studies and enrolled in the School of Engineering.
<i>Amount:</i>	1 award of \$2,500

**Good Samaritan Graduate Scholarship in Chemistry [I5616]**

One award is provided each fall semester. The award is limited to the first six semesters for a MSc candidate and the first nine semesters for a PhD candidate. The selection will be based on the candidate having at least an 'A-' average in the previous two years of study and on the research performance to date. The award may be held more than once but not with any other scholarship in the same semester. No application is required.

*Donor(s):* **Anonymous Donor**

*Qualification(s):* Awarded to an MSc or PhD student registered in a program at Guelph in the Department of Chemistry and Biochemistry.

*Amount:* 1 award of \$1,000

**Harry Zimmerman Memorial ACCESS Scholarship in GWC2 [Z5694]**

This award was established by the estate of Harry Zimmerman and the Ontario government's OSOTF program. Students registered in a graduate program offered by the College of Engineering & Physical Sciences. Preference is given to students in GWC2 and one award to a Guelph student and one to a Waterloo student. Waterloo students must attach proof of enrolment in the GWC2 program with their Need Assessment Form. Apply by January 10th to Student Financial Services, University of Guelph, with a completed Financial Need Assessment Form. If there are no applications from students in the GWC2 program at Guelph or Waterloo, this award can be offered to other students registered in a graduate program offered by CEPS.

*Donor(s):* **The estate of Harry Zimmerman, with the aid of the Ontario government's OSOTF program**

*Qualification(s):* Students registered in a graduate program offered by the College of Engineering & Physical Sciences. Students registered in GWC2 with demonstrated financial need with the highest cumulative average. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).  
**OSOTF**

*Amount:* 2 awards of \$5,000

**International Emergency Medical Aid Assistance [B5200]**

The University of Guelph provides support to International graduate students that are faced with unexpected, or unforeseen financial shortfalls due to a medical issue not covered by UHIP or the Student Dental/Medical insurance plans. Students should apply to the International Student Advisor, in the Centre for International Programs office, by completing an International Student Financial Need Assessment Form (N.A.F.) and submitting documentation to support the medical issue. These bursaries are awarded on an on-going basis.

*Donor(s):* **University of Guelph**

*Qualification(s):* International students registered in a degree program and have completed a minimum 1.50 credits who have a medical emergency expenses not covered by UHIP or the Student Dental/Medical insurance plans and demonstrated financial need.

*Amount:* Several awards of varying amounts

**John Black Graduate Travel Grant [T5649]**

Established by friends and colleagues of John Black, Chief Librarian at Guelph (1984-95) and a founding faculty member (1966-95) in the Department of Political Studies. Selection will be based on academic standing, research potential and feasibility of proposed travel. Apply to the Office of Graduate and Postdoctoral Studies by October 17 using the John Black Graduate Travel Grant application. Applications may be submitted for future travel only and applications for previous travel will not be considered.

*Donor(s):* **Friends and Colleagues of John Black**

*Qualification(s):* Master's students with at least an "A-" average in the last 2 years, registered in a Political Science program (POLS/CCJP), the Capacity Development and Extension program, or the collaborative International Development Studies program (any department) in class level 1 to 3 at the time of application and who plan to travel to conduct thesis research, attend a conference, or take a course.

*Amount:* 1 award of \$1,500

**John R.M. Kelso Scholarship in Environmental and Fisheries Science [I5340]**

Established to recognize the late Dr. John R.M. Kelso's personal and professional contributions to the Fisheries profession. Selection will be based on: (a) overall grade point average and academic standing in all graduate courses as well as full time equivalent undergraduate courses completed during the student's program, (b) relevance and appropriateness of the research work, and (c) demonstration of participation in extracurricular activities related to environmental protection and fisheries stewardship, including but not limited to, membership in conservation, fisheries or environmental protection societies, involvement in research, educational, communication or other programs outside of university, dedicated to these goals. Financial need may also be considered. The application, including a letter outlining research, should be sent to Student Financial Services by January 10.

*Donor(s):* **Family and friends of the late Dr. John R.M. Kelso, B.Sc.(Agr.) '67, and M.Sc. '69**

*Qualification(s):* Students conducting research that examines the effects of anthropogenic stressors on fish community ecology (including but not limited to toxic chemicals, habitat degradation, or hydro power).

*Amount:* 1 award of \$2,000

**Lana McLaren/Richard Reynolds Memorial Scholarship [E5603]**

The recipient will have maintained a well-rounded academic career and demonstrated added value to the profession of engineering. Preference will be given to Canadian citizens and permanent residents of Canada. Apply by June 1 to the Director, School of Engineering including curriculum vitae, statement of professional activities, University transcripts, and 2 letters of references.

*Donor(s):* **Family, friends and colleagues of Lana McLaren and Richard Reynolds**

*Qualification(s):* Students entering any graduate program in the School of Engineering or completing the final degree requirements for their BSc(Eng).

*Amount:* 1 award of \$1,000

**Mathematics Graduate Scholarship [I5188]**

The recipient will have an overall first-class ('A') average in graduate courses and have the highest average across any three departmental core graduate courses. A student will be considered for the award once only. No application is required.

*Donor(s):* **Department of Mathematics and Statistics**

*Qualification(s):* Student who are registered in the Faculty of Graduate Studies and enrolled in a mathematics graduate program.

*Amount:* 1 award of \$500

**Morwick Scholarships in Water Resources Engineering [E8024]**

Established by Ted Morwick, honorary Alumnus, in support of the conservation and protection of water resources. Apply by June 1 to the CBS Awards Committee with a research proposal no longer than two pages outlining your research, a copy of your relevant transcript. Include the name of the award and the award ID number in the subject line of your email. Selection will be based on the strongest research potential and the highest academic standing. Students can only win this award once. In order to receive the award payment in year 2, the student must be in good standing and continuing research in water. Transfers to a PhD program are not eligible to receive this award. Three Water Resources Engineering Scholarships shall be awarded on odd calendar years starting in Fall 2019.

*Donor(s):* **Mr. Edward Morwick**

*Qualification(s):* Students entering a full-time graduate program (MAsc, or PhD) within the College of Engineering and Physical Sciences in Water Resources Engineering with a minimum 80% admission average.

*Amount:* 3 awards of \$20,000 (\$10,000 paid in each of the fall of year 1 and fall of year 2)

**Mr. and Mrs. William Parker Scholarship [E5144]**

Preference will be given to students entering the PhD program, who are new to the University of Guelph. Apply by letter to the Director, School of Engineering including a curriculum vitae, university transcripts and two letters of reference by June 1.

*Donor(s):* **Ruth Mary Parker in memory of Mr. and Mrs. William Parker of William Parker Construction Ltd., Guelph**

*Qualification(s):* Canadian citizens and full-time graduate students in the School of Engineering.

*Amount:* 1 award of \$750

**P.H. Southwell Research Travel Grants [T5145]**

The awards may be held more than once. Apply by June 1 with a letter and an abstract of the paper to the Director, School of Engineering.

*Donor(s):* **The Energy and Agriculture Policy Committee, Province of Ontario (i.e. jointly by the Ministry of Energy and the Ministry of Agriculture and Food)**

*Qualification(s):* Students conducting research in agricultural, biological, food or water resources engineering and who will be travelling to a conference where they will present the results of their research.

*Amount:* 4 awards of \$500

**Peggy A. Pritchard and Dr. Andrew M. Kropinski Graduate Bursary [B5967]**

Established by Peggy A. Pritchard and her husband, Dr. Andrew M. Kropinski, upon Ms. Pritchard's retirement from the University of Guelph in 2016. Apply to the International Student Advisor with a completed International Graduate Student Financial Need Assessment Form (NAF).

**Donor(s):** Peggy Pritchard and Andrew Kropinski

**Qualification(s):** International graduate students from a developing country (as defined by CIDA Canadian International Development Agency) who demonstrate financial need with a preference given to female students.

**Amount:** 1 award of \$2,000

**Professor John R. Ogilvie Engineering Bursary [B5973]**

Established via a generous donation by Professor John R. Ogilvie, former Director of the School of Engineering. Apply by January 10th to Student Financial Service with a completed Financial Need Assessment Form. Selection will be based on greatest financial need.

**Donor(s):** Professor John R. Ogilvie

**Qualification(s):** Students registered in semesters 1 to 3 of the MAsC Engineering program with demonstrated financial need.

**Amount:** 1 award of \$2,000

**R.G. Goel Memorial Graduate Scholarship (GWC)2 [I5027]**

This scholarship, administered by the Guelph-Waterloo Centre for Graduate Work in Chemistry and Biochemistry (GWC)2, is in memory of the late Prof. R.G. Goel and was established by friends and colleagues and the Hindu Cultural Society. The recipient will be selected on the basis of demonstrated ability and promise in research and academic achievement in at least two graduate courses, with particular emphasis being placed on the former. Nominations will be solicited from (GWC)2 faculty and the Graduate Officers by January 31 each year. Nominated students must provide a curriculum vitae, a list of publications and a letter of support from the advisor and, where possible, one other faculty member, to the Director of (GWC)2.

**Donor(s):** Friends and colleagues of the late Prof. R.G. Goel, and the Hindu Cultural Society

**Qualification(s):** Graduate students currently registered at the Guelph-Waterloo Centre for Graduate Work in Chemistry (GWC)2 whose research is in the field of inorganic or organometallic chemistry.

**Amount:** 1 award of \$1,000

**R.H.F. Manske Prize (GWC)2 [I5054]**

This scholarship is awarded annually on a competitive basis. Candidates will be considered on the basis of their academic record and promise in research. Nominations will be solicited from Centre faculty and the Graduate Officers, by the deadline date each year. No application is required.

**Donor(s):**

**Qualification(s):** Students registered in the Guelph-Waterloo centre and special consideration will be given to those who do not currently hold other major awards.

**Amount:** 1 award of \$750

**Ross Hallett Memorial Scholarship in Biophysics [I5300]**

This scholarship has been established in memory of Professor Ross Hallett to honour his contributions to research in biophysics, as well as the academic life of the Department of Physics, the College of Engineering and Physical Sciences, and the University of Guelph. All eligible students will be considered by the Departmental Awards Committee. Recommendations from the advisory committee will be sought by the Awards Committee for a selected short list of students, or will be volunteered by the advisory committee. Considerations will begin on May 1st of each year. Selection will be based on academic achievement and demonstrated ability and/or potential in biophysics research. This award may only be held once. No application necessary.

**Donor(s):** Mrs. Barbara Hallett

**Qualification(s):** Students registered in a graduate program offered by the Department of Physics whose research is in the field of biophysics.

**Amount:** 1 award of \$1,000

**Statistics Graduate Scholarship [I5187]**

The recipient will have an overall first-class ('A') average in graduate courses and have the highest average across any three departmental core graduate courses. A student will be considered for the award once only. No application is required.

**Donor(s):** Department of Mathematics and Statistics

**Qualification(s):** Students registered in the Faculty of Graduate Studies and enrolled in the statistics graduate program.

**Amount:** 1 award of \$500

**College of Social and Applied Human Sciences Internal Awards**

The University reserves the right to amend awards subject to the availability of funds.

**Alastair J. Durie Research Travel Grant [T5975]**

Established by Dr. Kevin James in honour of Alastair J. Durie, pre-eminent scholar of Scottish tourism history and valued advisor to Guelph MA students. Selection will be based on academic standing, a research statement indicating the relation of the trip to the project and feasibility of proposed budget relating to travel costs. Apply by February 1, to the graduate office in the Department of History and include a budget, description of the travel and a research statement indicating the relation of the trip to the project.

**Donor(s):** Kevin James

**Qualification(s):** Students registered in any Master's or Doctoral programs who are required to travel for research to access historical texts. Preference for students specializing in tourism history.

**Amount:** 1 award of \$1,000

**Alf and Mary Hales Graduate Scholarship in Political Studies [Z5722]**

Selection will be based first on demonstrated financial need, and second on highest average in completed course credits. Apply by January 10 with a completed Financial Need Assessment Form to Student Financial Services. ACCESS AWARD.

**Donor(s):** Alf Hales, BSc '34, and Mary Hales, DHE '32, with the aid of the Ontario government's OSOTF program

**Qualification(s):** Students registered in second year in a graduate program of the Department of Political Science with demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).

**Amount:** 1 award of \$3,000

**Alf and Mary Hales Graduate Scholarships in Family Studies [Z5720]**

Selection will be based first on demonstrated financial need, and second on highest average. Preference will be given to an entering student, or student in class levels 1, 2 or 3. Apply by January 10 with a completed Financial Need Assessment Form to Student Financial Services. ACCESS AWARD.

**Donor(s):** Alf Hales, BSc '34, and Mary Hales, DHE '32, with the aid of the Ontario government's OSOTF program

**Qualification(s):** Students registered in a program offered by the department of Family Relations and Applied Nutrition with demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).

**Amount:** 1 award of \$3,000

**Alumni Research Travel Grants [T5630]**

Complete a [CSAHS Graduate Awards Application](#) including a letter describing proposed travel for thesis research and travel costs. Apply to department graduate coordinator by March 1st. Selection of award winner will be on the basis of academic achievement, thesis research description and travel costs.

**Donor(s):** The University of Guelph alumni through the Alma Mater Fund

**Qualification(s):** For graduate students in the Departments of Geography, Political Science, Psychology, or Sociology & Anthropology, in the College of Social and Applied Human Sciences with at least an 80% average in the previous two years of study, and who are completing thesis research off campus. Students cannot receive the award beyond semester 5 at the masters level and beyond semester 8 at the doctoral level.

**Amount:** 1 award of \$2,000

**Barbara Bowen Graduate Bursary [B5950]**

Apply by January 10 to Student Financial Services with a completed [Financial Need Assessment Form](#).

**Donor(s):** Mrs. Barbara Bowen, , MAC BHSc 1957

**Qualification(s):** Graduate students registered in any program offered by the department of Family Relations and Applied Nutrition with demonstrated financial need.

**Amount:** 1 award of \$5,000

**Beatrice Craven Graduate Scholarship [E5181]**

Established by the estate of Beatrice Craven, Mac DHE'30. Selection is based on academic performance in the last two years of study.

**Donor(s):** Estate of Beatrice Craven

**Qualification(s):** Students entering a graduate program in the Department of Family Relations and Applied Nutrition.

**Amount:** 1 award of \$1,500



<b>Bill Graf International Development Scholarship [Z5907]</b>	
Established in memory of Bill Graf, former Professor and Chair of the Department, who devoted his career to the study and teaching of development issues. Apply by January 10 to Student Financial Services with a Financial Need Assessment Form and one-page summary of research. ACCESS AWARD.	
<i>Donor(s):</i>	<b>The Department of Political Science, with the aid of the Ontario government's OSOTF program</b>
<i>Qualification(s):</i>	Graduate students in political science with a focus on international development or IDS, with a minimum 80% average and demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an <u>OSOTF</u> award (see General Statements on Awards).
<i>Amount:</i>	1 award of \$2,000
<b>Bruce and M. Linda Hutchinson Graduate Entrance Scholarship CSAHS [E5970]</b>	
Dr. Bruce Hutchinson OAC BSA 1964 and Mrs. M. Linda Hutchinson MAC BHSc 1964 have made a gift to support the Bruce and M. Linda Hutchinson Graduate Entrance Scholarship CSAHS. Selection will be based on the quality of the student's statement of research interest/academic intent in the graduate application and the feasibility of the proposed research as documented in a one page letter of support from the proposed faculty research advisor. Preference will be given to students with practical experience in their field of study. No application is necessary. Application to a graduate program will be considered as application for this scholarship. Each program may submit up to two nominations to the CSAHS Awards Committee by February 15th. The award will be offered in even years beginning in 2016-17.	
<i>Donor(s):</i>	<b>Dr. Bruce and Mrs. M. Linda Hutchinson</b>
<i>Qualification(s):</i>	Students entering any Master's program in the College of Social and Applied Human Sciences with a focus on families and youth are eligible.
<i>Amount:</i>	1 award of \$5,000
<b>Carol Page-Silim Graduate Scholarship [I5010]</b>	
Established in memory of Dr. A. Silim's wife Carol Page-Silim, B.A.Sc. '78. The recipient will have achieved the highest grade in FRAN*6000- Quantitative Research Methods. No application is required.	
<i>Donor(s):</i>	<b>Dr. A. Silim</b>
<i>Qualification(s):</i>	Full-time graduate student registered in the area of Applied Human Nutrition who has completed FRAN*6000- Quantitative Research Methods.
<i>Amount:</i>	1 award of \$600
<b>Class of Mac '59 (BHSc) Scholarship [E8013]</b>	
Established by the Class of Macdonald Institute 1959 in recognition of its 50th anniversary since graduation along with gifts towards the Rosemary Clark Alumni Leadership Award and with the assistance of the University of Guelph Matching Program. The award winner will be selected on the basis of academic achievement and leadership ability as demonstrated through extracurricular involvement and volunteerism during his/her undergraduate degree. Student application for admission into the program will be considered as the application for this award. No application necessary.	
<i>Donor(s):</i>	<b>Class of Mac 1959</b>
<i>Qualification(s):</i>	Full-time students entering into the Masters of Applied Nutrition Program with a minimum 75% cumulative average.
<i>Amount:</i>	1 award of \$5,000 (payable in equal installments in each of the three semesters of the program)
<b>Claude A. Guldner Scholarship [E5129]</b>	
Established in honour of Claude A. Guldner, the founding director of the Couple & Family Therapy Program in the Department of Family Relations & Applied Nutrition at the time of his retirement. Selection will be based on demonstrated significant contribution in the area of families. In the event of equal contribution selection will be highest admission average. Preference will be given to students who self-identify as First Nation (status and non-status), Métis or Inuit. Students will apply with a <u>Claude A. Guldner application</u> form by April 1, Faculty Advisors will nominate students to the Department of Family Relations and Applied Nutrition by April 30.	
<i>Donor(s):</i>	<b>Friends and family of Claude Guldner</b>
<i>Qualification(s):</i>	Students entering the Couple & Family Therapy MSc program in the Department of Family Relations and Applied Nutrition who self-identify as First Nation (status and non-status), Métis or Inuit, or racialized peoples/visible minority (a person other than an Aboriginal person, who identifies as non-Caucasian in racial origin regardless of the place of birthplace or citizenship).
<i>Amount:</i>	1 award of \$1,000

<b>David Knight Scholarship [Z5925]</b>	
Established to honour Professor Knight's years of outstanding leadership as Dean of the College of Social Science. Selection will be based on financial need and high academic standing. Apply by January 10 with a completed Financial Need Assessment Form to Student Financial Services. ACCESS AWARD.	
<i>Donor(s):</i>	<b>Alumni of the College of Social Science, Alumni of the College of Social and Applied Human Sciences, Professor Alun Joseph, and Professor David Knight, with the aid of the Ontario government's OSOTF program</b>
<i>Qualification(s):</i>	Graduate students registered in the collaborative program in International Development Studies who are entering the second or subsequent semester of a Masters Degree program in the departments of Geography, Political Science, Psychology, or Sociology & Anthropology, and who have a minimum cumulative average of 75% and demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an <u>OSOTF</u> award (see General Statements on Awards).
<i>Amount:</i>	1 award of \$1,000
<b>Dean's Scholarship (CSAHS) [A5743]</b>	
The Deans' Scholarships are awarded to students showing outstanding academic performance, exceptional research or professional performance/potential. Departments will nominate students to the College Awards Committee on the basis of research performance/potential, including progress in the program of study. This award is not tenable with SSHRC, NSERC, or CIHR awards. Application is not required.	
<i>Donor(s):</i>	<b>The University of Guelph</b>
<i>Qualification(s):</i>	Canadian citizens or permanent residents who are registered full-time master's students up to semester six and full-time doctoral students up to semester nine with a minimum of 75% average in the last year of full-time, or equivalent, study
<i>Amount:</i>	several awards of \$2,500 for masters students and \$5,000 for doctoral students
<b>Department of Psychology Master's Thesis Prize [C5303]</b>	
The recipient will have completed the best MA thesis in the past year as deemed by the Graduate Studies Committee. Application is not required.	
<i>Donor(s):</i>	<b>Faculty in the Department of Psychology</b>
<i>Qualification(s):</i>	Graduate students who have successfully defended their M.A. thesis in any given year from September 1 to August 31.
<i>Amount:</i>	1 award of \$1,000
<b>Department of Psychology Memorial Scholarship [I5861]</b>	
This award was established to honour the memory of graduate students (M. Getkate, M. Hamilton, S. McFadden), staff (P. Zimmerman), and faculty (J. Boehnert, P. Duda, D. Piggins, V. Lotter, D. Stott). Selection will be based on academic excellence and success in research activities based on nominations by the students' thesis advisors. No application is necessary.	
<i>Donor(s):</i>	<b>The Department of Psychology</b>
<i>Qualification(s):</i>	Awarded to a graduate student who has completed at least one year of a doctoral program in the Department of Psychology.
<i>Amount:</i>	1 award of \$500
<b>Dorothy Britton Memorial Doctoral Scholarship [E5167]</b>	
Established in memory of Dorothy Britton, a graduate of the Macdonald Institute (1939). The award will be granted on the basis of high academic achievement. Preference will be given to students entering a Ph.D. program. No application is required.	
<i>Donor(s):</i>	<b>Estate of Dorothy Britton</b>
<i>Qualification(s):</i>	For a graduate student registered in the Department of Family Relations and Applied Nutrition .
<i>Amount:</i>	2 awards of \$15,000 payable over two years
<b>Dorothy Britton Memorial Masters Scholarships [E5168]</b>	
Established in memory of Dorothy Britton, a graduate of the Macdonald Institute (1939). Recipients are selected on the basis of high academic achievement. Preference will be given to students entering a Master's program. No application is required.	
<i>Donor(s):</i>	<b>The Estate of Dorothy Britton</b>
<i>Qualification(s):</i>	The award is available to students registered in a Master's program in the Department of Family Relations and Applied Nutrition with a minimum of 80% average during the last two years of study.
<i>Amount:</i>	2 awards of \$10,000 payable over two years



**Dr. Kerry Preibisch Travel Grant [T5963]**

This award was established in memory of Dr. Kerry Preibisch, a respected professor in Sociology and Anthropology and International Development Studies. Students must also demonstrate commitment to creating social impact in their chosen area of study. Submit a CV and an outline of financial expenditures for travel to the CSAHS Awards Committee by February 1st. Include a letter (maximum two pages) describing the fieldwork or knowledge translation to be conducted while traveling and describe your commitment to creating social impact in your chosen area of study.

**Donor(s):** Family, friends and colleagues of Kerry Preibisch

**Qualification(s):** Students registered in the College of Social and Applied Human Sciences, or in any International Development Studies collaborative graduate program, with plans for domestic or international travel in the upcoming summer, fall or winter semester for the purpose of conducting approved research fieldwork or knowledge translation in the area of social justice. Preference will be given to research that focuses on the health and labour rights of migrant workers, agriculture, rural Canada or agricultural economics, with additional preference to students conducting research in the area of migrant women, especially from Latin America.

**Amount:** 1 award of \$2,500

**Dr. Margaret McCready Tribute Scholarship [E8003]**

Established to pay tribute to Dr. Margaret McCready's contributions as Principal and Dean of Macdonald Institute from 1949 to 1968. Selection will be based on high academic achievement during the completion of a Master's program as evidenced by grades and research accomplishments. Application materials to pursue studies at the University of Guelph received by February 1st will be considered as application for this award.

**Donor(s):** Mrs. Dorothy I. Campbell, Mac BHSc '55

**Qualification(s):** Full-time students entering a Doctoral program in the College of Social and Applied Human Sciences who have graduated from the Master's program.

**Amount:** 1 award of \$9,000 (payable over two years)

**Dr. Mary E. Singer Scholarship [I5142]**

Selection will be based on academic achievement, and the award will be issued in even numbered years. No application is required.

**Donor(s):** Estate gift from Dr. Mary E. Singer, Mac '38

**Qualification(s):** Full-time MSc or PhD students in the Department of Family Relations and Applied Nutrition who are conducting thesis research in the area of family relations and human development who have completed the equivalent of at least two full-time semesters of study with a minimum cumulative average of 80%.

**Amount:** 1 award of \$1,500

**Elena Grothier Memorial Scholarship [I5032]**

An annual award in memory of Elena Grothier, a graduate of the Macdonald Institute (1915). The recipient will be selected on the basis of academic achievement during the last two years of study. Preference will be given to a student entering a Master's or Doctoral program. No application is required.

**Donor(s):** The Estate of the late Elena Augusta Grothier

**Qualification(s):** Canadian citizens or permanent residents who are registered full-time in a graduate program in the Department of Family Relations and Applied Nutrition.

**Amount:** 1 award of \$2,000

**Founders' Graduate Scholarships [E5012]**

Recipients will be selected on the basis of high academic standing (minimum of 80% average in the last two years of study). No application required.

**Donor(s):** The Alma Mater Fund, alumni and faculty of the former College of Social Sciences

**Qualification(s):** Awarded to students entering a graduate program in the Departments of Geography, Political Science, Psychology and Sociology and Anthropology.

**Amount:** 4 awards of \$1,500

**Geneva Association Ph.D. Scholarship [E5704]**

Selection will be based on high academic standing as indicated by grades and the strength of the proposed research statement indicating how the applicant's particular focus of study relates to risk and/or vulnerability and their specific application in an economic, environmental, technological or organizational context. The award is renewable for up to three years subject to satisfactory progress towards completion of the degree and continued commitment to conduct research on systemic risk and vulnerability. Students must also submit a thesis proposal following the first year of study. A new recipient would only be chosen upon the completion of the multi-year commitment or in the event the current recipient ceases studies at the University of Guelph. Apply at time of application for admission, but no later than April 15th to the Chair of Political Science including a letter which outlines the candidate's intent to write a dissertation on a specific topic related to systemic risk and vulnerability and its applications.

**Donor(s):** The Geneva Association

**Qualification(s):** Students entering the Ph.D. Political Science program with an A-admission average whose subject of study involves a primary focus on Systemic Risk and Vulnerability that links to one or both of the major fields of Comparative Politics or Public Policy and Governance.

**Amount:** 1 award of \$30,000 payable over 9 semesters

**George and Lois Whetham Graduate Bursary [Z5299]**

One award is for students in CSAHS and the second is for students in OAC. Apply with a completed Financial Need Assessment Form to Student Financial Services by January 10. ACCESS AWARD.

**Donor(s):** Mr. George R. (BSA'53) and Mrs. Lois J. Whetham (BHSc '54) with the aid of the Ontario government's OSOTF program

**Qualification(s):** Full time students registered in any program offered by the College of Social and Applied Human Sciences or the Ontario Agricultural College. Additionally, students must meet the government-mandated terms for receipt of an OSOTF/OTSS award.

**Amount:** 2 awards of \$3,500

**George and Lois Whetham Scholarships in Food Systems CSAHS [E5761]**

Faculty advisors may nominate students who have submitted an application to pursue a Master's program or PhD program in CSAHS by February 1 to Graduate Coordinator. CSAHS Graduate Coordinators of each department will nominate up to 3 students per department by March 1 based on their Admission Application. Selection will be based on the quality of the student's statement of research interest/academic intent in the graduate application and the feasibility of the proposed research as documented in a one-page letter of support from the proposed faculty research advisor. No application required.

**Donor(s):** Mr. George R. Whetham OAC BSA 1953 and Mrs. Lois J. Whetham MAC BHSc 1954

**Qualification(s):** Students who have applied for admission to a Master's or PhD program in the College of Social and Applied Human Sciences and who's area of study is food systems, which may include agriculture, food distribution, food sustainability, food security, nutrition, local food and rural change

**Amount:** 1 award of \$5,000

**Gertrude R. Peterson Graduate Memorial Scholarship [I5613]**

Established in memory of Gertrude R. Peterson, a 1927 graduate of Macdonald Institute. Selection will be based on academic achievement. Preference is that one award will be given to a masters student, and one to a doctoral student. Students may only receive the award once during each of their Masters and Doctoral programs. No application is required.

**Donor(s):** The Estate of Eugene A. Peterson

**Qualification(s):** Students must be registered in a masters or doctoral program in the Department of Family Relations and Applied Human completing a research thesis with a minimum 80% cumulative average.

**Amount:** 3 awards of \$4,500

**GFTC Legacy Fund Graduate Scholarships [I5949]**

In recognition of the Guelph Food Technology Centre's (GFTC) long association with the University of Guelph, the GFTC Board has created these scholarships to recognize academic excellence and encourage students to study and pursue post-graduate studies relevant to the food sector. Apply to the OAC Awards Office (oacaward@uoguelph.ca) by August 15 with a one-page letter stating relevance of past work experience, proposed research objectives and career aspirations to the food production and processing sector. Selection will be based on high academic achievement and relevance of student's past work experience, research objectives and career aspirations to the food production and processing sector.

**Donor(s):** Guelph Food Technology Centre

**Qualification(s):** Students registered in a their first year of course work Master's program in Food Safety and Quality Assurance Graduate, a MSc or PhD program in Food Science, Applied Human Nutrition, Nutrition and Nutraceutical Science, Food Agriculture and Resource Economics or an MBA.

**Amount:** 9 awards of \$10,000

**H.H. Harshman Foundation Doctoral Scholarship [A5810]**

The award winner will be chosen on the basis of academic achievement and demonstrated leadership. Preference will be given to an entering student. Application materials to pursue studies at the University of Guelph received by February 1st will be considered as application for this award.

**Donor(s):** The Harshman Foundation

**Qualification(s):** Full-time student entering or enrolled in any Ph.D. program in the College of Social and Applied Human Sciences whose thesis research is devoted to the strengthening of the family unit in Canada.

**Amount:** 1 award of \$13,000 payable over two years

**H.H. Harshman Graduate Scholarships [I5036]**

The award winner will be chosen on the basis of outstanding academic achievement and demonstrated leadership potential. Apply with a letter outlining research and a C.V. to the Chair of the FRAN Graduate Awards Committee by April 1st.

**Donor(s):** The Harshman Foundation

**Qualification(s):** Master's students in the Department of Family Relations and Applied Nutrition who are completing a thesis, have a minimum of three consecutive semesters remaining in their program and whose research is related to the strengthening of the family unit in Canada.

**Amount:** 3 awards of \$7,000

**Harshman Graduate Scholarship in Food Systems [E5948]**

Selection will be based on the quality of the student's statement of research interest/academic intent in the graduate application and the feasibility of the proposed research as documented in a one-page letter of support from the proposed faculty research advisor. Faculty research advisors may nominate students who have submitted an application to pursue a Master's program in CSAHS by February 1. CSAHS Graduate Officers/Coordinators of each department will nominate up to 3 students per department by February 1 based on their Master's Admission Application.

**Donor(s):** The Harshman Foundation

**Qualification(s):** Students entering a Master's program in the College of Social and Applied Human Sciences who have a minimum average of 80% in the last two years of study and who are working in the area of food systems which may include food distribution, food sustainability, food security, small family farming, local food and rural change. A maximum of three applications per department or program of study will be considered.

**Amount:** 1 award of \$5,000

**Hubert H. Harshman Graduate Scholarship [Z5311]**

Selection will be based on the relevance of the project or research and contributions that demonstrate good citizenship, social responsibility and leadership in society. Students should apply with a completed Financial Need Assessment Form to Student Financial Services by January 10th along with a letter describing their community based project or area of study and a letter of recommendation from their Faculty or CESI supervisor substantiating their good citizenship, social responsibility and leadership in society. This scholarship is not tenable with awards of \$10,000 or more . ACCESS AWARD

**Donor(s):** Harshman Fellowships Society with the aid of the Ontario government's OTSS program

**Qualification(s):** Students registered in the College of Social and Applied Human Sciences who are engaged in a project through the Community Engaged Scholarship Institute or studying in the area of applied nutrition, who have demonstrated good citizenship, social responsibility and leadership in society and who have demonstrated financial need. Preference will be given to the following applicants in descending order: 1) A graduate student working on a project with the Community Engaged Scholarship Institute 2) A graduate student studying in the area of applied nutrition. Additionally, students must meet the government-mandated terms for receipt of an OSOTF/OTSS award.

**Amount:** 1 award of \$5,000

**Ina M. Kniep (nee Carthew) Memorial Graduate Scholarship [I5904]**

Ina M. Kniep was a Mac '36 graduate who was a specialist in Home Economics and Nutrition and had a lifelong interest and involvement in the University of Guelph. No application is required. This award is tenable with other awards up to \$4,000 excluding bursaries

**Donor(s):** The Estate of Ina M. Kniep

**Qualification(s):** Graduate student registered in either a MSc or PhD in the Applied Human Nutrition program, with a minimum of 80% cumulative average, with outstanding academic achievement.

**Amount:** 1 award of \$1,500

**International Emergency Medical Aid Assistance [B5200]**

The University of Guelph provides support to International graduate students that are faced with unexpected, or unforeseen financial shortfalls due to a medical issue not covered by UHIP or the Student Dental/Medical insurance plans. Students should apply to the International Student Advisor, in the Centre for International Programs office, by completing an International Student Financial Need Assessment Form (N.A.F.) and submitting documentation to support the medical issue. These bursaries are awarded on an on-going basis.

**Donor(s):** University of Guelph

**Qualification(s):** International students registered in a degree program and have completed a minimum 1.50 credits who have a medical emergency expenses not covered by UHIP or the Student Dental/Medical insurance plans and demonstrated financial need.

**Amount:** Several awards of varying amounts

**Jean Henderson Sabry Graduate Scholarship [I5165]**

Preference will be given to a student undertaking research in community nutrition or international nutrition. No application is required.

**Donor(s):** Former students and colleagues of Jean H. Sabry

**Qualification(s):** Full-time graduate students enrolled in the Department of Family Relations and Applied Nutrition in the field of Applied Human Nutrition.

**Amount:** 1 award of \$3,500

**Jean, Ian and Sook-Hee Kim Memorial Prize (SOCA) [C5045]**

Members of the Department of Sociology & Anthropology and the Campus Childcare Co-operative established this award in memory of Sook-Hee Kim, former sociology MA student, and her children Jean and Ian Kim, who were killed in a tragic car accident. Students registered in a Masters program in Sociology who presented their graduate major paper during the previous academic year, and have been nominated for consideration by their graduate advisor. Selection is based on the best quality of the major paper and academic excellence. No application required.

**Donor(s):** Members of the Department of Sociology and Anthropology and the Campus Childcare Co-operative

**Qualification(s):** Students registered in a Masters program in Sociology who presented their graduate major paper during the previous academic year, and have been nominated for consideration by their graduate advisor.

**Amount:** 1 award of \$600

<b>Joanne Duncan-Robinson Conference Research Travel Grant [T5805]</b>	
Established in memory of Joanne Duncan-Robinson, an expert in computer and statistical analysis who contributed tremendously to the research activities of faculty and graduate students in the Department of Sociology & Anthropology. Selection will be based on the best abstract or paper proposal, and proposed travel budget. Apply to the Chair of the Graduate Affairs Committee of the Department of Sociology & Anthropology.	
<i>Donor(s):</i>	<b>Members of the Department of Sociology and Anthropology, and other donors</b>
<i>Qualification(s):</i>	Students registered in any graduate program offered by or through the Department of Sociology and Anthropology who have had a paper accepted for presentation at a scholarly conference.
<i>Amount:</i>	1 award of \$1,000

<b>John Black Graduate Travel Grant [T5649]</b>	
Established by friends and colleagues of John Black, Chief Librarian at Guelph (1984-95) and a founding faculty member (1966-95) in the Department of Political Studies. Selection will be based on academic standing, research potential and feasibility of proposed travel. Apply to the Office of Graduate and Postdoctoral Studies by October 17 using the John Black Graduate Travel Grant application. Applications may be submitted for future travel only and applications for previous travel will not be considered.	
<i>Donor(s):</i>	<b>Friends and Colleagues of John Black</b>
<i>Qualification(s):</i>	Master's students with at least an "A-" average in the last 2 years, registered in a Political Science program (POLS/CCJP), the Capacity Development and Extension program, or the collaborative International Development Studies program (any department) in class level 1 to 3 at the time of application and who plan to travel to conduct thesis research, attend a conference, or take a course.
<i>Amount:</i>	1 award of \$1,500

<b>John Vanderkamp Doctoral Graduate Medal [I5763]</b>	
To commemorate the outstanding contributions of John Vanderkamp, Dean of the College of Social Science, 1981-1991, Director of AKADEMIA, 1989-1991, a medal is awarded annually to the nominee for the D.F. Forster medal, the most prestigious convocating graduate award at the University of Guelph.	
<i>Donor(s):</i>	<b>College of Social and Applied Human Sciences</b>
<i>Qualification(s):</i>	Student graduating from a doctoral program in the College of Social and Applied Sciences who is the college's D.F. Forster Doctoral medal nominee.
<i>Amount:</i>	1 medal

<b>John Vanderkamp Magisteriate Graduate Medal [I5762]</b>	
To commemorate the outstanding contributions of John Vanderkamp, Dean of the College of Social Science, 1981-1991, Director of AKADEMIA, 1989-1991, a medal is awarded annually to the nominee for the D.F. Forster medal, the most prestigious convocating graduate award at the University of Guelph.	
<i>Donor(s):</i>	<b>College of Social and Applied Human Sciences</b>
<i>Qualification(s):</i>	Student graduating from a master's program in the College of Social and Applied Sciences who is the college's D.F. Forster Magisteriate medal nominee.
<i>Amount:</i>	1 medal

<b>Katherine M. Beck Memorial Doctoral Scholarship [E5910]</b>	
Established in honour of Katherine M. Beck, a Mac '22 graduate and chief dietitian at Creelman Hall from 1926 to 1962. The award winner will be selected on the basis of outstanding academic achievement (a minimum cumulative average of 80%) at the undergraduate and Masters level and the potential for significant contributions to the discipline as a doctoral student. No application is required.	
<i>Donor(s):</i>	<b>The Estate of Katherine M. Beck</b>
<i>Qualification(s):</i>	Student entering a doctoral program in the Department of Family Relations and Applied Nutrition.
<i>Amount:</i>	2 \$10,000 (payable over 2 years)

<b>Katherine M. Beck Memorial Graduate Scholarship [E5909]</b>	
The award winners will be selected on the basis of outstanding academic achievement (a minimum cumulative average of 80% during the last two years of study). No application is required.	
<i>Donor(s):</i>	<b>The Estate of Katherine M. Beck, a Mac '22 graduate and chief dietitian at Creelman Hall from 1926-1962</b>
<i>Qualification(s):</i>	Students entering a Masters program in the Department of Family Relations and Applied Nutrition .
<i>Amount:</i>	1 award of \$5,000

<b>Kiyoko Miyanishi Graduate Geography Scholarship [E5925]</b>	
The award will be made on the basis of high academic achievement. In the absence of a qualified international student, the award may be given to an academically-qualified student who is a Canadian citizen or permanent resident. If two deserving students cannot be identified, then one award for the full amount will be given out. No application is required.	
<i>Donor(s):</i>	<b>Dr. Kiyoko Miyanishi, a faculty member in the Department of Geography, Environment and Geomatics since 1986</b>
<i>Qualification(s):</i>	International students entering any graduate program (M.A., M.Sc. or Ph.D.) and degree specialization in the Department of Geography, Environment and Geomatics.
<i>Amount:</i>	2 awards of \$1,500

<b>Koji Victor Ujimoto Graduate Scholarship [I5916]</b>	
This scholarship is provided to encourage applied research on topics of pressing Canadian or global social concern. Students should apply to the Chair of the Department of Sociology and Anthropology by March 31 and include an outline of their major paper or thesis proposal and the name of the advisor.	
<i>Donor(s):</i>	<b>Dr. Koji Victor Ujimoto, with the assistance of alumni, friends, colleagues and the Department of Sociology and Anthropology</b>
<i>Qualification(s):</i>	Students registered in a program offered by the Department of Sociology and Anthropology with a minimum 80% cumulative average in all graduate courses taken whose major paper or thesis proposal addresses a contemporary social problem through the application of a Sociological and/or Anthropological perspective.
<i>Amount:</i>	1 award of \$750

<b>Leah Mildred Webster Shedden Scholarships [Z5904]</b>	
These awards have been established, in memory of Leah Shedden , Mac '31. Students with demonstrated financial need, who have completed at least 1.5 credits and with at least a 75% cumulative average, are eligible. ACCESS AWARD.	
<i>Donor(s):</i>	<b>The Estate of Leah Leotus Mildred Shedden, with the aid of the Ontario government's OSOTF program</b>
<i>Qualification(s):</i>	Graduate students in the Department of Family Relations and Applied Nutrition Additionally, students must meet the government-mandated terms for receipt of an <b>OSOTF</b> award (see General Statements on Awards).
<i>Amount:</i>	3 awards of up to \$1,500

<b>Lila Engberg Scholarship in International Development [E8005]</b>	
Established in 2008 by Dr. Lila Engberg. Application materials to pursue studies at the University of Guelph received by May 30th will be considered as application for this award. Students will be selected based on their experiences and/or involvement in this area to date, and personal plans to improve everyday lives in a local community of a developing nation.	
<i>Donor(s):</i>	<b>Dr. Lila Engberg</b>
<i>Qualification(s):</i>	Full-time masters students entering the collaborative program in International Development Studies with a research agenda in the area of poverty alleviation, economic empowerment of women and/or ways to improve livelihood security for women and families in developing countries will be eligible. Preference will be given to a student from a developing country.
<i>Amount:</i>	1 award of \$6,000

<b>Louis E. Tremblay Memorial Graduate Gerontology Scholarship [I5924]</b>	
The award winner will be chosen on the basis of high academic achievement. Preference will be given to Ph.D. students.	
<i>Donor(s):</i>	<b>The estate of Louis Elzebert Tremblay whose wife, Margaret, was a Mac '35 graduate</b>
<i>Qualification(s):</i>	Awarded to a Ph.D. or M.Sc. student in the Department of Family Relations and Applied Nutrition, who is conducting research in the field of gerontology and who has a minimum cumulative average of 80% .
<i>Amount:</i>	1 award of \$5,000

<b>Mac'38 Gerontology Graduate Scholarship [E5052]</b>	
Preference will be given to persons entering graduate studies.	
<i>Donor(s):</i>	<b>The Alumni of Macdonald Institute Class of '38D</b>
<i>Qualification(s):</i>	Full-time students who are pursuing study and research within the area of adult development or gerontology in the Department of Family Relations and Applied Nutrition and have high academic achievement.
<i>Amount:</i>	2 awards of \$3,000

<b>Mac-FACS-FRAN Alumni Association Graduate Scholarship – Family Relations and Applied Nutrition [E5056]</b>	
No application is required.	
<i>Donor(s):</i>	<b>Mac-FACS-FRAN Alumni Association</b>
<i>Qualification(s):</i>	Full-time graduate student entering an master's or doctoral program in the Department of Family Relations and Applied Nutrition who has a minimum of 80% in the last two years of study.
<i>Amount:</i>	1 award of \$1,000
<b>Margaret S. McCready Memorial Scholarship [E5905]</b>	
Established in memory of Margaret S. McCready, former Principal and Dean of Macdonald Institute (1949-69). The award will be granted on the basis of high academic achievement as well as leadership ability as demonstrated through extracurricular involvement in the preceding two years. Application materials to pursue studies at the University of Guelph received by February 1st will be considered as application for this award .	
<i>Donor(s):</i>	<b>Estate of Margaret S. McCready</b>
<i>Qualification(s):</i>	Full time graduate student entering a Masters program in the Department of Family Relations and Applied Nutrition.
<i>Amount:</i>	1 award of \$1,500
<b>Margaret S. McCready Scholarship [I5058]</b>	
Established in honour of Dr. Margaret S. McCready, the Principal and Dean of the Macdonald Institute (1949-1969). Preference will be given to a student who completed their undergraduate degree at Guelph. No application is necessary.	
<i>Donor(s):</i>	<b>Mac-FACS-FRAN Alumni Association</b>
<i>Qualification(s):</i>	M.Sc., MAN or Ph.D. full-time graduate student enrolled in a graduate program offered by the Department of Family Relations and Applied Nutrition, with a minimum of 80% in the last two years of study.
<i>Amount:</i>	1 award of \$1,000
<b>Marion McGirr Travel Grant [T5119]</b>	
Established in 2006 to recognize Marion McGirr's long-lived affection for Macdonald Hall. The award may be held only once during a degree program. Selection of the award winner will be on the basis of the cost of travel, and the benefit it will bring to the student's program of study. Apply by March 1 with a CSAHS Graduate Awards Application, and attach a letter with the description of the travel, the benefit it will bring to your program of study and overall travel budget.	
<i>Donor(s):</i>	<b>Estate gift from Marion McGirr, Mac DHE 1939</b>
<i>Qualification(s):</i>	Graduate students in the College of Social and Applied Human Science with a minimum of 80% in the last two years of study who are travelling in support of their studies. Students cannot receive the award beyond semester 5 at the masters level and beyond semester 8 at the doctoral level.
<i>Amount:</i>	1 award of \$1,000
<b>Marion N. Penhale Graduate Travel Grant [T5072]</b>	
Marion Penhale (Mac '31D) had over 39 years of involvement in teaching and the foodservice industry. The award may be held only once. Apply by April 1, by letter outlining the specific details of the conference and travel costs to the Chair of the Department of Family Relations and Applied Nutrition Graduate Awards Committee.	
<i>Donor(s):</i>	<b>Marion Penhale (Mac '31D)</b>
<i>Qualification(s):</i>	Full-time MSc or PhD student in the Applied Human Nutrition Program whose paper or poster session has been accepted at a provincial, national, or international conference. Students must not be registered beyond semesters 6 and 12 of the master's and doctoral programs, respectively.
<i>Amount:</i>	1 award of \$2,000
<b>Northwater Foundation Travel Grant [Z5917]</b>	
Preference will be given to those applicants invited to present a paper or poster. Apply by January 10 by submitting a <u>Travel Grant Application</u> a completed Financial Need Assessment form, and information about your invitation to present a paper or poster if applicable, to Student Financial Services. ACCESS AWARD.	
<i>Donor(s):</i>	<b>Northwater Foundation, with the aid of the Ontario government's OSOTF program</b>
<i>Qualification(s):</i>	Full-time graduate students registered in the College of Social and Applied Human Sciences who are not registered beyond semester six of the master's program or beyond semester twelve of the doctoral program who will be attending a provincial, national, or international meeting and who have demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).
<i>Amount:</i>	1 award of \$2,000

<b>O.P. Dwivedi Graduate Prize for International Development [I5152]</b>	
Candidates will be considered on the basis of both their overall scholastic achievements and of the practical and social significance of the MA, MSc, MBA or PhD research, which apply social science theory and/or method to the study of development, administration or environmental issues in the Third World. Departments and Schools will submit names of eligible candidates along with supporting documentation to the Director of the International Development Studies program by November 30. Application is not required.	
<i>Donor(s):</i>	<b>O.P. Dwivedi</b>
<i>Qualification(s):</i>	Students at the University of Guelph who have completed requirements for their graduate degree and whose research applies social science theory and/or method to the understanding of development, administration or environmental issues in the Third World.
<i>Amount:</i>	1 award of \$1,500
<b>OMS Graduate Scholarship in Industrial Organizational Psychology [I5657]</b>	
Selection will be assessed based on applicants' overall cumulative average, the amount of hours worked at Organization & Management Solutions (OMS), achievements and potential contributions to Industrial Organizational Psychology. If there is no outstanding submission, no prize will be awarded. Apply by August 15th to the Department of Psychology Awards Committee with a 1,000-word essay outlining hours worked at Organizational & Management Solutions (OMS), and stating achievements and potential contributions to Industrial Organizational Psychology.	
<i>Donor(s):</i>	<b>Guelph Community Foundation</b>
<i>Qualification(s):</i>	PhD students beyond 2nd year of Industrial Organization Psychology.
<i>Amount:</i>	1 award of \$1,750
<b>Peggy A. Pritchard and Dr. Andrew M. Kropinski Graduate Bursary [B5697]</b>	
Established by Peggy A. Pritchard and her husband, Dr. Andrew M. Kropinski, upon Ms. Pritchard's retirement from the University of Guelph in 2016. Apply to the International Student Advisor with a completed International Graduate Student Financial Need Assessment Form (NAF).	
<i>Donor(s):</i>	<b>Peggy Pritchard and Andrew Kropinski</b>
<i>Qualification(s):</i>	International graduate students from a developing country (as defined by CIDA Canadian International Development Agency) who demonstrate financial need with a preference given to female students.
<i>Amount:</i>	1 award of \$2,000
<b>Richard M. Barham Graduate Medal [I5901]</b>	
In recognition of the outstanding contributions of Professor Richard Barham, Dean of the College of Family and Consumer Studies 1983-1994, a medal is awarded annually to the College of Social and Applied Human Sciences' nominee for the Governor General's medal for outstanding academic achievement at the Master's level of study at the University of Guelph. Application is not required.	
<i>Donor(s):</i>	<b>College of Social and Applied Human Sciences</b>
<i>Qualification(s):</i>	A medal is awarded annually to the College of Social and Applied Human Sciences' nominee for the Governor General's medal for outstanding academic achievement at the Master's level of study at the University of Guelph.
<i>Amount:</i>	1 medal
<b>Richard M. Barham Graduate Scholarship [E5216]</b>	
Selection is based on high academic achievement and preference is given to in-coming doctoral candidates in the Family Relations and Human Development or Couple and Family Therapy program.	
<i>Donor(s):</i>	<b>Established in 2006 by the Mac-FACS-FRAN Alumni Association, the Dean of the College of Social and Applied Human Sciences the Chair of the Department of Family Relations and Applied Nutrition and friends of Dr. Richard M. Barham in honour of his retirement. Dr. Barham was the Dean of the College of Family and Consumer Studies (1983-1994), and retired in 1999.</b>
<i>Qualification(s):</i>	Entering graduate students in the Department of Family Relations and Applied Nutrition with a minimum of 80% in the last two years of study.
<i>Amount:</i>	1 award of \$2,000

**Sally Humphries and Leo Smits International Scholarship [E5979]**

Sally Humphries, former Chair of International Development Studies in the College of Social and Applied Human Sciences, and her partner Leo Smits, former Chair of Family and Community Social Services at University of Guelph-Humber established this award to assist international students with the cost of International student tuition at University of Guelph. Apply to the CSAHS Awards Committee by May 15th with a letter outlining past experience in helping disadvantaged populations and include a one-page summary of the admission "Statement of Academic Intent". Letters can be sent by email to csahsada@uoguelph.ca.

**Donor(s):** Sally Humphries

**Qualification(s):** Selection is based on the greatest commitment to helping disadvantaged populations through past activities and community engagement, as well as through future commitment as indicated by the summary of the statement of academic intent. Special consideration will be given to applicants who have worked in their home countries improve the lives of local families, especially of women and children. Preference given to Masters' students

**Amount:** 1 award of awards of \$5,000

**Sid Gilbert Graduate Research Prize [C5268]**

Established to honour Dr. Sid Gilbert and his outstanding contributions to graduate student training and education. The recipient will be chosen based on the quality of the MA thesis. No application is required.

**Donor(s):** The Department of Sociology and Anthropology, and friends and colleagues of Dr. Sid Gilbert

**Qualification(s):** MA sociology students who have presented their thesis during the previous academic year, and have been nominated for consideration by their academic advisor.

**Amount:** 1 award of \$500

**University Graduate Scholarship (CSAHS) [I5768]**

Awarded to students showing outstanding academic performance. Departments will nominate students to the College Awards Committee on the basis of research performance/potential, including progress in the program of study. Application is not required.

**Donor(s):** University of Guelph

**Qualification(s):** Registered masters students up to their 6th semester and doctoral students up to their 12th semester or students who transfer from masters to doctoral up to their 15th semester, with a minimum of 75% average in the last year of full-time study, or equivalent.

**Amount:** Numerous awards of varying amounts from \$500 to \$20,000

**Wilda M. Blacklock Scholarship [I5612]**

Selection will be based on academic excellence and contribution to the department. Apply by April 1st to the Chair of the Graduate Affairs Committee of the Department of Sociology & Anthropology with a letter outlining contributions to the department.

**Donor(s):** The Department of Sociology & Anthropology, in honour of the retirement of Wilda Blacklock, former student (BA '73) and staff member

**Qualification(s):** Graduate students who have completed between two and four semesters in the Department of Sociology & Anthropology.

**Amount:** 1 award of \$2,000

**Yeandle Family Graduate Scholarships [Z5927]**

This award has been established in honour of Audrey Yeandle, a Mac '25 graduate and life-long supporter of the University with the aid of the Ontario government's OSOTF program. Awards will be made on the basis of financial need and academic achievement. ACCESS AWARD.

**Donor(s):** The Estate of Audrey Yeandle with the aid of the Ontario government's OSOTF program

**Qualification(s):** Full-time graduate students registered in the College of Social and Applied Human Sciences who have a minimum cumulative average of 75%. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).

**Amount:** several awards of up to awards of \$2,000

**Ontario Agricultural College Internal Awards**

The University reserves the right to amend awards subject to the availability of funds.

**Abell Pest Control Scholarship in Lyme Disease Research [I5980]**

Selection will be based on the strongest research potential on lyme disease. Apply by May 1 to the Office of Graduate and Postdoctoral Studies Awards Committee (grschol@uoguelph.ca) with a research proposal no longer than two pages outlining your research and a CV. Include the name of the award and the award ID number in the subject line of your email.

**Donor(s):** Abell Pest Control

**Qualification(s):** Students registered in any program offered by the College of Biological Science or the Ontario Veterinary College or the Ontario Agriculture College conducting research in Lyme disease.

**Amount:** 1 award of \$5,000

**Abell Pest Control Scholarship in Pollinator Research. [I5976]**

Selection will be based on the strongest research potential in pollinators. Apply by May 1 to the Office of Graduate and Postdoctoral Studies Awards Committee (grschol@uoguelph.ca) with a research proposal no longer than two pages outlining your research and a CV. Include the name of the award and the award ID number in the subject line of your email.

**Donor(s):** Abell Pest Control

**Qualification(s):** Students registered in any program who are conducting research in Pollinators. Preference will be given to students studying bees.

**Amount:** 1 award of \$5,000

**Ajinomoto Heartland/Halchemix Scholarship [I5153]**

Established for a graduate student in the Department of Animal Biosciences conducting research in livestock nutrition. Selection will be made on the basis of merit and financial need. Apply to Student Financial Services with a completed University of Guelph Financial Need Assessment Form, including a brief summary of your research and a letter of support from your advisor by January 10th.

**Donor(s):** Halchemix Canada Inc

**Qualification(s):** Graduate students registered in a program offered by the Department of Animal Biosciences conducting research in the field of amino acids in the nutrition of monogastric livestock and who have demonstrated financial need. Preference will be given to a Ph.D. candidate.

**Amount:** 1 award of \$500

**Alastair J. Durie Research Travel Grant [T5975]**

Established by Dr. Kevin James in honour of Alastair J. Durie, pre-eminent scholar of Scottish tourism history and valued advisor to Guelph MA students. Selection will be based on academic standing, a research statement indicating the relation of the trip to the project and feasibility of proposed budget relating to travel costs. Apply by February 1, to the graduate office in the Department of History and include a budget, description of the travel and a research statement indicating the relation of the trip to the project.

**Donor(s):** Kevin James

**Qualification(s):** Students registered in any Master's or Doctoral programs who are required to travel for research to access historical texts. Preference for students specializing in tourism history.

**Amount:** 1 award of \$1,000

**Alf and Mary Hales Graduate Scholarship in Food Science [Z5721]**

Selection will be based on the highest admission average. Apply by January 10 to Student Financial Services with a completed Financial Need Assessment Form and a letter outlining your research/interest in meat science. ACCESS AWARD.

**Donor(s):** Alf & Mary Hales, with the aid of the Ontario government's OSOTF program

**Qualification(s):** Student registered in their first year of the M.Sc. program in Food Science with an interest in meat science who has demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).

**Amount:** 1 award of \$2,000

**Amos Kitchen Memorial Scholarship [Z5684]**

Established in memory of Amos Kitchen. Apply by January 10 to Student Financial Services with a completed Financial Need Assessment Form and a Research Proposal no more than 2 pages in length. Selection will be based on financial need and academic performance to date. ACCESS AWARD.

**Donor(s):** Friends, associates of Amos Kitchen, and the Ontario Sheep Marketing Agency, and the OAC Alumni Foundation, with the aid of the Ontario government's OSOTF program

**Qualification(s):** Graduate students registered in any OAC graduate program who is conducting research in sheep with demonstrated financial need. Additionally, students must meet the government mandated terms for an OSOTF/OTSS OSOTF/OTSS awards.

**Amount:** 1 award of \$3,000

<b>Animal Biosciences Academic Scholarship [I5774]</b> <p>The faculty and staff of Animal Bioscience believe in the potential of their students and are proud to create and support this scholarship. Apply by August 15th using the <a href="#">Department of Animal Biosciences Graduate Scholarship Application Form</a>. Selection will be based on the strongest academic performance.</p> <p><b>Donor(s):</b> Department of Animal Biosciences</p> <p><b>Qualification(s):</b> Students registered in any graduate program offered by the Department of Animal Biosciences who demonstrate consistent outstanding academic performance. Preference given to students who have not received any other departmental awards at the time of selection.</p> <p><b>Amount:</b> 1 award of \$5,000</p>	<b>Beatty-Munro Family Memorial Scholarship [I5005]</b> <p>Apply by August 15th using the <a href="#">School of Environmental Sciences Graduate Scholarship Application Form</a>.</p> <p><b>Donor(s):</b> Dr. and the late Mrs. J.A. Munro</p> <p><b>Qualification(s):</b> For a graduate student or a postdoctoral fellow conducting research in the field of apiculture.</p> <p><b>Amount:</b> 1 award of \$1,750</p>
<b>Animal Biosciences Leadership Scholarship [I5659]</b> <p>The faculty and staff of Animal Bioscience believe in the potential of their students and are proud to create and support this scholarship. Selection will be based on the strongest leadership or service while maintaining a strong academic performance. Apply by August 15th using the <a href="#">Department of Animal Biosciences Graduate Scholarship Application Form</a>.</p> <p><b>Donor(s):</b> Department of Animal Biosciences</p> <p><b>Qualification(s):</b> Students registered in any graduate program offered by the Department of Animal Biosciences who demonstrate leadership or service in extracurricular activities related to the department. Preference given to students who have not received any other departmental awards at the time of selection.</p> <p><b>Amount:</b> 1 award of \$5,000</p>	<b>Bell-Sargent Scholarship [I5006]</b> <p>This award has been established by William B. Sargent, in honour of Nora Reta Bell and William George Sargent, who celebrated their fiftieth wedding anniversary in 1978. Selection will be based on academic standing, participation in community and on-campus activities, and interest in park development will be considered. The LA Grad Awards committee will forward a nomination to the OAC awards committee prior to August 1 each year. No application necessary.</p> <p><b>Donor(s):</b> William B. Sargent</p> <p><b>Qualification(s):</b> Available to MLA students who are Canadian citizens or permanent residents and who are studying park administration, recreation planning, or resources development or management as related to park development.</p> <p><b>Amount:</b> 1 award of \$2,000</p>
<b>Anna and Val Hovanec Scholarship [E8010]</b> <p>Selection will be based on highest admission average. Preference will be given to applicants whose area of study relates to health. This award is normally awarded every other year. This award is renewable for the second year upon satisfactory performance evaluation. A new recipient would only be chosen upon the completion of the multi-year commitment or in the event the current recipient ceases studies at the University of Guelph. Application materials to pursue studies at the University of Guelph will be considered as application for this award.</p> <p><b>Donor(s):</b> Lupina Foundation</p> <p><b>Qualification(s):</b> Students entering a Masters program offered by CSAHS in an area related to women in rural communities.</p> <p><b>Amount:</b> 1 award of \$14,000 (payable over 2 years)</p>	<b>Brian W. Kennedy Memorial Scholarship [I5625]</b> <p>Established by family, friends and colleagues in recognition of Dr. Kennedy's dedication to and accomplishments in the fields of animal breeding and genetic teaching and research. Application is by letter, stating interest and qualifications, to the director of Centre for Genetic Improvement of Livestock by August 15.</p> <p><b>Donor(s):</b> Family, Friends and Colleagues or Dr. Brian W. Kennedy</p> <p><b>Qualification(s):</b> Awarded to an in-course graduate student based on academic standing, extracurricular activities and contributions to the life of the department.</p> <p><b>Amount:</b> 1 award of \$3,000</p>
<b>Arthur Richmond Memorial Scholarships [I5180]</b> <p>Established in memory of the late Arthur Richmond (OAC '23), horticulturist and teacher. One award each year is reserved for a student in the Plant Agriculture (Horticultural Sciences) program. Apply by May 1 to the Office of Graduate and Postdoctoral Studies by completing the Arthur Richmond Memorial Scholarships Application. The winners will be selected on the basis of academic excellence. The scholarships may only be held once at the master's level and once at the doctoral level.</p> <p><b>Donor(s):</b> The Estate of Nola Richmond</p> <p><b>Qualification(s):</b> Full-time master's students up to semester six and doctoral students up to semester nine in one of the following programs: Plant Agriculture, Integrative Biology, Molecular &amp; Cellular Biology, or Environmental Sciences.</p> <p><b>Amount:</b> 4 awards of \$4,000</p>	<b>Bruce and M. Linda Hutchinson Graduate Entrance Scholarship OAC [E5771]</b> <p>Dr. Bruce Hutchinson OAC BSA 1964 and Mrs. M. Linda Hutchinson MAC BHSc 1964 have made a gift to support the Bruce and M. Linda Hutchinson Graduate Entrance Scholarship OAC. No application is required. The School of Environmental Sciences will nominate a student by September 1 to the OAC Awards Committee (oacaward@uoguelph.ca). Selection will be based on the letters of reference in the student's admission package. In the event of a tie, the student with the highest admission average will be selected. The award will be offered in odd years beginning in 2017-18.</p> <p><b>Donor(s):</b> Dr. Bruce and Mrs. M. Linda Hutchinson</p> <p><b>Qualification(s):</b> Students registered in semesters 1 to 3 of any Master's program offered by the School of Environmental Sciences are eligible.</p> <p><b>Amount:</b> 1 award of \$5,000</p>
<b>Ball Farm Services Ltd. and Agrico Canada Ltd. Scholarship [I5902]</b> <p>Academic standing in the previous two years and applied research potential will be used to determine the recipient. Apply to the OAC Awards Office (oacaward@uoguelph.ca) by August 15, with a letter of support regarding research potential.</p> <p><b>Donor(s):</b> Ball Farm Services and Agrico Canada Ltd.</p> <p><b>Qualification(s):</b> GGraduate students in Plant Agriculture or School of Environmental Science who are conducting research on sustainable crop production systems and their application to production agriculture are eligible.</p> <p><b>Amount:</b> 1 award of \$1,500</p>	<b>Bruce Jin &amp; Wenrong Sun Graduate Bursary [B5968]</b> <p>Made possible by generous support of alumna Wenrong Sun and her spouse Bruce Jin, both active members in the Guelph community, with the hope of instilling the value of philanthropy and a sense of giving in U of G students. Apply by January 10 to Student Financial Services with a completed Financial Need Assessment Form (NAF).</p> <p><b>Donor(s):</b> Wenrong Sun</p> <p><b>Qualification(s):</b> Students registered in the Food Science program with demonstrated financial need.</p> <p><b>Amount:</b> 1 award of \$1,000</p>
<b>Beaton Scholarship in Dairy Science [I5004]</b> <p>Established in memory of the late Mr. J.L. Beaton of Oshawa. Selection will be based on high academic standing. Apply by August 15 using the <a href="#">Department of Food Science Graduate Scholarship Application Form</a>.</p> <p><b>Donor(s):</b> Mr. J.L. Beaton</p> <p><b>Qualification(s):</b> Students registered in the Department of Food Science who are working on a research project directly related to the dairy industry. Preference will be given to students who are entering the MSc program.</p> <p><b>Amount:</b> 1 award of \$1,500</p>	<b>Bullick Scholarship in Food Grain Research [I5137]</b> <p>In memory of their parents (John and Annie Wannop of Nanton, Alberta, and William and Mary Bullick of Uttoxeter, Ontario), Rose and Clare Bullick provide this award. No application is necessary. Selection will occur prior to August 15</p> <p><b>Donor(s):</b> Rose and Clare Bullick</p> <p><b>Qualification(s):</b> Full-time student enrolled in year 1 in the Department of Plant Agriculture who is conducting research on food grains.</p> <p><b>Amount:</b> 1 award of \$10,000 (payable over 3 semesters)</p>

**Canadian Dairy Commission M.Sc. Scholarship [I5314]**

The Canadian Dairy Commission generously supports these scholarships to encourage and support dairy related graduate studies and to increase career opportunities in the Canadian Dairy industry among aspiring students. Selection will be based on academic excellence and strong research potential. Apply to the OAC Awards Committee (oacaward@uoguelph.ca) by August 15 with a two-page letter outlining the significance of your research to the dairy industry; a two-page research proposal; a CV and a letter of reference from your advisor outlining your academic excellence and research potential. Please include your name, student ID and the name of the scholarship on each page of your application. Recipients of this scholarship will be required to provide a one page outline of their proposed thesis to the OAC Awards Office to be included in the College's annual report to the CDC. This award is not tenable with the Brock Doctoral Scholarship, Arrell Scholarships, Trudeau Doctoral Scholarships, Dairy Farmers of Ontario Doctoral Research Assistantship, or Tri-Council Scholarships, including the Vanier.

**Donor(s):** Canadian Dairy Commission

**Qualification(s):** Students registered in a registered in a Master's program offered by OAC who are Canadian or Permanent Residents and who are conducting research related to the Canadian Dairy Industry in any of the following areas: 1. adding value to dairy ingredients; 2. developing new applications and dairy food products based on bio-medicine; 3. understanding the dairy matrix and the functionality of dairy products; 4. understanding the microbiology of milk and dairy products; 5. enhancing sustainable development and eco-efficiency; 6. controlling water cycle and reducing water usage; 7. improving farm efficiency; 8. reducing cost of milk production; 9. improving animal health and welfare; 10. reducing risks of antimicrobial resistance

**Amount:** 2 awards of \$20,000 (payable over 3 semesters starting in the Fall with the possibility of a one-time renewal to a maximum of \$40,000 over 6 semesters)

**Canadian Dairy Commission Ph.D. Scholarship [I5315]**

The Canadian Dairy Commission generously supports these scholarships to encourage and support dairy related graduate studies and to increase career opportunities in the Canadian Dairy industry among aspiring students. Selection will be based on academic excellence and strong research potential. Apply to the OAC Awards Committee (oacaward@uoguelph.ca) by August 15 with a two-page letter outlining the significance of your research to the dairy industry; a two-page research proposal; a CV and a letter of reference from your advisor outlining your academic excellence and research potential. Please include your name, student ID and the name of the scholarship on each page of your application. Recipients of this scholarship will be required to provide a one page outline of their proposed thesis to the OAC Awards Office to be included in the College's annual report to the CDC. This award is not tenable with the Brock Doctoral Scholarship, Arrell Scholarships, Trudeau Doctoral Scholarships, Dairy Farmers of Ontario Doctoral Research Assistantship, or Tri-Council Scholarships, including the Vanier.

**Donor(s):** Canadian Dairy Commission

**Qualification(s):** Students registered in a registered in a doctoral program offered by OAC who are Canadian or Permanent Residents and who are conducting research related to the Canadian Dairy Industry in any of the following areas: 1. adding value to dairy ingredients; 2. developing new applications and dairy food products based on bio-medicine; 3. understanding the dairy matrix and the functionality of dairy products; 4. understanding the microbiology of milk and dairy products; 5. enhancing sustainable development and eco-efficiency; 6. controlling water cycle and reducing water usage; 7. improving farm efficiency; 8. reducing cost of milk production; 9. improving animal health and welfare; 10. reducing risks of antimicrobial resistance

**Amount:** 2 awards of \$30,000 (payable over 3 semesters starting in the Fall with the possibility of a one-time renewal to a maximum of \$90,000 over 9 semesters)

**Canadian Society of Landscape Architects Prize [C5217]**

Awarded to a student who has achieved excellence in the study of landscape architecture and has contributed significantly to the University of Guelph landscape architecture program and the profession. No application is required.

**Donor(s):** The Canadian Society of Landscape Architects

**Qualification(s):** Student graduating from the Masters of Landscape Architecture program.

**Amount:** 1 award of \$1,000

**Chanasyk Graduate Medal for Professionalism [I5193]**

The Chanasyk Graduate Medal is awarded annually to the graduating student in the master of landscape architecture program who, in the view of faculty, is deemed to be the most promising professional practitioner. The decision will be based on the criteria of ethics, altruism, an attitude of stewardship of the land, and progressive educational ideals. Application is not necessary.

**Donor(s):** Victor Chanasyk

**Qualification(s):** Awarded annually to the graduating student in the master of landscape architecture program who, in the view of faculty, is deemed to be the most promising professional practitioner.

**Amount:** 1 medal

**Class of OAC 71-72 ACCESS Bursary [Z5988]**

Established in memory of Amos Kitchen. Apply by January 10 to Student Financial Services with a completed Financial Need Assessment form and a statement from your supervisor or graduate coordinator stating your area of study. Selection is based on financial need. ACCESS AWARD.

**Donor(s):** The Class of OAC 71-72, with the aid of the Ontario government's OSOT/OTSS program

**Qualification(s):** Students registered in an OAC graduate program with an area of study in sustainable food production or agri-food innovations with demonstrated financial need. Additionally, students must meet the government mandated terms for OSOT/OTSS awards.

**Amount:** 1 award of \$3,000

**Craig Hunter Poultry Science Graduate Scholarship [I5699]**

Apply by August 15th using the [Department of Animal Biosciences Graduate Scholarship Application Form](#). Selection will be based on academic achievement, research potential and demonstrated leadership in extracurricular activities especially as it relates to poultry science.

**Donor(s):** Family and Friends of the Late Craig Hunter Sr.

**Qualification(s):** Graduate students in the Department of Animal Biosciences whose research is focused on poultry. Preference will be given to research projects relating to commercial egg production.

**Amount:** 1 award of \$2,100

**Deborah Whale/Poultry Industry Council Graduate Scholarship [I5242]**

Established to pay tribute to the contributions and leadership provided to the poultry industry by Deborah Whale during her term as Chair of the Poultry Industry Council. Selection will be based on research potential (M.Sc. student) or demonstrated research aptitude (Ph.D. student), academic standing and intended benefits and outcomes of the planned research to the poultry industry. Apply to the OAC Awards Committee (oacaward@uoguelph.ca) by August 15 with C.V. and include a one-page summary of your research project demonstrating the relevance of the research and its potential impact on the poultry industry. Please include your name, student ID number and the award name on your application.

**Donor(s):** Poultry Industry Council

**Qualification(s):** Students registered in any M.Sc. or Ph.D. program in OAC with a minimum of 75% average in the last two years of undergraduate or graduate studies and who are pursuing research in the poultry industry.

**Amount:** 1 award of \$1,000

**Don McMillan Graduate Bursaries in Food Science [Z5901]**

Established from the estate of Don McMillan, OAC 1940, in memory of his father and by the government of Ontario through the OSOTF program. Apply to Student Financial Services with a completed Financial Need Assessment Form by January 10. ACCESS AWARD.

**Donor(s):** Estate of Don McMillan, with the aid of the Ontario government's OSOTF program

**Qualification(s):** Graduate students in Food Science with demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).

**Amount:** several awards of varying amounts

**Don Pinchin Scholarship in Honey Bee Research and Beneficial Insect Health [I5956]**

Selection will be based on the academic standing of the applicant and their area of research to the focus of the Scholarship. Apply by August 15 to the OAC Awards Office (oacaward@uoguelph.ca) with a research proposal no longer than two pages and a scanned copy of an official transcript. Include the name of the award and the award ID number in the subject line of your email. Include this information on your application along with your student ID number.

**Donor(s):** Dr. Donald Pinchin and Lydia Luckevich

**Qualification(s):** Students registered in their first year of an OAC graduate program who are pursuing research in sustainable pest management. Areas of research may include, but are not limited to, pollinator conservation, pesticide fate in the environment, integrated pest management, pesticide use reduction or eco-toxicology.

**Amount:** 1 award of \$17,500 (payable over 3 semesters)

**Donald Huntley Graduate Scholarship [I8014]**

Established to honour the accomplishments of Prof. Donald Huntley and to encourage continued research in the area of Plant Agriculture and Environmental Science in relation to crop yields. Selection will be based on research potential and academic achievement. Apply by letter (no more than two pages) outlining the research/proposal to OAC Awards Committee by August 15.

**Donor(s):** William L. Campbell OAC '55

**Qualification(s):** Graduate students who are Canadian citizens or permanent residents and registered in any program offered by OAC whose research program combines environmental sustainability with research in crop yields and/or issues around crop productivity or crop protection.

**Amount:** 1 award of \$10,000 (payable in two equal installments of \$5,000)

**Dr. C. John Small Commonwealth Scholarship [I5118]**

Created in honour of Dr. C. John Small, OAC BSA '42, Hon D.Law '75, and his lifelong dedication to foreign service. Selection will be based on the assessment of: (a) a one-page submission describing the significance of the student visiting Guelph to the program of study at the partner exchange university, (b) two faculty references of no more than one page each, and (c) consistent high performance in coursework completed, as documented by a transcript of program grades to date. Apply to Centre for International Programs by May 1 for visiting during the subsequent Fall or Winter semesters with a one-page submission describing the significance of the U of G visit to the program of study at the partner exchange university and two faculty references of no more than one page each.

**Donor(s):** Mr. Jean K. Small

**Qualification(s):** Full-time visiting exchange students, registered at the University of Guelph for at least one semester, from a Commonwealth developing country (a list of eligible countries and exchange partner universities is available in the Centre for International Programs) who are pursuing studies or conducting research in the area of agriculture and rural development.

**Amount:** 1 award of \$1,500

**Dr. Chester Meyers Graduate Scholarship [I5114]**

Established in honour of Dr. Myers for his work in food science and food chemistry. Selection will be based on academic achievement and research in the area of food chemistry. Apply no later than August 15, using the [Department of Food Science Graduate Scholarship Application Form](#).

**Donor(s):** Friends and Colleagues of Dr. Chester Myers

**Qualification(s):** Graduate students registered in the Department of Food Science.

**Amount:** 1 award of \$1,000

**Dr. Clifford G. Riley OAC '23 Graduate Entrance Scholarship [E8016]**

The Dr. Clifford G. Riley OAC '23 Graduate Entrance Scholarship was created by his son David C. Riley as a tribute and memorial to his father whose career in forestry and education began at the Ontario Agricultural College. Selection will be based on the strongest admission application package. A student will be nominated by the Department of Food Agricultural and Resource Economics to the OAC Awards (oacaward@uoguelph.ca) by September 1. No application is required.

**Donor(s):** David C. Riley and matched by the University of Guelph Graduate Scholarship Matching program.

**Qualification(s):** Students entering a graduate program in the Department of Food Agricultural and Resource Economics in OAC.

**Amount:** 1 award of \$10,000 (payable over two semesters)

**Dr. G.W. Friars Award [I5615]**

The award will be based on academic standing, and interest in and aptitude for research in quantitative genetics. Apply to the OAC Awards Office (oacaward@uoguelph.ca) by August 15. Please include the name of the award and the award ID number in the subject line of your email. Include your student ID number and the name of your award on your letter.

**Donor(s):** Dr. Gerry W. Friars

**Qualification(s):** MSc or PhD student registered in the Department of Animal Biosciences or Plant Agriculture and working in the field of quantitative genetics. The award will be based on academic standing, and interest in and aptitude for research in quantitative genetics.

**Amount:** 1 award of \$500

**Dr. H. A. Logan Scholarship [E8026]**

Apply by August 15 to the OAC Awards Committee (oacaward@uoguelph.ca) with a 2 page proposal outlining your research and the impact it will have on maintaining rural livelihoods; a CV outlining your academic accomplishments and related experiences; and a reference letter outlining your academic excellence. Please include your name, student ID and the award name on each page of your application. Selection will be based on academic excellence.

**Donor(s):** Bob Logan

**Qualification(s):** Students entering in Winter, Summer or Fall of the award year (i.e. students would be in semesters 1, 2, or 3 at the time the award will be distributed) into any graduate program offered by the School of Environmental Design and Rural Development who will be conducting research into the sustainability of rural communities and rural livelihoods in the context of agricultural landscape change.

**Amount:** 1 award of \$10,000

**Dr. J. L. Tennant Graduate Scholarship [I5147]**

Ability as shown by course and research work. Apply to Student Financial Services by January 10th, with a completed Financial Need Assessment form.

**Donor(s):** Estate of Dr. J. L. Tennant, OAC BSA 1913

**Qualification(s):** Full-time graduate students registered in the Department of Food, Agricultural Resource Economics with demonstrated financial need are eligible.

**Amount:** 2 awards of \$2,000

**Dr. Mohamed Sharom Scholarship of Excellence [I5624]**

The award will be based on academic standing, communication skills and excellence in research. Application is not necessary.

**Donor(s):** Family and friends of the late Dr. Mohamed Sharom

**Qualification(s):** MSc student who has completed at least two full- time semesters, is registered in the School of Environmental Sciences, and holds a valid student visa.

**Amount:** 1 award of \$500

**Dr. O.M. McConkey Scholarship [I5059]**

Established by the late Dr. O.M. McConkey, a professor in the Department of Plant Agriculture and a pioneer in grassland research and conservation. Selection will be based on an assessment of research potential, area of research, and academic standing. Apply by August 15th using the [Department of Plant Agriculture Graduate Scholarship Application Form](#).

**Donor(s):** McConkey Foundation

**Qualification(s):** Students in the M.Sc. or Ph.D. programs in the Department of Plant Agriculture working in the area of crop breeding and genetics, physiology and management or biotechnology. Preference will be given to students conducting research in the area of forage crops and conservation.

**Amount:** 1 award of \$10,000 (payable over 3 semesters)

**Dr. Zuhair Ahmad Hassan Memorial Graduate Scholarship [E5773]**

The department will forward their nomination to the OAC Awards Office (oacaward@uoguelph.ca) by August 15 including the student's name, student ID number, and the program the student is entering. Selection will be based on the strongest admission application package.

**Donor(s):** Anonymous with Graduate Matching funds

**Qualification(s):** Students who are entering any of the thesis-based Master's or the doctoral graduate programs in the Food, Agricultural & Resource Economics department. Preference will be given to students who are not receiving any other departmental/FARE Entrance Scholarships.

**Amount:** 1 of \$10,000 (split in two equal payments in the fall and winter terms)



**Durante Kreuk Scholarship [I5342]**

Established by Durante Kreuk Ltd., Landscape Architects, a Vancouver-based firm with a broad range of experience in Landscape Architecture, Urban Open Space Design, and community design. Selection will be based on demonstrated high level of proficiency in design, and implementation with a focus on community design and demonstrated interest and potential to work in areas of community involvement and advocacy. No application is required.

*Donor(s):* **Durante Kreuk Ltd.**

*Qualification(s):* MLA students who are entering their third semester.

*Amount:* 1 award of \$1,500

**Earl A. Thomas Graduate Scholarship [I5602]**

Established in memory of Mrs. Beryl Thomas' husband, Earl Thomas, who died in 1966 after a 43 year career at Bright's Wines. Mr. Thomas retired from T.G. Bright Co. Ltd. in 1959 as president and general manager. The recipient will be selected on the basis of high academic achievement. Apply by August 15th using the [Department of Food Science Graduate Scholarship Application Form](#).

*Donor(s):* **The Estate of Mrs. Beryl Thomas**

*Qualification(s):* Students enrolled in the Department of Food Science and who are conducting research in oenology are eligible for this graduate scholarship.

*Amount:* 1 award of \$2,000

**Earnest Austin Weir Memorial Scholarship [E5195]**

Established In memory of the late Earnest Austin Weir, OAC '12. Application is not required

*Donor(s):* **Mr. Murray Weir**

*Qualification(s):* Entering graduate students in the areas of Environmental Sciences, Capacity Development & Extension, and Food, Agricultural and Resource Economics, Landscape Architecture and Rural Planning and Development who have at least a 'B+' average and will be conducting research on sustainable rural community development.

*Amount:* 1 award of \$1,500

**Edmunds, Millen, Ozburn, Peer Scholarship in Entomology/Apiculture (Environmental Biology) [I5623]**

Established in memory of Professor R.H. Ozburn, a former faculty member in the OAC Department of Zoology and Entomology; and the family and friends of Don Peer, apiculturalist. The award is made in the memory of these four individuals whose interests in entomology and apiculture were of support to and valued by their colleagues at OAC. No application is necessary; the School of Environmental Sciences will nominate a recipient by August 15 each year.

*Donor(s):* **Friends and associates of the late J.W. Edmunds, OAC '51**

*Qualification(s):* Awarded annually to an MSc or PhD student in entomology or apiculture based on high academic standing and research interests related to apiculture or entomology.

*Amount:* 1 award of \$2,500

**Egg Farmers of Ontario's Thomas R. Graham Scholarship [I5067]**

Established to recognize the contributions of Tom Graham, a graduate of OAC and a Director of the Board. Apply by August 15th using the [Department of Animal Biosciences Graduate Scholarship Application Form](#). Preference is to award \$5,000 to a PhD student, but if no PhD student is eligible, 2 awards of \$2,500 will be awarded to MSc. students.

*Donor(s):* **Egg Farmers of Ontario**

*Qualification(s):* Canadian citizens or permanent residents registered in the first year in an area of research and study must be in the general field of poultry science and may include disciplines other than those offered in the Department of Animal Biosciences. Preference will be given to students with high academic standing who are conducting research projects related to the egg industry.

*Amount:* 1 or 2 awards given totalling \$5,000

**Emiel Griesbach Year OAC '30 Scholarship [E5164]**

Established In memory of their classmate Emiel C. Griesbach, OAC '30. Apply by August 15 using the [Department of Food Science Graduate Scholarship Application Form](#).

*Donor(s):* **OAC '30, Lyman Chapman, and the OAC Alumni Foundation**

*Qualification(s):* Students in a graduate program offered by the Department of Food Science who are entering semesters 1, 2 or 3 with at least a 'B+' standing in the two previous years of study.

*Amount:* 1 award of \$1,000

**F.L. McEwen Award [E5151]**

Established in recognition of F.L. McEwen's contribution as Dean of OAC (1983-90). Apply to the OAC Awards Committee by August 15 with a two page letter outlining your research interests and the relationship of the research to the field of agriculture as well as outlining your extra-curricular activities in this area. Preference will be given first to students with research interest in the field of sustainable agriculture and secondly to participation in extra-curricular activities in this area.

*Donor(s):* **OAC Alumni Foundation**

*Qualification(s):* Students who have graduated from any undergraduate degree program offered by OAC, entering a graduate program in a department or school of OAC who have an interest in the field of agriculture.

*Amount:* 1 award of \$5,000

**Farm Managers and Rural Appraisers Award [I5123]**

The award is made to encourage research in farm management and rural appraisal. The recipient will be selected at the end of each winter semester. Application is not necessary. Graduate students in the department of Food, Agricultural & Resource Economics (FARE) who intend to pursue research in farm management and rural appraisal.

*Donor(s):* **The Ontario Chapter of the American Society of Farm Managers and Rural Appraisers**

*Qualification(s):* In-course graduate students in the Department of Agricultural Economics and Business in good standing who are conducting or planning to conduct research in farm management and appraisal.

*Amount:* 1 award of \$1,000

**Food Science Department Scholarship [I5025]**

The scholarship will be awarded on the basis of the student's academic record in the previous full academic year. Students who experience difficulty in obtaining other sources of financial support shall be given priority by the selecting committee. Apply by August 15 using the [Department of Food Science Graduate Scholarship Application Form](#).

*Donor(s):* **Department of Food Science, University of Guelph**

*Qualification(s):* Students registered in a program offered by the department of Food Science.

*Amount:* 1 award of \$500

**Frank and Gertraude Hurnik Scholarship [I5853]**

An award in agricultural ethics is provided by Dr. Hurnik, former faculty member in Animal and Poultry Science, who initiated the work in behavioral studies and animal welfare at Guelph. Apply by August 15th using the [Department of Animal Biosciences Graduate Scholarship Application Form](#).

*Donor(s):* **Dr. Frank Hurnik**

*Qualification(s):* OAC graduate or undergraduate students who are associated with the Department of Animal Biosciences with a minimum of "A" standing in their previous two semesters and who undertake a project or attend a conference/scientific meeting or publish a paper in animal welfare or agricultural ethics.

*Amount:* 1 award of \$1,000

**Frank Wallace Cockshutt Scholarship [I5015]**

In 1951 the estate of the late Frank Wallace Cockshutt established an award in the field of dairy cattle breeding. Apply by August 15th using the [Department of Animal Biosciences Graduate Scholarship Application Form](#)

*Donor(s):* **The Estate of the late Frank Wallace Cockshutt**

*Qualification(s):* Graduate students with high academic standing and interest in and aptitude for research in dairy cattle breeding.

*Amount:* 1 award of \$2,000

**Fred W. Presant Scholarship [I5680]**

Established by the late Fred Presant, a graduate of OAC in 1921 and in 1923, and a leader in the field of human and animal nutrition. Academic standing in the previous two years of study will be used to select a recipient from the eligible candidates. Apply by letter to the OAC Awards Office (oacaward@uoguelph.ca), by August 15. Please include the name of the award and the award ID in the subject line of your email. Please also include it in your letter.

*Donor(s):* **The late Fred Presant**

*Qualification(s):* Graduate students in Plant Agriculture or School of Environmental Sciences who are conducting research on pesticides and their use in the production of food crops are eligible.

*Amount:* 1 award of \$1,000

**George and Lois Whetham Graduate Bursary [Z5299]**

One award is for students in CSAHS and the second is for students in OAC. Apply with a completed Financial Need Assessment Form to Student Financial Services by January 10. ACCESS AWARD.

**Donor(s):** Mr. George R. (BSA'53) and Mrs. Lois J. Whetham (BHSc '54) with the aid of the Ontario government's OSOTF program

**Qualification(s):** Full time students registered in any program offered by the College of Social and Applied Human Sciences or the Ontario Agricultural College. Additionally, students must meet the government-mandated terms for receipt of an OSOTF/OTSS award.

**Amount:** 2 awards of \$3,500

**George and Lois Whetham Scholarships in Food Systems OAC [E5764]**

Selection will be based on the quality of the student's statement of research interest/academic intent in the graduate application and the feasibility of the proposed research as documented in a one-page letter of support from the faculty research advisor. Faculty research advisors nominate graduate students who are still in the first year of their program (semester 1, 2 or 3) as of the Fall semester after the application deadline (August 15) to the Graduate Coordinator in their academic unit. OAC Graduate Coordinators in each academic unit will then nominate up to 3 students (per unit) from their pool to the OAC Awards Office (oacaward@uoguelph.ca) by Sept 15.

**Donor(s):** Mr. George R. Whetham (OAC, BSA 1953) and Mrs. Lois J. Whetham (MAC, BHSc 1954)

**Qualification(s):** Students entering a Master's or PhD program in the Ontario Agricultural College and whose area of study is food systems, which may include agriculture, food distribution, food sustainability, food security, nutrition, local food and rural change.

**Amount:** 1 award of \$5,000

**George Morris Entrance Scholarship [E5769]**

Established by the former George Morris Centre to acknowledge George Morris's leadership, dedication and impact with respect to agri-food policy research and training. The Department will nominate either one PhD student or 2 MSc students entering a graduate program offered by the Department of Food, Agriculture and Resource Economics. The Department will forward their nomination to the OAC Awards Office (oacaward@uoguelph.ca) by August 31 including the student's name, student ID number, and the program of study. Selection will be based on the quality of the student's statement of research interest/academic intent in their application to the program and their admission average. No application is required.

**Donor(s):** George Morris Centre

**Qualification(s):** Students entering a PhD program or a MSc Program offered by the Department of Food, Agriculture and Resource Economics who are interested in research relating to policy.

**Amount:** up to 2 awards of no more than \$10,000 (split over fall and winter semesters)

**George W. and Mildred B. Moore Scholarship [I5126]**

In memory of the late Rev. Dr. George W. Moore and the late Mildred Baker Moore. Apply to the OAC Awards Office (oacaward@uoguelph.ca) by August 15 with a letter no longer than two pages outlining your research and your academic achievements. Please include the award name, award ID and your student ID number on your application. Selection will be based on highest academic excellence measured by grades and publications.

**Donor(s):** Dr. G.A.B. Moore

**Qualification(s):** Students registered in any OAC Master's degree program who are working on Indigenous community development projects. Preference given to students who self-identify as First Nation (status and non-status), Métis or Inuit, who are engaged in the Aboriginal community either in their home community or at the University of Guelph. Preference will also be given to students registered in the Capacity Development and Extension (CDE) program. If no CDE students apply, preference will be given to student registered in any graduate program offered by SEDRD.

**Amount:** 1 award of \$1,000

**Gerald R. Stephenson Scholarship [I5863]**

In 2002, to commemorate their 50th year, CropLife Canada provided a first place prize competition which was won by a team of graduate students from Guelph. The team established a this award in the name of their faculty mentor, Dr. Gerry Stephenson. Selection will be based on academic achievement and involvement in extracurricular activities or teaching assistance. Please submit the application to the OAC Awards Committee (oacaward@uoguelph.ca) by August 15.

**Donor(s):** Crop Science Graduate Student Group

**Qualification(s):** Outstanding students in the School of Environmental Sciences or Plant Agriculture who are conducting research in crop protection and are either involved in various extracurricular activities or are teaching assistants.

**Amount:** 1 award of \$1,000

**GFTC Legacy Fund Graduate Scholarships [I5949]**

In recognition of the Guelph Food Technology Centre's (GFTC) long association with the University of Guelph, the GFTC Board has created these scholarships to recognize academic excellence and encourage students to study and pursue post-graduate studies relevant to the food sector. Apply to the OAC Awards Office (oacaward@uoguelph.ca) by August 15 with a one-page letter stating relevance of past work experience, proposed research objectives and career aspirations to the food production and processing sector. Selection will be based on high academic achievement and relevance of student's past work experience, research objectives and career aspirations to the food production and processing sector.

**Donor(s):** Guelph Food Technology Centre

**Qualification(s):** Students registered in a their first year of course work Master's program in Food Safety and Quality Assurance Graduate, a MSc or PhD program in Food Science, Applied Human Nutrition, Nutrition and Nutraceutical Science, Food Agriculture and Resource Economics or an MBA.

**Amount:** 9 awards of \$10,000

**Gordon B. Henry Bursaries in Food Science [Z5920]**

These bursaries have been established in memory of OAC graduate '34 Gordon B. Henry. Apply to Student Financial Services by January 10 and include a completed Financial Need Assessment Form. ACCESS AWARD.

**Donor(s):** Family and associates of Gordon B. Henry with the aid of the Ontario government's OSOTF program

**Qualification(s):** For graduate students registered in Food Science with demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).

**Amount:** several awards of varying amounts

**Gordon F. Townsend Scholarship [I5094]**

Established In memory of professor Gordon F. Townsend, professor emeritus, Department of Environmental Biology and graduate of OAC in 1938. Preference will be given to students with an interest in international development. Application is not necessary.

**Donor(s):** Mrs. Stephanie Townsend McKinnon and the late Mr. Donald McKinnon

**Qualification(s):** Outstanding MSc or PhD student in apiculture.

**Amount:** 1 award of \$1,750

**Grothier Scholarship in Capacity Development & Extension [E5104]**

Awarded to an academically outstanding student entering the MSc program in Capacity Development and Extension. Selection is based on high admission average. No application is necessary.

**Donor(s):** The Grothier Estates

**Qualification(s):** Students entering the MSc program in Capacity Development & Extension

**Amount:** 1 award of \$1,500

**H.L. Hutt Memorial Scholarship [I5040]**

Academic standing will be used to determine the recipient from those eligible. Apply by August 15th using Department of Plant Agriculture Graduate Scholarship Application Form.

**Donor(s):** Dr. Fred B. Hutt

**Qualification(s):** Graduate students conducting research in horticulture.

**Amount:** 1 award of \$1,000

**Hamilton Milk Producer's Association Scholarship [I5034]**

The scholarship must be used exclusively for research related to dairy cattle. Apply by August 15th using the Department of Animal Biosciences Graduate Scholarship Application Form.

**Donor(s):** Hamilton Milk Producer's Association

**Qualification(s):** Graduate student enrolled in the Department of Animal Biosciences.

**Amount:** 1 award of \$1,500

**Harvey W. Caldwell Scholarship [I5012]**

This award is tenable with other Senate awards except the OAC Williams and Grothier Scholarships and is awarded to a student with high academic standing. Apply by August 15 to the Graduate Program Assistant, Capacity Development & Extension (cde@uoguelph.ca) with a letter no more than two pages outlining your demonstrated interest in the practice of rural extension in Canada. Please include your name, student ID number and the award name and award ID on your application.

**Donor(s):** Faculty in the Department of Capacity Development & Extension

**Qualification(s):** Students registered in Capacity Development & Extension who have completed at least two semesters with high academic standing are eligible. Preference will be given to a student who has demonstrated interest in the practice of rural extension in Canada.

**Amount:** 1 award of \$1,750

**Helen Kippax Memorial Scholarship [I5241]**

Selection will be based on level and quality of participation in community service and involvement in professional activities. Preference will be given to a female student. Apply by September 15th to the OAC Awards Office (oacaward@uoguelph.ca) with a letter (maximum 2 pages) outlining your community service and professional activities. Please include the name of the scholarship and the award ID number in the subject line of your email and on your application. Please include your student ID number on the application as well.

**Donor(s):** The estate of Ruth Kippax Stedman

**Qualification(s):** Student registered in the MLA program with a minimum 75% cumulative average and active in community service as well as involved in professional activities.

**Amount:** 1 award of \$800

**Herbert F. Crown Memorial Scholarship for Conservation and Rural Development [I5018]**

Established in memory of the late Herbert F. Crown whose career was spent working in these fields with the Ontario Ministry of Agriculture and Food. Apply with a one-page letter outlining research and academic achievements, to the Director, School of Environmental Design & Rural Development by August 15.

**Donor(s):** Family, friends and associates of the late Herbert F. Crown

**Qualification(s):** MSc Planning student in Environmental Design and Rural Development based on academic achievement and quality of research in the area of rural development and/or conservation and community development.

**Amount:** 1 award of \$600

**Hoskins Scholarships [I5108]**

Established in memory of Mr. F. and Miss G. Hoskins. Apply by August 15th using [Department of Plant Agriculture Graduate Scholarship Application Form](#).

**Donor(s):** Mr. Fred Hoskins and Miss G. Hoskins

**Qualification(s):** Graduate students with high academic standing who are involved in research related to horticulture who have completed a minimum of two full-time semesters at the graduate level.

**Amount:** 1 award of \$3,500

**International Emergency Medical Aid Assistance [B5200]**

The University of Guelph provides support to International graduate students that are faced with unexpected, or unforeseen financial shortfalls due to a medical issue not covered by UHIP or the Student Dental/Medical insurance plans. Students should apply to the International Student Advisor, in the Centre for International Programs office, by completing an International [Student Financial Need Assessment Form \(N.A.F.\)](#) and submitting documentation to support the medical issue. These bursaries are awarded on an on-going basis.

**Donor(s):** University of Guelph

**Qualification(s):** International students registered in a degree program and have completed a minimum 1.50 credits who have a medical emergency expenses not covered by UHIP or the Student Dental/Medical insurance plans and demonstrated financial need.

**Amount:** Several awards of varying amounts

**J. Alden and Isobelle McLean Scholarship [E5614]**

This scholarship is made available by the family of the late Alden and Isobelle McLean. Apply with a letter to the OAC Awards Office (oacaward@uoguelph.ca) by August 15 and include the title and award ID number in the subject line of your email. Please also include your student number on your letter

**Donor(s):** Mrs. Ellen Robinson, Mrs. Carolyn Fraser and Mr. Cameron McLean

**Qualification(s):** Students who are entering the area of Capacity Development & Extension, the School of Environmental Design and Rural Development or the Rural Studies doctoral program, and who will be conducting research in rural community development.

**Amount:** 1 award of \$1,500

**James A. McGrath Memorial Scholarship [I5060]**

Established by the friends of the late James McGrath, this scholarship is awarded to an outstanding graduate student in poultry science, preference being given to those intending to follow a career in the poultry industry in Canada. Apply by August 15th using the [Department of Animal Biosciences Graduate Scholarship Application Form](#).

**Donor(s):** Friends of the late James McGrath

**Qualification(s):** Students registered in poultry science.

**Amount:** 1 award of \$1,750

**James Aubrey and Doris Garner Memorial Scholarship [I5856]**

James was a graduate of OAC in 1923 and was elected to the Ontario Agricultural Hall of Fame following an exemplary career in the Extension Branch of the Ontario Department of Agriculture. Preference will be given to residents interested in furthering the cause of family farms or small scale agri-business. James was a graduate of OAC in 1923 and was elected to the Ontario Agricultural Hall of Fame following an exemplary career in the Extension Branch of the Ontario Department of Agriculture. Selection will be based on academic achievement and demonstrated research ability. Apply to OAC awards by August 15 with a letter (no more than two pages) outlining area of research; a letter of reference from the adviser will be considered.

**Donor(s):** The family of the late James Aubrey and Doris Garner

**Qualification(s):** Master's students registered in any program offered by the Department of Food Agriculture and Resource Economics undertaking research that is relevant to agriculture.

**Amount:** 1 award of \$3,000

**James Harris Scholarship [I5035]**

Apply by August 15th using the [Department of Animal Biosciences Graduate Scholarship Application Form](#).

**Donor(s):** James Harris Foundation

**Qualification(s):** Post-graduate study and research in the Department of Animal Biosciences on problems with meat-producing livestock

**Amount:** 1 award of \$3,000

**JD Cunningham Scholarship in Food Safety & Quality Assurance [I5115]**

Established by the Ontario Food Protection Association in memory of Professor J. Douglas Cunningham. The award is given to the student with the highest grade in FSQA \*6000 Food Science Communication during the previous Summer and Fall offerings. The student awarded the scholarship will be encouraged to present the results of their research at the OFPA Fall meeting in the year following receiving the award. No application is required.

**Donor(s):** Ontario Food Protection Association

**Qualification(s):** Full-time students registered in the MSc. Food Safety and Quality Assurance Program who have completed FSQA\*6000 (Food Safety & Quality Assurance Seminar) in the previous Summer or Fall

**Amount:** 1 award of \$2,000

**John Bandeen Memorial Scholarship [I5003]**

Established in memory of the late Dr. John Bandeen, a graduate of OAC '57 and a faculty member in the Department of Plant Agriculture. Apply by August 15th using [Department of Plant Agriculture Graduate Scholarship Application Form](#).

**Donor(s):** The friends and associates of the late John Bandeen

**Qualification(s):** Available to MSc or PhD students who are conducting research in weed science

**Amount:** 1 award of \$1,000

**John Black Graduate Travel Grant [T5649]**

Established by friends and colleagues of John Black, Chief Librarian at Guelph (1984-95) and a founding faculty member (1966-95) in the Department of Political Studies. Selection will be based on academic standing, research potential and feasibility of proposed travel. Apply to the Office of Graduate and Postdoctoral Studies by October 17 using the John Black Graduate Travel Grant application. Applications may be submitted for future travel only and applications for previous travel will not be considered.

**Donor(s):** Friends and Colleagues of John Black

**Qualification(s):** Master's students with at least an "A--" average in the last 2 years, registered in a Political Science program (POLS/CCJP), the Capacity Development and Extension program, or the collaborative International Development Studies program (any department) in class level 1 to 3 at the time of application and who plan to travel to conduct thesis research, attend a conference, or take a course.

**Amount:** 1 award of \$1,500

**John E. (Jack) Irving Scholarship [I5940]**

Student must demonstrate excellent research through submission of a one page research summary. Students apply by September 15 to the School to the OAC Awards Office (oacaward@uoguelph.ca) with a one page research summary and a one page recommendation letter from a faculty member within the School of Environmental Design and Rural Development. Please include the name of the scholarship and the award ID number in the subject line of your email and on your application. Please include your student ID number on the application as well.

**Donor(s):** Isles Foundation

**Qualification(s):** Students with a minimum average of 85% registered in the second year of the Master of Landscape Architecture (MLA) program.

**Amount:** 1 award of \$2,500

**John R.M. Kelso Scholarship in Environmental and Fisheries Science [I5340]**

Established to recognize the late Dr. John R.M. Kelso's personal and professional contributions to the Fisheries profession. Selection will be based on: (a) overall grade point average and academic standing in all graduate courses as well as full time equivalent undergraduate courses completed during the student's program, (b) relevance and appropriateness of the research work, and (c) demonstration of participation in extracurricular activities related to environmental protection and fisheries stewardship, including but not limited to, membership in conservation, fisheries or environmental protection societies, involvement in research, educational, communication or other programs outside of university, dedicated to these goals. Financial need may also be considered. The application, including a letter outlining research, should be sent to Student Financial Services by January 10.

**Donor(s):** Family and friends of the late Dr. John R.M. Kelso, B.Sc.(Agr.) '67, and M.Sc. '69

**Qualification(s):** Students conducting research that examines the effects of anthropogenic stressors on fish community ecology (including but not limited to toxic chemicals, habitat degradation, or hydro power).

**Amount:** 1 award of \$2,000

**John S. Martin Memorial Scholarship [I5057]**

Established in memory of the late Honourable John S. Martin, Port Dover, poultry breeder and Minister of Agriculture for Ontario 1923-1930. Apply by August 15th using the [Department of Animal Biosciences Graduate Scholarship Application Form](#)

**Donor(s):** The Estate of the late Lillian E. Martin

**Qualification(s):** Students studying in the area of poultry science with demonstrated extracurricular activities.

**Amount:** 1 award of \$600

**Kasha Scientific Research Travel Grants [T5043]**

Established by professor K.J. Kasha from the 1983 Ernest C. Manning Award that he received in recognition of his research on haploidy in barley. To provide awards to cover travel expenses for one or more students for overseas meetings, the award may be held in conjunction with other travel awards. Preference may be given to students with other travel awards and/or students planning to attend an overseas international meeting and who have demonstrated good research potential. Apply by August 15th using the [Department of Plant Agriculture Graduate Scholarship Application Form](#).

**Donor(s):** Professor K.J. Kasha

**Qualification(s):** Graduate students in the Department of Plant Agriculture to attend meetings and present papers on haploidy or biotechnology

**Amount:** 1 award of \$1,000

**Kees de Lange Graduate Scholarship [E8025]**

In memory of Dr. Kees de Lange, this scholarship was created by his friends, family and colleagues whom recognized his outstanding research and contributions to the swine industry. Selection will be based on greatest research potential as demonstrated by publications, presentations and related research experience and/or extracurricular experience. In case of a tie, the student with the highest admission average will be selected. Apply by August 15 to the OAC Awards Office with a cover letter (no more than 1 page), a research proposal (no more than 2 pages) and a detailed CV outlining how you meet the criteria of the scholarship. Please merge these documents into one file before you submit your application. Please include the name of the award and the award ID number in the subject line of your email and ensure to include the award name and ID number and your student ID number on all pages of your application.

**Donor(s):** Friends and Family of Dr. Kees de Lange

**Qualification(s):** Students entering in the Winter, Summer or Fall (registered in semester's 1, 2 or 3) of any graduate program offered by OAC who are conducting research related to swine nutrition or research projects related to the swine industry. Preference will be given to students who are not receiving another OAC Entrance Award.

**Amount:** 1 award of \$10,000 (payable over 3 semesters)

**Keith and June Laver Scholarship in Horticulture [I5312]**

Established by June Laver (MAC '40) in memory of Keith Laver (OAC '40), renowned for their innovations in rose research and development. Selection will be based on the quality of academic and research performance to date. Apply by August 15 to OAC Awards Office with a letter no more than 300 words outlining research and the relevance to environmental issues and horticulture.

**Donor(s):** Mrs. June Laver

**Qualification(s):** Students registered in a graduate program offered by the Ontario Agricultural College who are conducting research in the area of horticulture relevant to environmental issues and horticulture including for example; ornamentals, vegetables, fruits, greenhouse, water, energy and fertilizer innovations.

**Amount:** 2 awards of \$10,000 (payable over 3 semesters)

**Keith R. Collver Scholarship [I5173]**

Established in recognition of the contributions of Keith R. Collver. The recipient will be conducting research with direct application/benefit to the marketing of fruits and vegetables. Apply to the OAC Awards Office (oacaward@uoguelph.ca) by August 15. Please include the name of the award and the award ID in the subject line of your email and include your student ID number and the name of your award on your letter.

**Donor(s):** Norfolk Fruit Growers Association

**Qualification(s):** Graduate students in Food Science or Plant Agriculture who are conducting research in postharvest physiology, packing, processing or marketing of fruits and vegetables.

**Amount:** 1 award of \$1,000

**Kenneth E. Crawford Scholarships [Z5686]**

Established in recognition of 40 years of dedicated service to the Ontario and Canadian turkey industries. Selection will be based on financial need and academic performance. If there are insufficient eligible candidates, graduate students in agricultural economics who are conducting research in poultry marketing will be considered. Apply by submitting a completed Financial Need Assessment Form to Student Financial Services by January 10. ACCESS AWARD.

**Donor(s):** The Ontario Turkey Producers' Marketing Board, the Canadian Turkey Marketing Agency, and the OAC Alumni Foundation, with the aid of the Ontario government's OSOTF program

**Qualification(s):** MSc and/or PhD students in the Department of Animal Biosciences who are conducting research in poultry production with demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).

**Amount:** 2 awards of \$2,000

**Kenneth G. Murray Graduate Travel Grant [T5148]**

Established in recognition of the work and contributions of Ken Murray, OAC '50, to the Canadian meat processing industry. Apply to OAC Awards Office (oacaward@uoguelph.ca) by August 15 with a letter, no more than two pages, outlining the intended study program/conference or other type of learning opportunity, reasons for choosing the program/conference or other learning opportunity and the anticipated benefits of participation. Please include the award name and award ID in the subject line of your email. Please also include this information and your student ID number on your application.

**Donor(s):** J. M. Schneider Inc.

**Qualification(s):** Students registered in a MSc or PhD program in the Ontario Agriculture College in the department of Food Science or Animal Biosciences or students who have submitted a thesis or research proposal to study meat quality. Aspects of meat quality can include its composition, nutritional value, and/or consumer acceptability.

**Amount:** 1 award of \$1,000

**Kenneth McAlpine Pretty Scholarship [I5171]**

Established in memory of Kenneth M. Pretty (OAC '51). The recipient will be selected on the basis of high academic achievement. Application is not required.

**Donor(s):** The late K.M. Pretty and by his former employer, The Phosphate Institute of Canada

**Qualification(s):** Students in the School of Environmental Sciences who are conducting research in the area of plant nutrition or soil fertility.

**Amount:** 1 award of \$1,000

**Kenneth W. Knox Graduate Leadership Travel Grant [Z5304]**

Established to honour and recognize Kenneth Knox, Kemptville '67, OAC '72, for his passionate and innovative career. Selection will be based on the relevance of proposed travel plans, expected benefits to the program of study, significance of leadership contributions and financial need. Apply by January 10th to Student Financial Services with a letter outlining planned travel, expected benefits, dates of travel, estimated costs and demonstrated leadership contributions, as well as a letter of support from the advisor and a completed University of Guelph Financial Need Assessment Form. ACCESS AWARD.

**Donor(s):** Family and friends of Kenneth Knox with the aid of the Ontario government's OSOTF program

**Qualification(s):** Students registered in any graduate program offered by OAC with demonstrated leadership contributions who plan to participate in an experiential learning opportunity related to their field of study (i.e.) attend conferences/scientific meetings, present papers or conduct research with demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an OSOTF/OTSS award.

**Amount:** 1 award of \$2,500

**Keyes Family Scholarship [I5864]**

The scholarship is awarded to a student who has demonstrated: research and academic achievement based on publications, cumulative average and letter from student's advisor-advisory committee and, an interest in animal welfare. Application not necessary. Nominations are to be submitted by the Department of Animal Biosciences to the OAC Awards Committee Chair (oacaward@uoguelph.ca) by October 7. Please include the award name and ID number in the subject line of your email. Please include the student's ID number in the nomination.

**Donor(s):** The Keyes Family

**Qualification(s):** Available to graduate students currently registered full-time in the Department of Animal Biosciences who are in their 2nd year of an M.Sc. or Ph.D. program

**Amount:** 1 award of \$1,000

**King Cole Ducks Ltd. Poultry Scholarship [I5760]**

Established by the family of the late James Murby, OAC 1935, and founder of King Cole Ducks Ltd. to acknowledge his lifetime devotion to the poultry industry. Apply to the OAC Awards Office (oacaward@uoguelph.ca) by August 15 with a one page research summary explaining how your research fits the criteria of the award. Clearly indicate the award name and ID number on your proposal. Please also include the title of the award and the award ID number in the subject line of your email when you submit your application.

**Donor(s):** King Cole Ducks Ltd.

**Qualification(s):** Students registered in any program offered by OAC whose research has direct application to the industry of poultry farming and production.

**Amount:** 1 award of \$5,000

**Land Resource Science Graduate Scholarships [I5715]**

The funds are provided in recognition or in memory of students, staff and faculty in the department. . Students will be selected on the basis of academic standing and contribution to the academic life of the department. No application is required.

**Donor(s):** Land Resource Science Endowment Fund

**Qualification(s):** : Students registered in the MSc or PhD program in the School of Environmental Science.

**Amount:** 2 awards of \$2,000

**Landscape Architecture ACCESS Scholarships [Z5906]**

Students must have demonstrated financial need and a minimum of B standing in the previous academic year. Apply by January 10 to Student Financial Services with a completed Financial Need Assessment Form. ACCESS AWARD.

**Donor(s):** Faculty members and students in Landscape Architecture, with the aid of the Ontario government's OSOTF program

**Qualification(s):** Graduate or undergraduate students in the School of Landscape Architecture. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).

**Amount:** 1 award of \$500

**Landscape Architecture Alumni Scholarships [I5182]**

The recipient(s) will be selected on the basis of academic performance and participation and leadership in extracurricular activities. Students, faculty or alumni may nominate eligible students to the School of Environmental Design and Rural Development by September 15.

**Donor(s):** Alumni of the School of Landscape Architecture

**Qualification(s):** For students who are registered in the Faculty of Graduate Studies and enrolled in the MLA program and who have completed two semesters.

**Amount:** 1 award of \$1,000

**Larry Milligan Research Travel Grant [T5804]**

Established at the conclusion of Dr. Milligan's term as vice-president, research in 2001 to recognize his sixteen years of leadership of research activities. Awarded on the basis of academic excellence. Students should submit a curriculum vitae, a one-page summary of research, a list of scholarly publications, a transcript of their academic record, and a one-page travel plan by August 15 to the OAC Awards Office (oacaward@uoguelph.ca). Please include the name of the award and the award ID number in the subject line of your email and on your application. Please include your student ID number on your application.

**Donor(s):** Family, friends and colleagues of Dr. Milligan

**Qualification(s):** Graduate students in a program offered by the Department of Animal Biosciences who will be attending a conference for the presentation of their research findings.

**Amount:** 1 award of \$2,000

**MacSon Entrance Scholarship [E8020]**

Selection will be based on: 1. Academic Record based on Admission Average only. ( /40%); 2. Academic Assessment from Referees ( /30% total, 15% for each referee assessment); Determined based on student's research potential; critical thinking abilities; application of knowledge; and significance of the proposed research; and 3. Research Proposal ( /30%): Determined based on feasibility, significance, communication. Apply by August 15 to the OAC Awards Office (oacaward@uoguelph.ca) with a research proposal (maximum 2 pages) describing how your research meets the criteria of the award and two reference letters describing your research potential, critical thinking abilities, application of knowledge and significance of the proposed research. Referees can email their letters to oacaward@uoguelph.ca. Please include the name of the award and the award ID number in the subject line of your email as well as on your application. Please also include your name and student ID number on your application.

**Donor(s):** Proceeds from the sale of the former Maclaren property that had previously been gifted and the University of Guelph matching fund program

**Qualification(s):** Students entering any graduate program in OAC who will be conducting research or studying issues related to conservation (e.g. resource, water, soil or species conservation). Preference will be given to students from Eastern Ontario (Ottawa-Carleton, Dundas-Glenarry-Stormont, Lanark, Prescott-Russell, Leeds & Grenville, Lennox & Addington, Frontenac and Renfrew counties) and/or students who self-identify as Aboriginal (First Nations, Inuit, Metis). Preference will also be given to students who are not receiving any OAC entrance awards.

**Amount:** 2 awards of \$17,500 payable over 3 semesters

**Major General LaFleche Memorial Scholarship [I5047]**

Established in memory of Major General LaFleche. Apply by August 15th using Department of Plant Agriculture Graduate Scholarship Application Form.

**Donor(s):** Mr. Noah Torno, President of Jordan Wines

**Qualification(s):** Graduate students in horticulture.

**Amount:** 1 award of \$1,000

**Manton Memorial Scholarship [I5055]**

Established in memory of George Manton and William Douglas Manton. Apply by August 15th using Department of Plant Agriculture Graduate Scholarship Application Form.

**Donor(s):** Miss Violet Manton

**Qualification(s):** Students in horticulture research with high academic standing.

**Amount:** 1 award of \$1,750

**Margaret and Angus Hamilton Apple Research Scholarship [E8021]**

This scholarship is inspired by Margaret Hamilton's longstanding passion for education and for her desire to build excellence in research supporting the Canadian apple growing and marketing industry, and recognizes the historical connection of the family of Angus Hamilton with the University of Guelph and the OAC. Apply to the OAC Awards Office (oacaward@uoguelph.ca) by August 15 with a letter no more than 2 pages outlining your research, your interest in this research and a supporting letter from your advisor or a representative from the apple industry outlining your academic achievements and the significance of this research. References can send their letters directly to oacaward@uoguelph.ca. Selection will be based on (a) a 1-2 page letter indicating the proposed research, highlighting reasons for interest in the area of research, along with the relevance of past work/family experience that would influence the success of the proposal; (b) supporting letter from the student's advisor or from a representative of the apple industry; and (c) academic achievement (admission average).

**Donor(s):** Margaret Hamilton and matched by the University of Guelph Graduate Scholarship Matching program.

**Qualification(s):** Students entering in the Winter, Summer, or Fall into any Masters or PhD program offered by the Department of Plant Agriculture who demonstrate an interest in any aspect of apple research (including nutrition, propagating, post-harvest and pest control). Preference will be given to students who have not received another OAC entrance scholarship.

**Amount:** 1 award of \$10,000 (payable over 3 semesters)

**Marian Brennan and Hedley Harrison Memorial Scholarship [I5867]**

This award is provided in memory of Marian Brennan and Captain Hedley M. Harrison. Selection will be based on academic performance as evidenced by grade standing (a minimum average of 75% admission/cumulative), and who are conducting research in horticulture science. Apply by August 15th using [Department of Plant Agriculture Graduate Scholarship Application Form](#).

**Donor(s):** The Estate of the late Marian Brennan

**Qualification(s):** Awarded annually to a graduate student (MSc or PhD) in horticultural science. Preference will be given to an entering student.

**Amount:** 1 award of \$1,000

**Mark Terhune Memorial Research Scholarship [E5912]**

This award was established in memory of their son, Mark Terhune BSc (Agr), BEd, MA. Mark was raised on the family farm and had a keen interest in the outdoors and rural issues. Selection will be based on academic performance as evidenced by publications, letters of reference and research performance to date. No application is necessary, all candidates will automatically be considered by the Rural Studies Admission Committee.

**Donor(s):** Mr. and Mrs. Harry Terhune, along with family and friends

**Qualification(s):** Entering PhD student registered in the Rural Studies Program.

**Amount:** 1 award of \$1,000

**Mary Edmunds Williams Scholarships [A5096]**

The awards will be paid over two years with the second year of the scholarship requiring academic performance consistent with the requirements for the award and/or the continuing recommendation of the department. Additional scholarships of \$5,000 for one year are awarded to PhD students in OAC departments or schools. Students are eligible for consideration. Nominations will be made annually by each department or school to the OAC Awards Committee. Williams awards may be held for a maximum of three years. Preference will be given to students from the counties of Caenarvonshire and Anglesey in Wales. No application is required.

**Donor(s):** The Estate of Mr. Edmund Cecil Williams

**Qualification(s):** Students entering a PhD program offered by OAC with at least a first-class ('A-') average in previous academic years.

**Amount:** up to 7 awards of \$10,000 payable over 2 years (\$5,000 in the first fall and \$5,000 in the second fall)

**Monsanto Plant Science Research Scholarship [I5149]**

Selection will be based academic achievement, research ability and the research being conducted. Apply to the OAC Awards Office (oacaward@uoguelph.ca) by August 15 with a letter outlining your research project and your research experience. Please include the name of the award and the award ID number in the subject line of your email and on your application letter. Please also include your name and student ID number on your application.

**Donor(s):** Monsanto Canada Inc

**Qualification(s):** Graduate students registered in any program offered by the Department of Plant Agriculture who are conducting research in plant sciences.

**Amount:** 1 award of \$1,500

**Morwick Scholarship [I5062]**

Established by the family of the late Professor Frank F. Morwick (OAC '27) faculty member of the Department of Land Resource Science for 35 years, and his wife, the late Lorraine (Ferguson) Morwick (Mac '28). Apply by August 15 to the OAC Awards Office (oacaward@uoguelph.ca) with a research proposal (no more than 2 pages). Please include your name and student ID number and the name of the award and the award ID number on your application. Please include the name of the scholarship and the award ID number in the subject line of your email. Selection will be based on highest cumulative average.

**Donor(s):** Mr. George and Mrs. Jean Smith

**Qualification(s):** Students registered in a graduate program offered by the School of Environmental Sciences who are conducting research in the area of land resource science.

**Amount:** 1 award of \$2,000

**Mrs. Fred Ball Scholarships [I5627]**

An endowment fund has been established through the estate of May Ball in memory of her mother, Mrs. Fred Ball, who had a life-long interest in flowering ornamental plants, particularly roses. The recipients will be chosen on the basis of academic achievement and/or the quality of their graduate research. Apply by August 15th using [Department of Plant Agriculture Graduate Scholarship Application Form](#).

**Donor(s):** The estate of May Ball

**Qualification(s):** Graduate students in the Department of Plant Agriculture with a minimum cumulative standing of 75% in the previous two years are eligible.

**Amount:** 6 awards of \$5,000

**N.R. Richards Scholarship [E5161]**

Established in recognition of Professor N.R. Richards' contribution to the OAC as Dean from 1962 to 1972, Class of OAC '70, and the OAC Alumni Foundation. Academic standing will be used to determine the recipient from among the eligible applicants. Apply by letter to the OAC Awards Office (oacaward@uoguelph.ca) by August 15.

**Donor(s):** The OAC Alumni Foundation

**Qualification(s):** Students entering OAC who are planning to pursue graduate studies in Environmental Sciences use and/or Rural Planning and Development.

**Amount:** 1 award of \$5,000

**OAC 1950 International Research Travel Grant [Z5736]**

Provides annual travel grants of 80% of the cost of travel to/from the site of research/study. Apply by January 10th to Student Financial Services with a letter outlining the proposed program of study or research and include a budget and a completed Financial Need Assessment Form. ACCESS AWARD.

**Donor(s):** The Class of OAC 1950 with the aid of the Ontario government's OSOTF program

**Qualification(s):** Students with demonstrated financial need registered in any degree in OAC who will participate in study/research activities at laboratories and institutions outside Canada. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).

**Amount:** 2 awards of up to \$3,000

**OAC International Travel Grants [T5199]**

These grants were established to assist graduate students to pursue research opportunities abroad. All applications will be considered and ranked on the value of proposed research travel plans and expected benefits to their research proposal. Financial Need will also be considered. Preference will be given to international graduate students enrolled in OAC programs. Apply by January 10th to Student Financial Services with a completed Financial Need Assessment Form or Financial Need Assessment Form for International Graduate Students and include a letter of not more than two pages outlining research and proposed travel plans, expected benefits, estimated costs, date of travel and a letter of support from the advisor.

**Donor(s):** Various Donors

**Qualification(s):** OAC students who are conducting research, pursuing an educational program or attending scientific meetings abroad

**Amount:** several up to \$2,000

**OAC '38 Lloyd Minshall Bursaries [Z5716]**

Apply to Student Financial Services by January 10 with a completed Financial Need Assessment Form. ACCESS AWARD.

**Donor(s):** Lloyd Minshall' classmates and OAC'38 alumni, with the aid of the Ontario government's OSOTF program

**Qualification(s):** OAC students with demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).

**Amount:** several awards of varying amounts

**OAC '60 Leadership Development Scholarship [I51313]**

Classmates and friends of OAC 1960 have created this scholarship to honour their 50th anniversary. Selection will be based on the expected value and benefits of the research and demonstrated leadership skills. Apply by August 15 with a letter (no more than 2 pages) to the OAC awards office outlining the expected value and benefits of the proposed research. Include a summary of all professional and academic activities demonstrating leadership skills and a letter of support from the advisor.

**Donor(s):** Class of OAC 1960

**Qualification(s):** Students registered in any graduate program offered by OAC who are conducting research that focuses on collaborative initiatives linking Canadian interests both at home and globally to food and agriculture sustainability and who show evidence of leadership skills in academic and/or professional activities.

**Amount:** 1 award of \$6,000

**OAC '71-'72 Entrance Graduate Scholarship in Sustainable Agriculture [E8022]**

The classes of OAC 71 and 72 established this scholarship to celebrate their 40th anniversary. This scholarship was launched to help support students with research interests in the area of sustainable agriculture and/or food production. Apply by September 1 to the OAC Awards Committee (oacaward@uoguelph.ca) with a research proposal (no more than two pages). Please include your name and student ID number and the award name and ID on your application. Please include the name of the award and the award ID number in the subject line of your email upon submission.

**Donor(s):** Class of OAC 1971 & 1972 c/o Mr. Bill Bears

**Qualification(s):** Students entering in the Winter, Summer, or Fall into any OAC Master's or PhD program who will be conducting research that will contribute to improving sustainability of agriculture/agri-food practices. Students will be selected based on their highest admission average. Preference will be given to students who have not received another entrance scholarship.

**Amount:** 1 award of 10,000 (payable in 3 equal payments-F,W,S)

**OMAFRA Highly Qualified Personnel (HQP) Scholarships [E5987]**

The Ontario Agri-Food Innovation Alliance funds the OMAFRA Highly Qualified Personnel (HQP) Scholarship Program to support the development of highly skilled graduates who can meet the changing demands of the agri-food and rural sector. The health of these sectors depends on a vibrant talent pool of skilled, forward-thinking learners. The Agri-Food Alliance is dedicated to supporting advanced skill development and learning to enhance the intellectual capacity of our citizens to solve current and future problems. Students will be selected based on the following: • Job experience and commitment to the Agri-Food system as demonstrated by past work and volunteer experience • Grades • Fit of research addressing the OMAFRA priorities • Confirmed external funding to complete the project and confirmed top up for the student • Confirmed work placement. Apply by March 1 using the web-based software called Research Management System (RMS) which is used for processing HQP scholarship applications and reporting on projects. Students must register in the RMS before preparing an application. Students do not need to register again if they have previously submitted a letter of intent (LOI) or full proposal to an Ontario Agri-Food Innovation Alliance or an OMAFRA program through the RMS. • have an RMS account? Access the [login page for RMS](#) to start an application • need an RMS account? Visit our [RMS registration page](#) to get a username and password • student research must address [OMAFRA's research priorities](#) • CV, letter. Applicants must not have already started their graduate program and/or not be an OMAFRA employee. This awards is not tenable with NSERC, OGS, SSHRC or CIHR, FIT GRA, Arrell Scholarships or Brock Doctoral Scholarship. Dairy Farmers of Ontario Doctoral Research Scholarship; or the Trudeau scholarships.

**Donor(s):** Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) through the Ontario Agri-Food Innovation Alliance

**Qualification(s):** Graduate students who are completing research that meet OMAFRA's research priorities and who are learning firsthand how forward-thinking research can be mobilized to have a positive impact on society. To be eligible, students must be: • a Canadian citizen, landed immigrant, or studying under an international visa; • entering their first semester of a Master's (thesis-based) or doctoral program in Summer, Winter or Fall. OMAFRA's priorities are contained within the following seven theme areas: • Agricultural Policy and Rural Development • Bioeconomy – Industrial Uses • Emergency Management • Environmental Sustainability • Food for Health • Product Development and Enhancement through Value Chain Collaborations • Production Systems (Plants and Animals)

**Amount:** Various awards for Master's students - up to \$21,300/year for up to 6 semesters, Various awards for Doctoral students - up to \$26,000/year for up to 9 semesters

**Ontario Association of Landscape Architects Scholarship [I5155]**

The recipient will be selected on the basis of academic achievement, performance in design studio, and leadership contributions. No application is necessary.

**Donor(s):** OALA

**Qualification(s):** Students who have completed semester three of the master of landscape architecture program

**Amount:** 2 awards of \$2,000

**Ontario Food Protection Association Graduate Bursary in Food Safety [Z5735]**

Apply by January 10 to Student Financial Services with a completed Financial Need Assessment Form. ACCESS AWARD.

**Donor(s):** Ontario Food Protection Association with the aid of the Ontario government's OSOTF program

**Qualification(s):** For a graduate student enrolled in the M.Sc. program in Food Safety and Quality Assurance Program who demonstrates financial need. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).

**Amount:** several awards of varying amounts

**Orville E. Sinclair Research Scholarship [I5080]**

This scholarship was established in 1985 to honour Orville E. Sinclair, Secretary of the School Milk Fund of London. Selection will be based on Academic Standing. Apply by August 15 with a letter (maximum 1 page) to the OAC Awards Office (oacaward@uoguelph.ca) outlining your research. Include the award name and award ID in the subject line of your email. Please include your name and student ID number as well as the name of the award and the award ID on your application.

**Donor(s):** School Milk Fund of London

**Qualification(s):** Students registered in an OAC Master's program who are conducting research related to fluid milk, by improving methods of production at the farm, or improving methods of processing and/or packaging at the fluid milk plant are eligible.

**Amount:** 1 award of \$500

**OSCIA Soil Health Graduate Scholarship [I5955]**

This \$10,000 scholarship has been generously created by the Ontario Soil and Crop Improvement Association (OSCIA), members and friends. The OSCIA facilitates the responsible economic management of soil, water, air and crops through development and communication of innovative farming practices. The 68th UN General Assembly declared 2015 the International Year of Soils – in recognition of this occasion the OSCIA has created this entrance scholarship to encourage graduate student research around soil management issues. Apply by August 15 to the OAC Awards Committee (oacaward@uoguelph.ca) with a two page letter outlining your proposed research and stating why your proposed research will advance soil health/management research for Ontario's field crop agricultural sector. A letter of reference from the student's advisor outlining the importance of the student's research to the sector is also required. Please have your reference email a scanned copy of their letter to the OAC Awards Office (oacaward@uoguelph.ca). Please include the name of the award in the subject line of the email.

**Donor(s):** Ontario Soil and Crop Improvement Association

**Qualification(s):** Students registered in their first year of a M.Sc. or Ph.D. program in the Ontario Agricultural College who are proposing to conduct or conducting research in the areas of soil health and/or soil management.

**Amount:** 1 award of \$10,000 (payable in two equal payments of \$5,000 in the fall and winter semesters)

**Peggy A. Pritchard and Dr. Andrew M. Kropinski Graduate Bursary [B5967]**

Established by Peggy A. Pritchard and her husband, Dr. Andrew M. Kropinski, upon Ms. Pritchard's retirement from the University of Guelph in 2016. Apply to the International Student Advisor with a completed International Graduate Student Financial Need Assessment Form (NAF).

**Donor(s):** Peggy Pritchard and Andrew Kropinski

**Qualification(s):** International graduate students from a developing country (as defined by CIDA Canadian International Development Agency) who demonstrate financial need with a preference given to female students.

**Amount:** 1 award of \$2,000



**Plant Agriculture Research Scholarship [Z5685]**

The Ontario Flue Cured Tobacco Growers' Marketing Board and the OAC Alumni Foundation, with the aid of the Ontario government's OSOTF program, provide a scholarship to commemorate the formation of the Department of Plant Agriculture at the University of Guelph in 1998. Apply by letter with a completed Financial Need Assessment Form to Student Financial Services. Selection will be based on financial need and academic performance to date. ACCESS AWARD.

**Donor(s):** The Ontario Flue Cured Tobacco Growers' Marketing Board and the OAC Alumni Foundation, with the aid of the Ontario government's OSOTF program

**Qualification(s):** Graduate students in the department who are undertaking research in plant biotechnology, crop adaptation, new crop development, or interdisciplinary research in plant science. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award.

**Amount:** 1 award of \$2,000

**Ploughshare Scholarship [E5914]**

This award was established in memory of Willard White Graham, who was born into and worked on the family farm all his life caring for the earth and nature using traditional farming methods. Selection will be based on academic performance as evidenced by publications, letters of reference and research performance to date. No application is necessary.

**Donor(s):** Mrs. Hazel Graham

**Qualification(s):** Entering Ph.D. students registered in the Rural Studies Program

**Amount:** 1 award of \$6,000

**Pride Seeds Scholarship [I5046]**

Established in recognition of the contribution of Pride Seeds to the corn industry in Ontario. Apply by August 15th using [Department of Plant Agriculture Graduate Scholarship Application Form](#).

**Donor(s):** Pride Seeds

**Qualification(s):** Canadian or permanent resident students conducting research in corn production or corn breeding.

**Amount:** 1 award of \$2,000

**Prof. A.W. Baker Memorial Bursaries [Z5717]**

Apply by letter describing research project and research interests accompanied by a curriculum vitae and completed Financial Need Assessment Form to Student Financial Services by January 10. ACCESS AWARD.

**Donor(s):** The estate of Margaret A. MacLean, through a bequest in honour and memory of her father the late Prof. A.W. Baker, Chair of the Department of Entomology, with the aid of the Ontario government's OSOTF program

**Qualification(s):** Graduate students with demonstrated financial need who are registered in the Faculty of Graduate Studies and enrolled in a department in the College of Biological Sciences or the Ontario Agricultural College. Full-time continuing or in-coming MSc students not beyond semester 5 or PhD students not beyond semester 9, studying or conducting research in entomology are eligible. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).

**Amount:** various awards totalling \$3,000

**Professor Jeanne L. Burton Animal Health Scholarship [I5295]**

Established to commemorate the contributions of Dr. Jeanne L. Burton, OAC, BSc(Agr) 1982, in the field of Dairy Cattle Immunophysiology and Immunogenetics. Students will be selected based on academic performance, quality of the proposed research project description and a supporting letter from advisor. Apply to OVC or the department of Animal and Poultry Science in January of each year. Preference will be given to students working with dairy cattle. The award will be offered to students in OVC and APS in alternating years.

**Donor(s):** The Burton Charitable Foundation, friends, family, and former colleagues in the Department of Pathobiology and Animal and Poultry Science.

**Qualification(s):** Students registered in the Faculty of Graduate Studies who are enrolled in any department of the Ontario Veterinary College or in the Department of Animal and Poultry Science who are pursuing studies in the area of immunogenetics or immunophysiology of animal health.

**Amount:** 1 award of \$300

**Quinn Memorial Scholarship [E5923]**

This award was established in memory of Ronald J. Quinn, OAC '35. Preference will be given to: i) students from developing nations entering a full time undergraduate program in OAC, ii) international exchange students entering an undergraduate program in OAC iii) international students entering an undergraduate program in OAC, iv) students from developing nations entering a graduate program in OAC, v) international students entering an OAC graduate program. No application is necessary.

**Donor(s):** Helen Farquhar Quinn (OAC'35)

**Qualification(s):** International students entering any OAC program.

**Amount:** 1 award of \$2,000

**R. J. Gordon Graduate Scholarship [I5959]**

Established in recognition of Dr. Robert J. Gordon's contribution as Dean of OAC (2008-2015).

**Donor(s):** OAC Alumni Foundation

**Qualification(s):** Students registered in any OAC graduate degree program and who have completed a previous Associate diploma, undergraduate or graduate program in OAC. Selection will be based on high academic achievement in the last two years and demonstrated research ability as supported by a reference letter from an OAC faculty member. Apply by email by August 15 to the OAC Awards Committee (oacaward@uoguelph.ca) with a completed [graduate scholarship form](#) and one reference letter from an OAC faculty member that comments on your academic achievements and your research ability. A student may only receive this award once.

**Amount:** 1 award of \$5,000

**Raymond Chyc Graduate Entrance Scholarship in Plant Agriculture [E8018]**

This scholarship was created to encourage and support students interested in projects related to sustainable crop production inputs within the Department of Plant Agriculture. Selection will be based on a strong admission package and the research project of the student. In the event of a tie, the student with the highest admission average will be selected. Students will be nominated by their potential advisor once their application package has been received. Nominations from faculty are due to the Graduate Program Assistant, prior to the student's start date. Apply by August 15th using "Department of Plant Agriculture Graduate Scholarship Application Form" available through this link: [https://uoguelph.eu.qualtrics.com/jfe/form/SV\\_3VLaW4yhRGwDzwX](https://uoguelph.eu.qualtrics.com/jfe/form/SV_3VLaW4yhRGwDzwX)

**Donor(s):** Mr. Raymond Chyc

**Qualification(s):** Students entering in Winter, Summer or Fall of the award year (i.e. students would be in semesters 1, 2, or 3 at the time the award will be distributed) into any thesis-based MSc or PhD program offered by the Department of Plant Agriculture who demonstrate an interest in projects related to sustainable crop production inputs and have a minimum 80% admission average.

**Amount:** 1 award of \$10,000 (payable as \$5,000 in fall and \$5,000 in winter)

**Raymond Chyc Graduate Entrance Scholarship in Plant Agriculture [I8018]**

Raymond Chyc Graduate Entrance Scholarship was created to encourage and support students interested in projects related to sustainable crop production inputs within the Department of Plant Agriculture. Selection will be based on a strong admission package and the research project of the student. In the event of a tie, the student with the highest admission average will be selected. Students will be nominated by their potential advisor once their application package has been received. Nominations from faculty are due to the Graduate Program Assistant, prior to the student's start date. Department nominations are due to the OAC Awards Office (oacaward@uoguelph.ca) by September 1.

**Donor(s):** Mr. Raymond Chyc and matched by the University of Guelph Graduate Scholarship Matching program.

**Qualification(s):** Students entering in Winter, Summer or Fall of the award year (i.e. students would be in semesters 1, 2, or 3 at the time the award will be distributed) into any thesis-based MSc or PhD program offered by the Department of Plant Agriculture who demonstrate an interest in projects related to sustainable crop production inputs and have a minimum 80% admission average.

**Amount:** 1 award of \$10,000 (payable over two semesters)

**Reid's Heritage Homes Bursaries in Landscape Architecture [Z5919]**

Students must apply with a completed Financial Need Assessment Form to Student Financial Services by January 10. ACCESS AWARD.

**Donor(s):** Reid's Heritage Homes Ltd., with the aid of the Ontario government's OSOTF program

**Qualification(s):** Students in the BLA or MLA programs with demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).

**Amount:** several awards of varying amounts



**Reverend Charles Wood Bursaries [Z5712]**

Financial need and academic standing will be used to determine the recipients. Apply to Student Financial Services and include a completed Financial Need Assessment Form by January 10. ACCESS AWARD.

**Donor(s):** The late Reverend Charles Rowell Wood, OAC '38, with the aid of the Ontario government's OSOTF program

**Qualification(s):** Graduate students in the School of Environmental Design and Rural Development with demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).

**Amount:** various up to \$2,500

**Richard Protz Memorial Scholarship [I5122]**

This award has been established to honour the memory of Dr. Richard Protz, a professor and researcher in the Land Resource Science Department. International students currently enrolled in the School of Environmental Sciences, who do not have international funding from their home government or Commonwealth Scholarship, and are studying in the area of pedology or remote sensing, are eligible. Selection will be based on academic standing in the previous 10 courses and a demonstrated ability in chosen area of study. No application is necessary.

**Donor(s):** Friends and Colleagues of Dr. Richard Protz

**Qualification(s):** International students currently enrolled in the School of Environmental Sciences, who do not have international funding from their home government or Commonwealth Scholarship, and are studying in the area of pedology or remote sensing, are eligible.

**Amount:** 1 award of \$1,000

**Robb Graduate Research Travel Grant [T5803]**

Apply by letter to the OAC Awards Office (oacaward@uoguelph.ca) by August 15, including an approved plan of study/research, financial expenditures, and, if appropriate, details of the scientific meeting. Please include the award name and award ID number in the subject line of your email as well as on your application. Please include your name and student ID number on your application as well.

**Donor(s):** The estate of the late Martha Robb

**Qualification(s):** Graduate students registered in a program offered by OAC who are planning to study and/or conduct research at another university or attend a scientific meeting.

**Amount:** several awards up to \$1,000

**Robert Orr Lawson Scholarships [I5672]**

Apply by August 15 using the [Department of Food Science Graduate Scholarship Application Form](#).

**Donor(s):** Estate of the late Robert Orr Lawson

**Qualification(s):** Available to graduate students who have completed at least one year of study in the Department of Food Science and who have achieved a minimum of an "A-" level standing in course work in their program.

**Amount:** 5 awards of \$5,000

**Robinson Research Travel Grant [T5076]**

Preference will be given to students who are presenting a paper at the meeting. Selection will be based on academic standing. Apply by August 15 to the Director, School of Environmental Sciences with a letter outlining intended travel plans, estimated cost, and dates of travel and include an abstract of the paper being presented at the meeting if applicable.

**Donor(s):** Family & Friends of the Late Dr. John Robinson

**Qualification(s):** Students registered in any graduate program offered by the School of Environmental Sciences who are planning to attend a scientific meeting.

**Amount:** 1 award of \$500

**Ron and Eleanor Durst Graduate Scholarship in Agricultural Economics [E8017]**

Generously donated by Lieutenant Colonel (Ret'd) Ronald L.J. Durst, CD, OAC '64 and Mrs. Eleanor Durst, R.N. '62 (St. Joseph's Hospital, Guelph) in recognition of and appreciation for the personal and professional opportunities provided by the lessons learned both in the classroom and on the playing fields of the "College on the Hill". Apply by August 15 to the OAC Awards Office (oacaward@uoguelph.ca) with a letter of support from the organization demonstrating your membership and with a letter (no more than 2 pages) outlining your involvement/membership in any of the organizations above. Please include the name of the award and the award ID number in the subject line of your email. Please include the award name and ID number and your student ID number on your application. Selection will be based on the highest admission average.

**Donor(s):** Lieutenant Colonel Ronald L. J. Durst, CD, OAC '64 and Mrs. Eleanor Durst and matched by the University of Guelph Graduate Scholarship Matching program.

**Qualification(s):** Students entering a graduate program in the Department of Food Agricultural and Resource Economics in OAC who are Ontario Residents and who are a member of at least one of the following organizations or a graduate of one of the institutions listed in #7: 1. A member of the Junior Farmers of a province or territory of Canada. 2. A 4H member of a province or territory of Canada. 3. A member of the Scouts or Girl Guides of Canada. 4. A member of the Reserve or Regular Armed Forces of Canada. 5. A member of the Cadet Services of Canada or Cadet Corps. 6. A student, while under the age of 18 years, was an active member of the YMCA of Canada or one of its youth programs. 7. A graduate of the University of Guelph, Algonquin College, Conestoga College, University of Ottawa, University of Manitoba, Wilfrid Laurier University, University of Waterloo or Carleton University.

**Amount:** 1 award of \$10,000 (payable over two semesters)

**Ronald C. Moyer Scholarship [I5063]**

Academic standing in the previous two semesters will be used to determine the recipient from among eligible applicants. The scholarship is awarded on recommendation of the chair of the Department of Plant Agriculture to the OAC awards committee. Apply by August 15th using [Department of Plant Agriculture Graduate Scholarship Application Form](#)

**Donor(s):** The Ontario Grape Grower's Marketing Board

**Qualification(s):** Students in Plant Agriculture who are conducting research in viticulture, oenology or both

**Amount:** 1 award of \$1,500

**Rural Planning and Development Alumni Scholarship [I5111]**

The recipient will be selected on the basis of contributions to the community, both on and off campus. Students or faculty may nominate eligible students to the Director, of School of Environmental Design and Rural Development, by June 1.

**Donor(s):** Alumni and faculty of the School of Rural Planning and Development

**Qualification(s):** Students enrolled in the MSc program who have completed two full semesters of full-time study or equivalent with a minimum 76% cumulative average are eligible.

**Amount:** 1 award of \$1,750

**Rural Planning Travel Grant [T5658]**

Apply by October 7th to be considered in the Fall semester and March 15th to be considered in the winter semester to the Graduate Program Assistant (rpd@uoguelph.ca) with a letter and a letter of reference from your advisor. In your letter, please outline your research, your reason for travel and a proposed breakdown of travel costs include sources of funding and travel costs. Please request that your advisor sends their letter of reference including why this travel is important for your academic career and how much they will be contributing to your travel to rpd@uoguelph.ca. These travel grants are not tenable with, HQP, Arrell Scholarships, SSHRC. Selection will be based on relevance of travel to area of study.

**Donor(s):** School of Rural Planning

**Qualification(s):** Students registered in the Masters of Science in Planning or the MPLAN program who are planning to attend or contribute to a conference or meeting relevant to their program of study.

**Amount:** several awards of up to \$4,000 each

**S.J. Smith Memorial Scholarship [I5663]**

Established in memory of Silas J. Smith of Chatham, Ontario. Selection will be based on high academic achievement and quality of research performance. Apply by letter outlining your research activities and include a list of publications, to the OAC Awards Office (oacawards@uoguelph.ca) by August 15. Please include the name of the award and the award ID number in the subject line of your email and in your letter. Please also include your student ID number in your letter.

**Donor(s):** The Estate of S.J. Smith

**Qualification(s):** Students registered in Plant Agriculture or the School of Environmental Sciences who are conducting research in soil fertility, plant nutrition, plant productivity and/or increasing crop yield. Selection will be based on high academic achievement and quality of research performance.

**Amount:** 1 award of \$2,500

**Schneller and Summers Scholarship [I5191]**

Apply by letter outlining study travel plans and their potential value to Canadian agriculture to the OAC Awards Office (oacaward@uoguelph.ca), on or before August 15. Please include the scholarship name and ID in the subject line of your email and in your letter.

**Donor(s):** Summers family

**Qualification(s):** Students in OAC who plan to conduct research or study in other countries with the expectation of bringing direct improvements to Canadian agriculture are eligible.

**Amount:** 2 awards of \$2,500

**Soden Memorial Scholarships in Agriculture [E5082]**

These scholarships were established by Edythe P. Soden who operated a 360 acre farm in Durham County into her 90th year. Nominations to be made by departments in the fall to the oacaward@uoguelph.ca. Selection will be based on academic excellence. Nominations to be made by departments. Selection will be based on academic excellence.

**Donor(s):** Estate of the late Edythe P. Soden

**Qualification(s):** Students entering an OAC Master's program in Winter, Summer or Fall of the award year (i.e. students would be in semesters 1, 2, or 3 at the time the award will be distributed) who have a minimum A-admission average who's area of study is related to agriculture or agricultural education.

**Amount:** several awards of \$2,500 each

**Soden Memorial Scholarships in Agriculture [I5082]**

Preference may be given to students who are entering a master's program. Nominations are made three times yearly by each department or school to the OAC awards committee, by May 1, September 1 and January 1. Previous Soden scholars will be considered in a subsequent year in open competition. No application is required.

**Donor(s):** The Estate of the late Edythe P. Soden

**Qualification(s):** Students in OAC with at least a first-class ('A-') average in previous university work are eligible for consideration. Preference is given to students who are entering a master's program.

**Amount:** 18 @ awards of \$2,500

**Soybean Research Scholarship [I5083]**

The award is made available to support graduate students working with soybeans, field beans or other oil seed crops. Recipients are encouraged to use a portion of the award for travel to research stations and/or scientific meetings. No application is required; the chair, Apply by August 15th using [Department of Plant Agriculture Graduate Scholarship Application Form](#)

**Donor(s):** Quinten Van de Vrie

**Qualification(s):** Graduate students working with soybeans, field beans or other oil seed crops. Recipients are encouraged to use a portion of the award for travel to research stations and/or scientific meetings.

**Amount:** 1 award of \$1,000

**Stantec Landscape Architectural Scholarship [I5935]**

Established by Stantec Consulting Ltd., a major employer of numerous professional consulting disciplines. Selection will be based on a high level of well-rounded proficiency in design, construction and professional practice knowledge based on recent course work. No application is required.

**Donor(s):** Stantec Consulting Ltd.

**Qualification(s):** Students registered in Landscape Architecture who are entering their fourth semester.

**Amount:** 1 award of \$1,250

**Sue Chase and John Steckle Scholarship in Agriculture [I5084]**

In memory of their father and mother (John Steckle and Sue Chase, graduates of OAC '20 and '21 respectively), Jean and Bob Steckle (OAC '52) provide this award. Candidates must have high academic standing, be involved in research related to the interest of the department and have demonstrated an interest in Canadian agriculture. Application is not necessary. The award alternates between the two areas of study, commencing in 1998/99 with the Department of Animal Biosciences. It is tenable with other Senate awards.

**Donor(s):** Jean and Bob Steckle (OAC '52)

**Qualification(s):** Students in the Department of Plant Agriculture or the Department of Animal Biosciences who are enrolled in a MSc or PhD program. Candidates must have high academic standing, be involved in research related to the interest of the department and have demonstrated an interest in Canadian agriculture.

**Amount:** 1 award of \$2,000

**Taffy Davison Memorial Research Travel Grant [T5020]**

All applications will be considered and ranked on the value of their proposed research travel plans and expected benefits to their research proposal. Preference will be given to Ph.D. students. Apply to the OAC Awards Office (oacaward@uoguelph.ca) by August 15 with a letter of no more than 2 pages outlining your planned research travel, expected benefits, date, and estimated costs. Please include the award name and award ID number in the subject line of your email as well as on your application. Please include your name and student ID number on your application as well.

**Donor(s):** Estate of Dr. Greta I. Davison

**Qualification(s):** Students registered in any OAC department conducting research in environmental or agricultural biology, resource development or related fields.

**Amount:** several awards of various amounts

**Ted McGrail Memorial Scholarship [I5172]**

Established in memory of Ted McGrail, past chairman of the Ontario Soybean Growers. The recipient will be selected on the basis of high academic achievement. Apply by August 15 to the OAC Awards Committee by emailing your application to oacaward@uoguelph.ca. Please include the award name and award ID number in the subject line of your email. Please include this information and your student ID number on your application.

**Donor(s):** Family of Ted McGrail and the Ontario Soybean Growers

**Qualification(s):** Students enrolled in a MSc program in the Departments of Food, Agricultural and Resource Economics, Animal Biosciences, Plant Agriculture, School of Environmental Sciences or Food Science who are conducting research on some aspect of soybean production, breeding, marketing or processing.

**Amount:** 1 award of \$1,750

**Thompson Graduate Studies Scholarship [I5319]**

Established to honour Stanley Thompson's legacy as Canada's most influential and recognized golf course architect and encourage and reward the next generation of golf course architects. Students must submit a thesis proposal for golf course design/maintenance to be eligible. Selection will be based on highest cumulative average in MLA courses. No application is required.

**Donor(s):** Stanley Thompson Foundation (created in 2012 to preserve and celebrate the work of Stanley Thompson)

**Qualification(s):** Students registered in the Master of Landscape Architecture (MLA) program in the Ontario Agriculture College who have submitted a thesis proposal for a study of golf course design/maintenance.

**Amount:** 1 award of \$2,500

**Thurtell Family Graduate Scholarship [I5999]**

Selection will be based on academic standing and research potential, and preference will be given to entering students. Apply by August 15th using the [School of Environmental Sciences Graduate Scholarship Application Form](#).

**Donor(s):** Dr. George W. Thurtell, B.S.A. '57

**Qualification(s):** M.Sc. or Ph.D. students registered in the School of Environmental Sciences who are pursuing research in atmospheric science.

**Amount:** 1 award of \$3,500

<b>Toronto Milk Producer's Scholarship for ABSC [I5092]</b>	
Selection will be based on highest academic standing. Apply by August 15th using the <a href="#">Department of Animal Biosciences Graduate Scholarship Application Form</a> .	
<i>Donor(s):</i>	<b>Toronto Milk Producer's Association</b>
<i>Qualification(s):</i>	Students entering a MSc program in the Departments of Animal Biosciences or Food Science whose research is in the general field of animal science with particular reference to subjects related to dairy cattle and dairy products. Students may enter the program in Fall, Winter or Summer semester. The scholarship is awarded in the Fall so students, depending on their semester of entry, might be in semester 1, 2, or 3 at the time the award is distributed.
<i>Amount:</i>	several awards of up to \$3,400
<b>Toronto Milk Producer's Scholarships for FARE [I5093]</b>	
The scholarship is for one semester, subject to renewal. The selection of the winner(s) will be made by the OAC awards committee on recommendation of the chair of the department. Application is not required.	
<i>Donor(s):</i>	<b>Toronto Milk Producer's Association</b>
<i>Qualification(s):</i>	Graduate students enrolled in the Department of Food, Agricultural and Resource Economics whose research is related to the production, marketing or distribution aspects of the dairy industry.
<i>Amount:</i>	several awards of up to \$4,500
<b>University Graduate Scholarship (OAC) [I5767]</b>	
Awarded to students showing outstanding academic performance. Departments will nominate students to the College Awards Committee on the basis of research performance/potential, including progress in the program of study. Application is not required.	
<i>Donor(s):</i>	<b>University of Guelph</b>
<i>Qualification(s):</i>	Registered masters students up to their 6th semester and doctoral students up to their 12th semester or students who transfer from masters to doctoral up to their 15th semester, with a minimum of 75% average in the last year of full-time study, or equivalent.
<i>Amount:</i>	Numerous awards of varying amounts from \$500 to \$20,000
<b>Vineland Centennial Horticultural Scholarship [I5934]</b>	
Established during 2006, the Centennial Year of the Horticultural Experiment Station-Vineland to assist graduate student research that is relevant to the horticultural industry of Ontario. The recipient will be selected on the basis of quality and relevance of the graduate research, and academic achievement. Apply to OAC Awards Office, University of Guelph by August 15 with a letter (no more than 2 pages) outlining the research project and the proposed benefit to the horticultural industry including a letter of reference from an advisor.	
<i>Donor(s):</i>	<b>Friends of Vineland Horticultural Experiment Station</b>
<i>Qualification(s):</i>	Students conducting research under the supervision of a University of Guelph faculty member, that is relevant to the horticultural industry of Ontario and whose research is being conducted in part at the Vineland Horticultural Experiment Station are eligible to apply. The recipient will be selected on the basis of quality and relevance of the graduate research, and academic achievement.
<i>Amount:</i>	1 award of \$1,500
<b>W.E. Coates Memorial Scholarship [E5103]</b>	
Selection will be by the OAC awards committee on recommendation of the director of the School of Landscape Architecture. The donors are friends of the late William Coates. No application is necessary.	
<i>Donor(s):</i>	<b>Friends of the late William E. Coates</b>
<i>Qualification(s):</i>	Students entering the first year of the MLA program who have demonstrated proficiency in technical skills, scholarship and commitment to the profession.
<i>Amount:</i>	1 award of \$500
<b>W.G. Matthewman Scholarship [E5037]</b>	
This scholarship has been established in memory of the late W.G. Matthewman, OAC'34. Selection will be based on experience in the area of entomology through previous work or work experience and academic standing as evidenced by the application to the program. No application is required.	
<i>Donor(s):</i>	<b>Estate of Hazel Gladys Matthewman</b>
<i>Qualification(s):</i>	Students who has received a B.Sc. degree from the University of Guelph and is entering, in the current fall semester or has entered in the previous winter or spring semester, the M.Sc. program with a study interest relating to entomology
<i>Amount:</i>	1 award of \$3,500

<b>W.R. Graham Memorial Award [I5030]</b>	
The award is in memory of the late Dr. W.R. Graham, one of the founders of the Poultry Science Association, pioneer researcher in the Department of Poultry Husbandry from 1899 to 1940. The selection is made by the OAC awards committee following a review of the applications in the Department of Animal Biosciences. AApply by August 15th using the <a href="#">Department of Animal Biosciences Graduate Scholarship Application Form</a>	
<i>Donor(s):</i>	
<i>Qualification(s):</i>	Open to a deserving graduate student with Canadian citizenship or permanent resident status, studying at Guelph in the area of poultry science.
<i>Amount:</i>	1 award of \$1,000
<b>Wallenstein Feed &amp; Supply Ltd. Scholarship [E5945]</b>	
Generously created by Wallenstein Feed & Supply Ltd., Canada's largest independent feed mill. Through the scholarship, WFS wants to create awareness about opportunities in agriculture and to help attract future leaders to the field of agriculture animal nutrition. Apply by August 15th using the <a href="#">Department of Animal Biosciences Graduate Scholarship Application Form</a> .	
<i>Donor(s):</i>	<b>Wallenstein Feed &amp; Supply Ltd.</b>
<i>Qualification(s):</i>	Students entering any M.Sc. program offered by the Department of Animal Biosciences who are proposing to conduct research in the field of agriculture animal nutrition in Canada.
<i>Amount:</i>	1 award of \$5,000
<b>Walter and Laura Scott Horticulture Scholarship [I5284]</b>	
Established in memory of Walter and Laura Scott, who had a life-long interest in tree fruit production in Ontario. Selection will be based on academic achievement and quality of graduate research project proposal in the area of Horticulture. Preference will be given to entering M.Sc. or Ph.D. students studying tree fruit science. Apply by August 15 with a letter and include research proposal (maximum two pages) to the OAC Awards Office (oacaward@uoguelph.ca). The application must include two letters of reference from academic sources including one from the proposed advisor attesting to the scholastic and research abilities of the applicant. Referees must email a scanned copy of their reference letter to oacaward@uoguelph.ca. Include the award name and award ID in the subject line of the email and your name in the text of the email.	
<i>Donor(s):</i>	<b>The Estate of Walter and Laura Scott</b>
<i>Qualification(s):</i>	Students registered in a program offered by the Department of Plant Agriculture with a minimum average of 75% over the previous two years of study and who are pursuing or planning to pursue studies in the area of Horticulture.
<i>Amount:</i>	1 award of \$20,000 payable over 3 semesters
<b>William A. Stewart Bursaries in Dairy Research [Z5693]</b>	
Established in recognition of the contributions made by William A. Stewart to the Ontario dairy industry during his tenure as Minister of Agriculture, the Dairy Farmers of Ontario. A student may receive two bursaries annually. Apply by submitting a completed Financial Need Assessment Form and a research proposal/summary to Student Financial Services by January 10. ACCESS AWARD.	
<i>Donor(s):</i>	<b>Dairy Farmers of Ontario and OAC Alumni Foundation with the aid of the Ontario government's OSOTF program</b>
<i>Qualification(s):</i>	Full-time MSc students with demonstrated financial need who are enrolled in the Departments of Animal and Poultry Science, Food Science, or Food, Agricultural and Resource Economics and who are conducting research related to the dairy industry. A student may receive two bursaries annually. Additionally, students must meet the government-mandated terms for receipt of an <a href="#">OSOTF</a> award (see General Statements on Awards).
<i>Amount:</i>	3 awards of \$3,000
<b>William Tolton Access Bursaries [Z5900]</b>	
Apply to Student Financial Services by January 10 with a completed Financial Need Assessment Form. ACCESS AWARD.	
<i>Donor(s):</i>	<b>William Tolton OAC 36 with the aid of the Ontario government's OSOTF program</b>
<i>Qualification(s):</i>	OAC graduate students registered in the MLA and MBA programs in Landscape Architecture and Food, Agricultural and Resource Economics respectively. Additionally, students must meet the government-mandated terms for receipt of an <a href="#">OSOTF</a> award (see General Statements on Awards).
<i>Amount:</i>	several awards of varying amounts

## Ontario Veterinary College Internal Awards

The University reserves the right to amend awards subject to the availability of funds.

<b>Abell Pest Control Scholarship in Lyme Disease Research [I5980]</b>	
Selection will be based on the strongest research potential on lyme disease. Apply by May 1 to the Office of Graduate and Postdoctoral Studies Awards Committee (grschol@uoguelph.ca) with a research proposal no longer than two pages outlining your research and a CV. Include the name of the award and the award ID number in the subject line of your email.	
<i>Donor(s):</i>	<b>Abell Pest Control</b>
<i>Qualification(s):</i>	Students registered in any program offered by the College of Biological Science or the Ontario Veterinary College or the Ontario Agriculture College conducting research in Lyme disease.
<i>Amount:</i>	1 award of \$5,000

<b>Abell Pest Control Scholarship in Pollinator Research. [I5976]</b>	
Selection will be based on the strongest research potential in pollinators. Apply by May 1 to the Office of Graduate and Postdoctoral Studies Awards Committee (grschol@uoguelph.ca) with a research proposal no longer than two pages outlining your research and a CV. Include the name of the award and the award ID number in the subject line of your email.	
<i>Donor(s):</i>	<b>Abell Pest Control</b>
<i>Qualification(s):</i>	Students registered in any program who are conducting research in Pollinators. Preference will be given to students studying bees.
<i>Amount:</i>	1 award of \$5,000

<b>Allan and Jean Cawley Bursaries [Z5930]</b>	
Apply to Student Financial Services with a completed Financial Need Assessment Form by January 10. ACCESS AWARD.	
<i>Donor(s):</i>	<b>Allan and Jean Cawley with the aid of the Ontario government's OSOTF program</b>
<i>Qualification(s):</i>	Graduate students registered in the Ontario Veterinary College with demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an <u>OSOTF</u> award (see General Statements on Awards).
<i>Amount:</i>	3 awards of \$500

<b>Art Rouse Memorial Scholarship in Veterinary and Comparative Cancer Studies [E5353]</b>	
Established in recognition of Mr. Rouse's lifelong commitment to companion animal welfare, and his love for dogs and rescued animals. The award may be held for up to four years provided that academic performance is satisfactory as indicated by a letter from the student's advisor submitted to the Associate Dean, Students, by January 15th each year. Apply with Curriculum Vitae, publication record, transcript and two academic letters of reference to the office of the Associate Dean, Students by January 15.	
<i>Donor(s):</i>	<b>The Estate of Art Rouse</b>
<i>Qualification(s):</i>	Students who hold a Doctor of Veterinary Medicine degree who are enrolled in a PhD program offered by the Ontario Veterinary College.
<i>Amount:</i>	1 award every 4 years Up to \$120,000 payable over 4 years of study (\$30,000 per year)

<b>Barbara Kell Gonsalves Memorial Scholarship [I5310]</b>	
Established on behalf of Juevenal Jordan Gonsalves' wife, Barbara Kell Gonsalves. The recipient will be chosen based on academic and research performance to date. Submit research project description, transcript, and a reference letter from advisor to the Office of the Associate Dean, Students, OVC, in the application process for all graduate awards in January of each year.	
<i>Donor(s):</i>	<b>The Estate of Juvenal Jordan Gonsalves</b>
<i>Qualification(s):</i>	Students enrolled in a department of the Ontario Veterinary College pursuing a master's degree.
<i>Amount:</i>	1 award of \$8,500

<b>Betty Goldhart Biomedical Sciences Scholarship [I5029]</b>	
Apply as part of the application process for all OVC graduate awards in January of each year.	
<i>Donor(s):</i>	<b>Estate of Betty Goldhart</b>
<i>Qualification(s):</i>	Graduate students pursuing studies in health related genetics who are enrolled in a program offered by the Department of Biomedical Sciences.
<i>Amount:</i>	1 award of \$400

<b>Betty Goldhart Scholarship [I5028]</b>	
Apply as part of the application process for all OVC graduate awards in January of each year.	
<i>Donor(s):</i>	<b>Estate of Betty Goldhart</b>
<i>Qualification(s):</i>	Graduate student enrolled in a department of the Ontario Veterinary College. Preference will be given to a student pursuing studies in health-related genetics.
<i>Amount:</i>	1 award of \$400

<b>Biomedical Sciences Graduate Scholarship [I5007]</b>	
Gifts from faculty and graduate students provide a scholarship for an outstanding student recommended by the Department of Biomedical Sciences. For an outstanding student recommended by the Department of Biomedical Sciences	
<i>Donor(s):</i>	<b>Faculty and graduate students</b>
<i>Qualification(s):</i>	Applicants must have completed two semesters in residence, of which one has been spent participating in research. They must have completed two graduate courses and shown skill in the communication of science.
<i>Amount:</i>	1 award of \$750

<b>Blythe James Chase Scholarship [I5265]</b>	
Apply as part of the application process for all OVC graduate awards in January of each year.	
<i>Donor(s):</i>	<b>Blythe James Chase</b>
<i>Qualification(s):</i>	Students registered in the Faculty of Graduate Studies and enrolled in a department in the Ontario Veterinary College pursuing research concerned with the well-being of animals that may include research on animal behaviour, human/animal bonding and the care and management of farm and companion animals.
<i>Amount:</i>	1 award \$10,000

<b>Boehringer Ingelheim Canada Ltd. Scholarship for Distinction in Parasitology [I5914]</b>	
Apply as part of the application process for all OVC graduate awards in January of each year. Selection is based on the highest cumulative average.	
<i>Donor(s):</i>	<b>Boehringer Ingelheim Canada Ltd.</b>
<i>Qualification(s):</i>	Graduate student registered in any program offered by the Ontario Veterinary College. Preference will be given to a student pursuing studies in parasitology.
<i>Amount:</i>	1 award of \$1,000

<b>Caird F. Wilson Graduate Scholarship in Equine Performance [I5309]</b>	
Established in memory of Caird F. Wilson, a great lover of horses and supporter of various equestrian event in Ontario. The recipient will be chosen based on academic performance to date as assessed by their transcript, quality of proposed research project, publication record, and a supporting letter from the advisor. The scholarship is held for up to three years provided that academic performance is satisfactory. Apply to the Office of the Associate Dean, Students, OVC, in the application process for all graduate awards in January of each year and include a research project description, transcript, publication record, and a supporting letter from their advisor.	
<i>Donor(s):</i>	<b>The Estate of Caird Forest Wilson</b>
<i>Qualification(s):</i>	Students registered in a graduate program in a department of the Ontario Veterinary College and pursuing research in equine performance.
<i>Amount:</i>	1 award of \$16,800 (payable over 9 semesters)

<b>Caledon Kennel Association Graduate Scholarship [I5267]</b>	
Selection will be based on academic performance (research project description, supporting letter from advisor and academic record to date). No application necessary.	
<i>Donor(s):</i>	<b>The Caledon Kennel Association</b>
<i>Qualification(s):</i>	Students registered in a department of the Ontario Veterinary College and pursuing studies on companion animals. Preference will be given to students in the field of ophthalmology, but if no suitable ophthalmology candidate is identified, preference will then be given to other companion animal graduate students studying in the areas of cardiology, theriogenology, or endocrinology.
<i>Amount:</i>	1 award of \$800

**Canadian Dairy Commission M.Sc. Scholarship [I5314]**

The Canadian Dairy Commission generously supports these scholarships to encourage and support dairy related graduate studies and to increase career opportunities in the Canadian Dairy industry among aspiring students. Selection will be based on academic excellence and strong research potential. Apply to the OAC Awards Committee (oacaward@uoguelph.ca) by August 15 with a two-page letter outlining the significance of your research to the dairy industry; a two-page research proposal; a CV and a letter of reference from your advisor outlining your academic excellence and research potential. Please include your name, student ID and the name of the scholarship on each page of your application. Recipients of this scholarship will be required to provide a one page outline of their proposed thesis to the OAC Awards Office to be included in the College's annual report to the CDC. This award is not tenable with the Brock Doctoral Scholarship, Arrell Scholarships, Trudeau Doctoral Scholarships, Dairy Farmers of Ontario Doctoral Research Assistantship, or Tri-Council Scholarships, including the Vanier.

**Donor(s):** Canadian Dairy Commission

**Qualification(s):** Students registered in a registered in a Master's program offered by OAC who are Canadian or Permanent Residents and who are conducting research related to the Canadian Dairy Industry in any of the following areas: 1. adding value to dairy ingredients; 2. developing new applications and dairy food products based on bio-medicine; 3. understanding the dairy matrix and the functionality of dairy products; 4. understanding the microbiology of milk and dairy products; 5. enhancing sustainable development and eco-efficiency; 6. controlling water cycle and reducing water usage; 7. improving farm efficiency; 8. reducing cost of milk production; 9. improving animal health and welfare; 10. reducing risks of antimicrobial resistance

**Amount:** 2 awards of \$20,000 (payable over 3 semesters starting in the Fall with the possibility of a one-time renewal to a maximum of \$40,000 over 6 semesters)

**Canadian Dairy Commission Ph.D. Scholarship [I5315]**

The Canadian Dairy Commission generously supports these scholarships to encourage and support dairy related graduate studies and to increase career opportunities in the Canadian Dairy industry among aspiring students. Selection will be based on academic excellence and strong research potential. Apply to the OAC Awards Committee (oacaward@uoguelph.ca) by August 15 with a two-page letter outlining the significance of your research to the dairy industry; a two-page research proposal; a CV and a letter of reference from your advisor outlining your academic excellence and research potential. Please include your name, student ID and the name of the scholarship on each page of your application. Recipients of this scholarship will be required to provide a one page outline of their proposed thesis to the OAC Awards Office to be included in the College's annual report to the CDC. This award is not tenable with the Brock Doctoral Scholarship, Arrell Scholarships, Trudeau Doctoral Scholarships, Dairy Farmers of Ontario Doctoral Research Assistantship, or Tri-Council Scholarships, including the Vanier.

**Donor(s):** Canadian Dairy Commission

**Qualification(s):** Students registered in a registered in a doctoral program offered by OAC who are Canadian or Permanent Residents and who are conducting research related to the Canadian Dairy Industry in any of the following areas: 1. adding value to dairy ingredients; 2. developing new applications and dairy food products based on bio-medicine; 3. understanding the dairy matrix and the functionality of dairy products; 4. understanding the microbiology of milk and dairy products; 5. enhancing sustainable development and eco-efficiency; 6. controlling water cycle and reducing water usage; 7. improving farm efficiency; 8. reducing cost of milk production; 9. improving animal health and welfare; 10. reducing risks of antimicrobial resistance

**Amount:** 2 awards of \$30,000 (payable over 3 semesters starting in the Fall with the possibility of a one-time renewal to a maximum of \$90,000 over 9 semesters)

**Canadian Parrot Symposium Prize in Avian Studies [I5666]**

Selection will be on the basis of academic achievement and dedication to the discipline. Apply as part of the application process for all OVC graduate awards in January of each year.

**Donor(s):** The Canadian Parrot Symposium

**Qualification(s):** Veterinarians registered in the Faculty of Graduate Studies and enrolled in a department in the Ontario Veterinary College who are pursuing studies dealing with companion birds and have an interest in avian welfare and the human/companion bird relationship.

**Amount:** 1 award of \$1,500

**Class of OVC 1950 Memorial BursaryE-I5982 [B5635]**

Established in memory of deceased classmates. Apply to Student Financial Services with a completed Financial Need Assessment Form by January 10 and apply as part of the application process for all OVC graduate awards in January of each year.

**Donor(s):** Class of OVC 1950

**Qualification(s):** Students who are veterinarians registered in a department of the Ontario Veterinary College with demonstrated financial need.

**Amount:** 1 award of \$1,000

**Col. Benjamin F. Leach Scholarship [I5651]**

Mrs. Charlotte Leach-Barry of St. Albans, Vermont, has established this scholarship in memory of her brother who graduated from OVC in 1935. This award recognizes the appreciation of Dr. Leach's family for the education he received at the OVC and his lifelong commitment to the safety of the food chain, expressed through his work with U.S. regulatory bodies while serving with the U.S. Army and Airforce. Apply as part of the application process for all OVC graduate awards in January of each year.

**Donor(s):** Mrs. Charlotte Leach-Barry of St. Albans, Vermont

**Qualification(s):** Students registered in a program offered by OVC and conducting research in a public health area, such as the production of safe foods from animals.

**Amount:** 1 award of \$1,375

**Col. K.L. Campbell Graduate Research Travel Grant in Equine Studies [T5636]**

A bequest from the late Col. K.L. Campbell, esteemed gentleman and admirer of animals, together with memorial donations from family, friends and colleagues, has established this award. The recipient will be selected on the basis of academic performance. The award is intended to support a travel visit related to the student's research project. Apply as part of the application process for all OVC graduate awards in January of each year.

**Donor(s):** The late Col. K.L. Campbell together with memorial donations from family, friends and colleagues

**Qualification(s):** Students registered in the in a department in the Ontario Veterinary College who are travelling as part of a research project.

**Amount:** 1 award of \$1,000

**D.G. Ingram Graduate Research Travel Grant [T5042]**

Apply as part of the application process for all OVC graduate awards in January of each year.

**Donor(s):** D.G. Ingram Memorial Fund

**Qualification(s):** Graduate students pursuing research in immunology who are enrolled in a department of the Ontario Veterinary College.

**Amount:** 1 award of \$400

**D.G. Ingram Memorial Scholarship [I5041]**

Apply as part of the application process for all OVC graduate awards in January of each year.

**Donor(s):** D.G. Ingram Memorial Fund

**Qualification(s):** Graduate student pursuing research in immunology and who is enrolled in a department of the Ontario Veterinary College.

**Amount:** 1 award of \$800

**Dean's ACCESS Bursaries [Z5929]**

Apply to Student Financial Services with a completed Financial Need Assessment Form by January 10. ACCESS AWARD.

**Donor(s):** Alumni and Friends of the Ontario Veterinary College with the aid of the Ontario government's OSOTF program

**Qualification(s):** Students registered in a program offered by OVC with demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).

**Amount:** several awards of up to \$2,000

**Don Davis Memorial Scholarship [I5019]**

Established in memory of Dr. Don Davis, OVC '48. Apply as part of the application process for all OVC graduate awards in January of each year.

**Donor(s):** Don Davis Trust Fund Committee

**Qualification(s):** Graduate students engaged in equine research who are enrolled in the Department of Clinical Studies at the Ontario Veterinary College.

**Amount:** 1 award of \$900

**Donald R. MacDonald Memorial Book Prize [I5608]**

Apply as part of the application process for all OVC graduate awards in January of each year.

**Donor(s):** The family of Dr. Donald R. MacDonald, OVC '42

**Qualification(s):** Graduate student conducting research in veterinary public health and who is enrolled in the Department of Population Medicine.

**Amount:** 1 award of \$500

<b>Dr. John H. Lumsden Graduate Scholarship in Clinical Pathology [I5939]</b>	
This scholarship honours the legacy of excellent teaching, warm collegiality and extensive research contributions of Dr. John H. (Tim) Lumsden, a highly respected researcher and long-time professor of clinical pathology at OVC. The Dr. John H. Lumsden Graduate Scholarship in Clinical Pathology is awarded to a graduate student on the basis of academic and research performance in the area of clinical pathology, with a preference for greatest financial need. Apply as part of the application process for all OVC graduate awards in January of each year and submit a Financial Need Assessment Form by January 10 to Student Financial Services.	
<i>Donor(s):</i>	<b>Anonymous</b>
<i>Qualification(s):</i>	Students registered in a graduate program offered by the Department of Pathobiology conducting research in the area of clinical pathology with preference for greatest financial need.
<i>Amount:</i>	1 award of \$1,000
<b>Dr. Casey Buizert Memorial Scholarship [I5196]</b>	
The recipient will be selected on the basis of academic performance and demonstrated financial need. Apply to Student Financial Services with a completed Financial Need Assessment Form by January 10 and apply as part of the application process for all OVC graduate awards in January of each year.	
<i>Donor(s):</i>	<b>Family, friends and classmates of Dr. Casey Buizert (OVC'81)</b>
<i>Qualification(s):</i>	Students enrolled in a department of the Ontario Veterinary College pursuing research in large animals. Preference will be given to a student enrolled in a postgraduate diploma program.
<i>Amount:</i>	1 award of \$500
<b>Dr. Don Willitts Memorial Graduate Scholarship [I5911]</b>	
Established in memory of Jean Willitts' husband, Dr. Don Willitts, OVC '54. The recipient will demonstrate continuous personal and professional growth and development that exemplifies dedication to the discipline and a positive attitude toward learning throughout graduate training. The applicant's research project will have practical application to veterinary medicine. Apply as part of the application process for all OVC graduate awards in January of each year.	
<i>Donor(s):</i>	<b>Mrs. Jean Willitts in memory of her husband, Dr. Don Willitts, OVC '54</b>
<i>Qualification(s):</i>	Students enrolled in a department of the Ontario Veterinary College who hold a DVM degree.
<i>Amount:</i>	1 award of \$1,300
<b>Dr. Errol Hancock Scholarship [I5175]</b>	
Preference will be given to a veterinarian licensed to practice veterinary medicine in Canada. Apply as part of the application process for all OVC graduate awards in January of each year.	
<i>Donor(s):</i>	<b>Dr. Errol Hancock</b>
<i>Qualification(s):</i>	Veterinarian who is pursuing research in food animal medicine or veterinary public health and who is registered in the Faculty of Graduate Studies and enrolled in a department of the Ontario Veterinary College.
<i>Amount:</i>	1 award of \$700
<b>Dr. Francis H.S. Newbould Scholarship [Z5903]</b>	
Established to honour the memory of Prof. Frank Newbould, a much respected faculty member in the Ontario Veterinary College (1956-1977). Apply as part of the application process for all OVC graduate awards in January of each year and submit a completed Financial Need Assessment Form to Student Financial Services by January 10. ACCESS AWARD.	
<i>Donor(s):</i>	<b>To honour the memory of Prof. Francis H.S. Newbould with the aid of the Ontario government's OSOTF program</b>
<i>Qualification(s):</i>	Graduate student in the Ontario Veterinary College who is working in the field of mastitis research, in the first instance or, in the second instance, in the broader area of microbiology with demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an <u>OSOTF</u> award (see General Statements on Awards).
<i>Amount:</i>	1 award of \$1,000
<b>Dr. Gerbrand Wietse Bredero Memorial Scholarship [I5266]</b>	
Established in fond memory of Dr. Gerbrand Wietse Bredero, OVC '83. Preference will be given to students whose research has used alternatives to animal experimentation. Apply as part of the application process for all OVC graduate awards in January of each year.	
<i>Donor(s):</i>	<b>Family, friends and colleagues of Dr. Gerbrand Wietse Bredero, OVC '83</b>
<i>Qualification(s):</i>	Students registered in any program offered by OVC whose paper of scientific merit has been accepted for publication in a refereed journal.
<i>Amount:</i>	1 award of \$500

<b>Dr. J. Sherman Memorial Research Travel Grant [T5079]</b>	
Established to support travel costs associated with a student's studies. Apply as part of the application process for all OVC graduate awards in January of each year.	
<i>Donor(s):</i>	<b>Dr. J. Sherman Memorial Trust Fund</b>
<i>Qualification(s):</i>	Graduate student enrolled in the Department of Pathobiology.
<i>Amount:</i>	1 award of approx awards of \$150
<b>Dr. Judith A. Taylor Memorial Graduate Scholarship [I5322]</b>	
Family, friends and colleagues have provided this scholarship in memory of Dr. Judith A. Taylor, OVC 1984. Dr. Taylor was committed to her profession and to the development of new knowledge and its application to animal health. It is presented to a graduate student registered in the Pathobiology program who demonstrates the most progress in the development of their diagnostic and research skills related to pathology as evidenced by their strong course grades and references and has demonstrated financial need. Submit a completed Financial Need Assessment Form to Student Financial Services by January 10 and apply as part of the application process for all OVC graduate awards in the winter semester of each year.	
<i>Donor(s):</i>	<b>Dr. Robert M. Jacobs, Mr. Richard Taylor and Dr. Graham Smith</b>
<i>Qualification(s):</i>	Students registered in the Pathobiology program who have demonstrated financial need.
<i>Amount:</i>	1 award of \$3,000
<b>Dr. Martin DeForest Memorial Bursary [B5866]</b>	
Established in memory. Dr. DeForest, a leader in the veterinary profession, and widely recognized for his compassion and commitment to animal health. Apply to Student Financial Services with a completed Financial Need Assessment Form by January 10.	
<i>Donor(s):</i>	<b>The family and friends of Dr. Martin DeForest, OVC '77</b>
<i>Qualification(s):</i>	Graduate and undergraduate students registered in the Ontario Veterinary College with demonstrated financial need and who are eligible to continue their studies.
<i>Amount:</i>	1 award of \$450
<b>Dr. McSherry and Dr. Valli Scholarship for General Proficiency in Clinical Pathology [I5920]</b>	
Established in honour of Dr. Valli's mentor and retired professor of the Department of Pathology (now the Dept. of Pathobiology, OVC.), Dr. Bernard McSherry, DVM '42, MSc '57. Selection will be based on academic achievement, demonstrated creativity and diagnostic expertise, with an emphasis placed on work done in the area of clinical pathology. Apply as part of the application process for all OVC graduate awards in January of each year.	
<i>Donor(s):</i>	<b>Dr. Victor E. (Ted) Valli DVM '62, MSc '66, PhD '70</b>
<i>Qualification(s):</i>	Graduate student who is enrolled in the Department of Pathobiology at the Ontario Veterinary College.
<i>Amount:</i>	1 award of \$600
<b>Dr. R.A. McIntosh Graduate Award [I5652]</b>	
The class of OVC '45, on the occasion of the 50th reunion, established this award in honour of their former teacher, whose career at OVC spanned the period 1919 - 1951. Dr. McIntosh taught diseases of cattle, obstetrics, pharmacy, therapeutics, and diseases of ruminants and swine. He was an outstanding teacher and an inspiration to all. Preference will be given to research on cattle diseases. Apply as part of the application process for all OVC graduate awards in January of each year.	
<i>Donor(s):</i>	<b>Class of OVC '45</b>
<i>Qualification(s):</i>	OVC graduate students working in large-animal research.
<i>Amount:</i>	1 award of \$300
<b>Dr. Wilson Henderson Memorial Scholarship [Z5676]</b>	
The selection will be based on financial need and research potential. Apply as part of the application process for all OVC graduate awards in January of each year and submit a completed Financial Need Assessment Form to Student Financial Services by January 10. ACCESS AWARD.	
<i>Donor(s):</i>	<b>The estate of Dr. Wilson Henderson (OVC '47) with the aid of the Ontario government's OSOTF program</b>
<i>Qualification(s):</i>	Graduate students who have demonstrated financial need and who are studying in the Ontario Veterinary College preferably in the field of avian pathology. Additionally, students must meet the government-mandated terms for receipt of an <u>OSOTF</u> award (see General Statements on Awards).
<i>Amount:</i>	2 awards of \$7,500

<b>Drs. Jeanne Ikeda-Douglas and Foch Douglas Scholarship in Infectious Disease [I8004]</b>	
Established in memory of Dr. Jeanne Ikeda-Douglas' mother, Teruko Ikeda, and Dr. Foch Douglas' father, Llewellyn Douglas, with the aid of University of Guelph Matching Scholarship Fund. Apply as part of the application process for all OVC graduate awards in January of each year.	
<i>Donor(s):</i>	<b>Drs. Jeanne Ikeda Douglas and Foch Douglas with the aid of University of Guelph Matching Scholarship Fund</b>
<i>Qualification(s):</i>	Student registered in a department of the Ontario Veterinary College who is directly involved in research in infectious disease in animals.
<i>Amount:</i>	1 award of \$4,500
<b>Elanco Graduate Scholarship in Cardiology [Z5692]</b>	
Preference given to students studying in the field of cardiology. If no student studying in cardiology is deemed eligible, the award may be given to a student studying dermatology, nephrology, pain management, or behaviour. Apply as part of the application process for all OVC graduate awards in January of each year and submit a completed Financial Need Assessment Form to Student Financial Services by January 10. ACCESS AWARD.	
<i>Donor(s):</i>	<b>Elanco Canada with the aid of the Ontario government's OSOTF program</b>
<i>Qualification(s):</i>	Students registered in a program offered by the Ontario Veterinary College with demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an <u>OSOTF</u>
<i>Amount:</i>	1 award of \$1,500
<b>Elanco Graduate Scholarship in Parasitology [Z5691]</b>	
Preference given to students studying in the field of parasitology. If no student studying in parasitology is deemed eligible, the award may be given to a student studying dermatology, nephrology, pain management, or behaviour. Apply as part of the application process for all OVC graduate awards in January of each year and submit a completed Financial Need Assessment Form to Student Financial Services by January 10. ACCESS AWARD.	
<i>Donor(s):</i>	<b>Elanco Canada with the aid of the Ontario government's OSOTF program</b>
<i>Qualification(s):</i>	Students registered in a program offered by the Ontario Veterinary College with demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an <u>OSOTF</u>
<i>Amount:</i>	1 award of \$1,500
<b>Elizabeth Holdsworth Scholarship [I5107]</b>	
Apply as part of the application process for all OVC graduate awards in January of each year.	
<i>Donor(s):</i>	<b>The estate of Elizabeth Holsworth</b>
<i>Qualification(s):</i>	Graduate student in OVC whose research is related to the maintenance of health in small animals.
<i>Amount:</i>	1 award of \$900
<b>Ethel Rose Charney Scholarship in the Human/Animal Bond [I5683]</b>	
In the first instance, the scholarship will be offered as an entrance award. If no suitable entering student is identified, it will be offered to in-course students; the award may be held up to two times by masters students and up to three times by doctoral students; however, annual re-application is required. If there is no suitable student recipient, the award may be used to support a postdoctoral fellow in one of the eligible research areas. Apply as part of the application process for all OVC graduate awards in January of each year.	
<i>Donor(s):</i>	<b>The Estate of Ethel Rose Charney Matched through the OVC Pet Trust Fund</b>
<i>Qualification(s):</i>	Students registered in the Faculty of Graduate Studies and enrolled in a department in the Ontario Veterinary College, pursuing research in the human/animal bond, or other research in companion animal welfare, and/or diseases affecting companion animals are eligible.
<i>Amount:</i>	1 award of \$13,000 (payable over 3 semesters)
<b>Gallant Custom Laboratories Anniversary Scholarship [I5859]</b>	
Established by Gallant Custom Laboratories In honour of their fifth anniversary in business, celebrated in 2000. Preference is given to students focusing their research on poultry or swine. The recipient is selected based on academic performance and financial need. Apply as part of the application process for all OVC graduate awards in January of each year and submit a completed Financial Need Assessment Form to Student Financial Services by January 10.	
<i>Donor(s):</i>	<b>Gallant Custom Laboratories of Cambridge</b>
<i>Qualification(s):</i>	Student registered in the Faculty of Graduate Studies and enrolled in a department of the Ontario Veterinary College who is pursuing studies in host-agent interactions, immunology, or natural immune systems.
<i>Amount:</i>	1 award of \$2,500

<b>Gigha Scholarship [E5765]</b>	
Preference will be given to a student in the field of cardiology but, if no suitable cardiology candidate is identified, preference will then be given to students focusing on small or companion animals. Selection will be based on high academic standing in the completion of their DVM or equivalent, and reference recommendations related to the completion of an internship or equivalent if applicable. This award is offered once every four years. No application required.	
<i>Donor(s):</i>	<b>Rathlyn Foundation</b>
<i>Qualification(s):</i>	Students entering the DVSc program in the Department of Clinical Studies and specializing in Cardiology.
<i>Amount:</i>	1 award every 4 years Up to \$105,000 payable over 3 years of study
<b>Gladys (Billie) Davidson Graduate Entrance Scholarships [Z5923]</b>	
Preference will be given to students in the field of ophthalmology but, if no suitable candidate is identified, another qualified candidate intending to pursue studies in another area related to companion animals will be considered. Selection will be based on academic performance (proposed research project description, supporting letter from advisor and academic record to date). Apply to Student Financial Services with a completed Financial Need Assessment Form by January 10 and apply as part of the application process for all OVC graduate awards in January of each year. ACCESS AWARD.	
<i>Donor(s):</i>	<b>Gladys M. Davidson with the aid of the Ontario government's OSOTF program</b>
<i>Qualification(s):</i>	Entering students in the Faculty of Graduate Studies in a department of the Ontario Veterinary College. Additionally, students must meet the government-mandated terms for receipt of an <u>OSOTF</u> award (see General Statements on Awards).
<i>Amount:</i>	2 awards of \$5,000
<b>Gloria Lemieux Bursaries [B5865]</b>	
Established by the late Gloria Lemieux through a will bequest, these bursaries recognize her concern for animals and desire to help students pursuing veterinary studies. Apply to Student Financial Services with a completed Financial Need Assessment Form by January 10. Selection will be based on financial need.	
<i>Donor(s):</i>	<b>The Estate of Gloria Lemieux</b>
<i>Qualification(s):</i>	Graduate students enrolled in a department of the Ontario Veterinary College with demonstrated financial need.
<i>Amount:</i>	various awards of varying amounts
<b>Greig17 Memorial Scholarship [I5946]</b>	
Established by Vivian de Bloeme in memory of her husband Greig, a sportsman who proudly wore the number 17 on his softball jerseys. Selection will be based on academic and research performance. Students to apply as part of the application process for all OVC graduate awards in the winter semester each year.	
<i>Donor(s):</i>	<b>Vivian de Bloeme</b>
<i>Qualification(s):</i>	Students registered in any graduate program offered by the Ontario Veterinary College who are pursuing research studies related to canine health and disease.
<i>Amount:</i>	1 award of \$5,000
<b>Harry and Lorna Robbins Memorial Scholarship [I5075]</b>	
Apply as part of the application process in January of each year.	
<i>Donor(s):</i>	<b>The Lorna Robbins Estate</b>
<i>Qualification(s):</i>	Students registered in the Faculty of Graduate Studies and pursuing research in small-animal medicine or surgery in the Department of Clinical Studies, Ontario Veterinary College.
<i>Amount:</i>	1 or more awards of \$4,000
<b>Harry G. Downie Travel Grant [T5344]</b>	
Established in memory of the late Dr. Harry G. Downie(OVC'48), former Chair of the Departments of Physiological Sciences and Biomedical Sciences at the Ontario Veterinary College.. The award recognizes Dr. Downie's contributions to the discipline of cardiac physiology that paved the way for many related developments in both human and veterinary medicine. This scholarship will assist graduate students in being able to disseminate the findings of their research. Preference will be given to a student who is presenting a paper or abstract at the conference. Selection will be based on overall academic performance and relevance of the intended travel to the student's research program. Apply as part of the application process for all OVC graduate awards in January of each year	
<i>Donor(s):</i>	<b>Family, colleagues, and friends of the late Dr. Harry G. Downie (OVC'48)</b>
<i>Qualification(s):</i>	Students registered in the Department of Biomedical Sciences and who are, in the first instance, attending an international conference or, in the second instance, attending a conference in Canada are eligible.
<i>Amount:</i>	1 award of \$500

**International Emergency Medical Aid Assistance [B5200]**

The University of Guelph provides support to International graduate students that are faced with unexpected, or unforeseen financial shortfalls due to a medical issue not covered by UHIP or the Student Dental/Medical insurance plans. Students should apply to the International Student Advisor, in the Centre for International Programs office, by completing an International Student Financial Need Assessment Form (N.A.F.) and submitting documentation to support the medical issue. These bursaries are awarded on an on-going basis.

*Donor(s):* University of Guelph

*Qualification(s):* International students registered in a degree program and have completed a minimum 1.50 credits who have a medical emergency expenses not covered by UHIP or the Student Dental/Medical insurance plans and demonstrated financial need.

*Amount:* Several awards of varying amounts

**J.J. (Jack) Andrich Graduate Award in Large Animal Infectious Disease [I8002]**

Established in memory of Ms. Sheila Andrich's father, J.J. (Jack) Andrich OVC '40. Apply as part of the application process for all OVC graduate awards in January of each year.

*Donor(s):* Ms. Sheila Andrich

*Qualification(s):* Students registered in the Faculty of Graduate Studies and enrolled in a department of the Ontario Veterinary College who are directly involved in research in large animal infectious disease.

*Amount:* 1 award of \$4,500

**Jackson Rowe Scholarship for Research in Clinical Cancer Care [I5350]**

Established in honour of Jackson the "wonder dog". The award will be presented based on academic performance to date. Preference will be given to the student whose research will enhance the well-being of cancer patients. Apply as part of the application process for all OVC graduate awards in the winter semester of each year.

*Donor(s):* Sandra Morris and Mary Rowe

*Qualification(s):* Graduate students registered in any program offered by the Ontario Veterinary College whose studies involve research in cancer clinical care.

*Amount:* 1 award of \$1,100

**Jean S. Goudy Memorial Graduate Scholarship [Z5924]**

Selection will be based on academic performance (proposed research project description, supporting letter from advisor, academic record to date) and financial need. Apply to Student Financial Services with a completed Financial Need Assessment Form by January 10 and apply as part of the application process for all OVC graduate awards in January of each year. ACCESS AWARD.

*Donor(s):* Estate of Jean S. Goudy with the aid of the Ontario government's OSOTF program

*Qualification(s):* Students registered in the Faculty of Graduate Studies, enrolled in a department of the Ontario Veterinary College and pursuing studies in companion animal studies with demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).

*Amount:* 2 awards of \$12,000 (payable over 3 semesters)

**John R.M. Kelso Scholarship in Environmental and Fisheries Science [I5340]**

Established to recognize the late Dr. John R.M. Kelso's personal and professional contributions to the Fisheries profession. Selection will be based on: (a) overall grade point average and academic standing in all graduate courses as well as full time equivalent undergraduate courses completed during the student's program, (b) relevance and appropriateness of the research work, and (c) demonstration of participation in extracurricular activities related to environmental protection and fisheries stewardship, including but not limited to, membership in conservation, fisheries or environmental protection societies, involvement in research, educational, communication or other programs outside of university, dedicated to these goals. Financial need may also be considered. The application, including a letter outlining research, should be sent to Student Financial Services by January 10.

*Donor(s):* Family and friends of the late Dr. John R.M. Kelso, B.Sc.(Agr.) '67, and M.Sc. '69

*Qualification(s):* Students conducting research that examines the effects of anthropogenic stressors on fish community ecology (including but not limited to toxic chemicals, habitat degradation, or hydro power).

*Amount:* 1 award of \$2,000

**Joy Lindvik Memorial Scholarship [I5049]**

Preference will be given to students carrying out research in the areas of exercise physiology, training, performance assessment, or health management. Apply as part of the application process for all OVC graduate awards in January of each year.

*Donor(s):* Mr. H. Lindvik

*Qualification(s):* Graduate student engaged in equine research who is enrolled in a department of the Ontario Veterinary College.

*Amount:* 1 award of \$700

**Kenneth & June Bone Memorial Graduate Scholarship [I5912]**

Established in recognition of Dr. Bone's lifelong commitment to veterinary medicine. Apply as part of the application process for all OVC graduate awards in January of each year.

*Donor(s):* Estates of Dr. Kenneth Bone (OVC '38) and Mrs. June Bone of Illinois

*Qualification(s):* Students enrolled in a department of the Ontario Veterinary College and pursuing studies related to companion animal health and disease. The award is presented to the student with the best academic and research performance to date.

*Amount:* 1 award of \$7,000

**Kerstay Scholarship [E5855]**

The Scholarship may be held for up to three years provided that academic performance is satisfactory, as recommended by the Graduate Studies and Research Committee of the student's department. Application is not required. Awarded once every 4th year.

*Donor(s):* The Rathlyn Foundation

*Qualification(s):* Students entering the DVSc. program in Clinical Studies and specializing in Ophthalmology. Preference will be given to a student pursuing research in ophthalmology. If this area of research is unavailable, the award may be given to a student pursuing research in neurology.

*Amount:* 1 award of 120,000 (payable over 9 semesters) every 4th year

**Kon-Tiki Atkins Scholarship [I5687]**

Established in 1996 by Mr. and Mrs. Maurice Atkins, in memory of their dog, Kon-Tiki, their faithful companion for many years. Apply as part of the application process for all OVC graduate awards in January of each year.

*Donor(s):* Mr. and Mrs. Maurice Atkins

*Qualification(s):* Students registered in the Faculty of Graduate Studies pursuing research in the canine area in a department of the Ontario Veterinary college.

*Amount:* 1 award of \$500

**Korean-Canadian Dr. F. Schofield Memorial Scholarship [I5907]**

The scholarship honours Dr. Frank Schofield's active role in the Korean independence movement, as well as his academic and medical contributions in the early 20th century. The recipient must demonstrate scholarship and must have contributed to the academic life of the department and College, in the tradition of Dr. Schofield. He or she will also be recognized at the Korean-Canadian Scholarship Foundation dinner in Toronto in March. Apply as part of the application process for all OVC graduate awards in January of each year.

*Donor(s):* Dr. Schofield Memorial Association of Korean-Canadian, in partnership with the Korean-Canadian Scholarship Association.

*Qualification(s):* Graduate student registered in the Faculty of Graduate Studies who is enrolled in the department of Pathobiology at the Ontario Veterinary College.

*Amount:* 3 awards of \$2,000

**Lady Glencora Bursaries [Z5931]**

Apply to Student Financial Services with a completed Financial Need Assessment Form by January 10. ACCESS AWARD.

*Donor(s):* Rathlyn Foundation with the aid of the Ontario government's OSOTF program

*Qualification(s):* Students registered in the Faculty of Graduate Studies and enrolled in a department of the Ontario Veterinary College, and undergraduate students in the honours BSc (Bio-Med) program who have demonstrated financial need. OSOTF award (see General Statements on Awards).

*Amount:* several of up to \$5,000

**Laforet Research Scholarship [I5039]**

Established from the estate of Alma and Raymond Laforet. The assistantship is awarded on the basis of academic performance, three letters of reference and demonstrated financial need.

*Donor(s):* The estate of Alma and Raymond Laforet

*Qualification(s):* Student enrolled in a graduate program in a department of the Ontario Veterinary College with demonstrated financial need.

*Amount:* 1 award of \$12,800



**Lena Cooke Scholarship [I5178]**

Established in memory of Lena Cooke. The recipient will be selected on the basis of academic standing at admission and financial need. Preference will be given to residents of Ontario. Apply to Student Financial Services with a completed Financial Need Assessment Form by January 10 and apply as part of the application process for all OVC graduate awards in January of each year.

*Donor(s):* **Mr. Cooke c/o J. Laurene Pilon**

*Qualification(s):* Students registered in the Faculty of Graduate Studies who are pursuing an MSc in a department of the Ontario Veterinary College with demonstrated financial need.

*Amount:* 1 award of \$400

**Lucy Putnam Doctoral Scholarship [E5924]**

The award cannot be shared or split. The award will be held for up to three years provided that a high level of academic performance is maintained. Selection will be based on academic performance based on proposed research project description, supporting letters, including a letter from advisor, and academic record to date. Apply to the Chair, OVC Awards Committee by May 31. The award cannot be held with the Brock Doctoral Scholarship

*Donor(s):* **The Estate of Lucy Putnam**

*Qualification(s):* Students registered in the Faculty of Graduate Studies, in the Department of Clinical Studies DVSc program at the Ontario Veterinary College in September, January or May following the deadline and entering date, and intending to pursue studies in small animal medicine or surgery, or a related area of specialization.

*Amount:* 1 award of \$90,000 (payable over 9 semesters) every 4th year

**Lyle and Louise Rea Graduate Entrance Scholarship in Pharmacology [E8019]**

The Lyle and Louise Rea Graduate Entrance Scholarship in Pharmacology arises from the donors' gratitude and appreciation to both the University of Guelph and the pharmaceutical industry. Lyle Rea, DVM (OVC 1962), CPA, and Louise Rea, BHSc (MAC 1960) are proud Guelph alumni. Selection is based on academic achievement to date as demonstrated by a transcript (including DVM program) and an academic letter of reference. If there are two equally qualified applicants, preference will be given to students who have a Doctor of Veterinary Medicine degree. Apply by letter including a transcript, and an academic letter of reference as part of the OVC graduate winter awards competition.

*Donor(s):* **Lyle and Louise Rea and the University of Guelph matching fund program**

*Qualification(s):* Students entering a graduate program, offered by the Department of Biomedical Sciences and pursuing research in pharmacology.

*Amount:* 1 award of \$10,000 payable over 3 semesters

**Malcolm Scholarship [I5053]**

.Apply as part of the application process for all OVC graduate awards in January of each year.

*Donor(s):* **The Estate of Mary Doris Malcolm**

*Qualification(s):* Graduate student who is pursuing studies in equine health and disease and who is enrolled in a department of the Ontario Veterinary College.

*Amount:* 1 award of \$800

**Margaret A.B. Maxwell Memorial Scholarship [I5177]**

Established to honour Dr. Margaret A.B. Maxwell's commitment to the protection of wildlife. In the case of equally qualified applicants, the award will be divided. Apply as part of the application process for all OVC graduate awards in January of each year.

*Donor(s):* **The Estate of Dr. Margaret A.B. Maxwell**

*Qualification(s):* Veterinarian pursuing research related to the diseases of wildlife or the care, well-being and preservation of wild species, and who is registered in the Faculty of Graduate Studies and enrolled in a department of the Ontario Veterinary College.

*Amount:* 1 award of \$10,000

**Margaret Emma (Peggy) and Donald Alan Melton Bursaries [Z5910]**

Established as a memorial to Donald Melton's beloved wife, Peggy, and in recognition of her lifelong devotion to animals and concern for their welfare. Apply to Student Financial Services with a completed Financial Need Assessment Form by January 10. ACCESS AWARD.

*Donor(s):* **Donald Alan Melton with the aid of the Ontario government's OSOTF program**

*Qualification(s):* Students registered in the Faculty of Graduate Studies and enrolled in a department of the Ontario Veterinary College with demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).

*Amount:* several awards of up to \$10,000

**Marie Leona (Nancy) Johnston Memorial Bursaries [B5910]**

Selection is based on greatest financial need. Apply to Student Financial Services with a completed Financial Need Assessment Form by January 10.

*Donor(s):* **The Estate of Marie Leona (Nancy) Johnston**

*Qualification(s):* Full-time students with satisfactory academic standing who are registered in the Faculty of Graduate Studies and enrolled in a department of the Ontario Veterinary College.

*Amount:* 2 awards of \$1,200

**Michael & Nancy Goldberg Graduate Equine Scholarship [I5964]**

Michael and Nancy Goldberg are animal enthusiasts with a long-time interest in Standardbred horse racing. They have established this award because research on race horses is very important to maintaining a thriving harness racing industry. Apply by letter describing how the students research directly applies to the improvement of the equine racing industry, including any publications and posters to date. Apply as part of the graduate awards competition in the winter semester. The student whose research most directly relates to improvements in the equine racing industry will be selected. If two applications are of equal merit, the student with the best academic performance to date will be selected.

*Donor(s):* **Michael and Nancy Goldberg**

*Qualification(s):* Students registered in a graduate program offered by OVC who are pursuing equine research as it relates to the racing industry.

*Amount:* 1 award of \$6,000

**Milton Travel Scholarship [T5138]**

Established in honour of Fred Milton, a long-time employee and a friend to veterinarians. Application should be made to the OVC Awards Committee before January 31.

*Donor(s):* **Pfizer Laboratories**

*Qualification(s):* Student veterinarians registered in the Faculty of Graduate Studies and enrolled in a department of the Ontario Veterinary College who are travelling for academic purposes.

*Amount:* 1 award of \$200

**Natasha Scholarship [E5904]**

Selection will be based high academic standing in the completion of their DVM or equivalent. Reference recommendation related to their completion of internship or equivalent on academic performance. The scholarship may be held for up to three years provided that academic performance is satisfactory. No application is required.

*Donor(s):* **The Rathlyn Foundation**

*Qualification(s):* Students entering the DVSc. program in Clinical Studies and specializing in Critical Care. Preference will be given to a student in the field of critical care. If this area is unavailable or no candidate is identified, the award may be given to another qualified student specializing in small animal medicine.

*Amount:* 1 award of \$120,000 (payable over 9 semesters) every 4th year

**OVC 1960 Graduate Scholarship [I5301]**

Established by the Class of OVC 1960 in honour of the 50th anniversary of their graduation. Selection will be based on clinical performance as assessed in their semester performance review, academic performance to date and research ability as assessed by the quality of their proposed research project description, publication record, and a supporting letter from their advisor. Financial need will be considered in the event of a tie. Apply by letter including demonstrated preparation, or eligibility, for specialty certification, current curriculum vitae (including list of publications), proposed research project description, unofficial transcript and letter of support from academic supervisor, in the annual OVC Graduate Awards competition in January. Submit a completed Financial Need Assessment Form to Student Financial Services by January 10.

*Donor(s):* **The Class of OVC 1960**

*Qualification(s):* Graduate students in any department at OVC who are pursuing eligibility for American Veterinary Medical Association recognized specialty certification. Financial need will be used to decide the recipient from among equally qualified candidates.

*Amount:* 1 award of \$5,000

**OVC 1962 Graduate Scholarship for Clinical Research [I5965]**

Established in honour of OVC 1962's 50th anniversary. The class is proud to be known as the centennial year class, having graduated the year OVC celebrated its 100th year anniversary. The award recognizes that the world is facing significant challenges in the areas of veterinary medicine, and there is an ongoing need to continue to apply research findings to veterinary clinical practice. The recipient will be chosen based on: the highest likelihood of their research results being able to be applied to clinical practice; greatest research productivity to date; and best academic performance to date. In the event of a tie, the student with the highest cumulative average will be selected. Apply by letter describing how the research applies to veterinary clinical practice, including a summary of research publications and posters to date. Apply as part of the OVC graduate awards competition in the winter semester.

**Donor(s):** OVC Class of 1962

**Qualification(s):** Students registered in a graduate program offered by OVC who are pursuing research relating to clinical practice. Preference will be given to graduate students who have a DVM degree.

**Amount:** 1 award of \$3,000

**OVC Graduate Student Recognition Prizes [I5273]**

A call for nominations will be made to all Graduate students registered in OVC. Nominations should include a short synopsis of the nominee's graduate student and community involvement. Each department within OVC will select one student from the nominees. Student who demonstrate the greatest contributions to graduate student and community life will be selected.

**Donor(s):** OVC & the OVC Graduate Student Association

**Qualification(s):** Students registered in a program offered by OVC who have contributed to graduate student and community life.

**Amount:** 4 awards of a framed certificate

**OVC'49 and Dr. Ray Cormack Graduate Entrance Scholarship [E5900]**

Established by the Class of OVC'49 and Dr. Ray Cormack (OVC'49) to commemorate the 50th anniversary of their graduation from the College. Apply as part of the application process for all OVC graduate awards in January of each year and submit a completed Financial Need Assessment Form to Student Financial Services by January 10.

**Donor(s):** Class of OVC'49 and Dr. Ray Cormack (OVC'49)

**Qualification(s):** Veterinarians entering a graduate program in OVC with demonstrated financial need.

**Amount:** 1 award of \$3,500

**OVC'57 Graduate Scholarship [Z5921]**

Established in honour of the 40th anniversary of the Class of OVC'57's graduation from the College. Apply as part of the application process for all OVC graduate awards in January of each year and submit a completed Financial Need Assessment Form to Student Financial Services by January 10. ACCESS AWARDS

**Donor(s):** Class of OVC'57 with the aid of the Ontario government's OSOTF program

**Qualification(s):** A veterinarian who is an entering or a continuing student in the Faculty of Graduate Studies in a department of the Ontario Veterinary College with demonstrated financial need. Additionally, students must meet the government-mandated terms for receipt of an OSOTF

**Amount:** 1 award of \$2,000

**Pari K. Basrur Travel Scholarship [T5802]**

Established to recognise Dr. Basrur's appreciation for those who helped her achieve her scientific goals and the high esteem in which she is held by her colleagues. Apply as part of the application process for all OVC graduate awards in January of each year.

**Donor(s):** Faculty colleagues, former students, and friends of Dr. Pari K. Basrur

**Qualification(s):** Students registered in the Faculty of Graduate Studies and enrolled in the Department of Biomedical Sciences and who are, in the first instance, attending an international conference or, in the second instance, attending a conference in Canada are eligible. Selection will be on overall academic performance and relevance of the intended travel to the student's research program.

**Amount:** 1 award of \$1,600

**Pathobiology Scholarship for Graduate Student Excellence [I5618]**

Established by faculty, staff and colleagues in the Department of Pathobiology. Students are nominated by any department faculty member or graduate student in Pathobiology in writing. Selection will be based of academic performance and contributions to the intellectual life of the department. One or more awards may be available annually. No application required.

**Donor(s):** Department of Pathobiology

**Qualification(s):** Students registered in the Faculty of Graduate Studies and enrolled in the Department of Pathobiology.

**Amount:** 1 award of \$500

**Peggy A. Pritchard and Dr. Andrew M. Kropinski Graduate Bursary [B5967]**

Established by Peggy A. Pritchard and her husband, Dr. Andrew M. Kropinski, upon Ms. Pritchard's retirement from the University of Guelph in 2016. Apply to the International Student Advisor with a completed International Graduate Student Financial Need Assessment Form (NAF).

**Donor(s):** Peggy Pritchard and Andrew Kropinski

**Qualification(s):** International graduate students from a developing country (as defined by CIDA Canadian International Development Agency) who demonstrate financial need with a preference given to female students.

**Amount:** 1 award of \$2,000

**Peter and Christina Robertson Memorial Scholarship [I5634]**

The family of Peter and Christina Robertson, whose lives were dedicated to the preservation of wild animals and their environment, have established an annual memorial award. The recipient(s) will be selected on the basis of academic performance, dedication to the discipline and demonstrated need for financial assistance. Apply as part of the application process for all OVC graduate awards in January of each year and submit a completed Financial Need Assessment Form to Student Financial Services by January 10.

**Donor(s):** The family of Peter and Christina Robertson

**Qualification(s):** Students licensed to practice veterinary medicine in Canada who are registered in the Faculty of Graduate Studies in a program offered by the Ontario Veterinary College pursuing research related to diseases of wildlife, their health and welfare and/or their environment with demonstrated financial need.

**Amount:** 1 award of \$500

**Population Medicine Scholarship for Graduate Student Excellence [I5283]**

Faculty, staff and colleagues in the Department of Population Medicine established this scholarship. Eligible students may be nominated by any department faculty member or graduate student in Population Medicine and will be selected on the basis of academic performance and contributions to the intellectual life of the department.

**Donor(s):** Department of Population Medicine

**Qualification(s):** Students registered in the Faculty of Graduate Studies and enrolled in a program offered by the Department of Population Medicine.

**Amount:** 1 award of \$500

**Professor Jeanne L. Burton Animal Health Scholarship [I5295]**

Established to commemorate the contributions of Dr. Jeanne L. Burton, OAC, BSC(Agr) 1982, in the field of Dairy Cattle Immunophysiology and Immunogenetics. Students will be selected based on academic performance, quality of the proposed research project description and a supporting letter from advisor. Apply to OVC or the department of Animal and Poultry Science in January of each year. Preference will be given to students working with dairy cattle. The award will be offered to students in OVC and APS in alternating years.

**Donor(s):** The Burton Charitable Foundation, friends, family, and former colleagues in the Department of Pathobiology and Animal and Poultry Science.

**Qualification(s):** Students registered in the Faculty of Graduate Studies who are enrolled in any department of the Ontario Veterinary College or in the Department of Animal and Poultry Science who are pursuing studies in the area of immunogenetics or immunophysiology of animal health.

**Amount:** 1 award of \$300

**R. A. Curtis Graduate Bovine Scholarship [Z5932]**

Apply as part of the application process for all OVC graduate awards in January of each year and submit a completed Financial Need Assessment Form to Student Financial Services by January 10. Application to your department will include a proposed research project description and supporting letter from advisor. ACCESS AWARD.

**Donor(s):** John B. Walkden and Malcolm T. Bond with the aid of the Ontario government's OSOTF program

**Qualification(s):** Entering graduate students enrolled in a department of the Ontario Veterinary College and intending to pursue studies in cattle. Selection will be based on academic performance and financial need. Additionally, students must meet the government-mandated terms for receipt of an OSOTF award (see General Statements on Awards).

**Amount:** 1 award of \$7,500

**Robert Jameson Memorial Scholarship in Feline Studies [I5347]**

The recipient will be chosen based on academic and research achievement and participation in scholarly activity. Apply as part of the application process for all OVC graduate awards in January of each year.

**Donor(s):** The Estate of Mr. Robert Jameson

**Qualification(s):** Graduate students in the Ontario Veterinary College who are working in the area of feline health and disease.

**Amount:** 1 award of \$18,000 payable over 3 semesters

<b>Roland A. W. Scott Memorial Scholarship [I5190]</b>
Established in memory of Dr. Ronald A.W. Scott, OVC '85. Apply as part of the application process for all OVC graduate awards in January of each year.
<i>Donor(s):</i> <b>The class of OVC '85, OVC graduate students and family and friends of Dr. Roland A. W. Scott, OVC '85.</b>
<i>Qualification(s):</i> Graduate students enrolled in a department of the Ontario Veterinary College who are engaged in work related to laboratory or zoo animals.
<i>Amount:</i> 1 award of up to \$350
<b>Secord-Currey Scholarship in Companion Animal Bond [E5903]</b>
Established by Dr. Alan Secord (OVC'29) and Dr. Raymond Currey (OVC'29), small animal practitioners with an interest in animal behaviour and relationships between humans and companion animals. Selection will be based on academic performance (proposed research project description, supporting letter from advisor, academic record to date) and financial need. The scholarship may be held for up to four years provided that academic performance is satisfactory. Preference will be given to doctoral students and to those holding the DVM degree. Apply as part of the application process for all OVC graduate awards in January of each year and submit a completed Financial Need Assessment Form to Student Financial Services by January 10.
<i>Donor(s):</i> <b>Dr. Alan Secord (OVC'29) and Dr. Raymond Currey (OVC'29)</b>
<i>Qualification(s):</i> Entering student registered in the Faculty of Graduate Studies, enrolled in a department of the Ontario Veterinary College and intending to pursue studies related to the human-companion animal bond with demonstrated financial need.
<i>Amount:</i> 1 award of \$30,000 payable over 3 semesters
<b>Sharon Dunsmore Scholarship in Feline Studies [I5913]</b>
Established in honour of Sharon Dunsmore, an active and committed animal lover, who gave of her time and resources to support animal welfare. Recipients are selected based on academic and research performance to date. Apply as part of the application process for all OVC graduate awards in January of each year.
<i>Donor(s):</i> <b>Sharon Dunsmore</b>
<i>Qualification(s):</i> Graduate student in the Ontario Veterinary College who is pursuing studies related to feline health and disease.
<i>Amount:</i> 1 award of \$2,000
<b>Small Animal Graduate Research Scholarship [I5081]</b>
Apply as part of the application process for all OVC graduate awards in January of each year.
<i>Donor(s):</i> <b>Dean's Office, Ontario Veterinary College</b>
<i>Qualification(s):</i> Graduate students engaged in canine or feline research and enrolled in a department of the Ontario Veterinary College.
<i>Amount:</i> 1 award of \$1,200
<b>Soren Rosendal Memorial Research Prize [I5682]</b>
Established to honour the memory of Dr. Soren Rosendal, a highly respected researcher and teacher at the Ontario Veterinary College. Nominations may be made by any graduate student or faculty member in the department and should be accompanied by a brief statement of one page or less describing the research contribution made by the student. An award need not be made every year. Application is not required.
<i>Donor(s):</i> <b>Soren Rosendal Memorial Scholarship Fund</b>
<i>Qualification(s):</i> Graduate student in the Department of Pathobiology who has made an outstanding contribution to new knowledge in the course of her/his research.
<i>Amount:</i> 1 award of \$500
<b>Tamara Denberg Memorial Scholarship [I5087]</b>
Established in memory of Tamara D. Denberg. Preference will be given to a student pursuing studies in oncology or clinical haematology. Apply as part of the application process for all OVC graduate awards in January of each year.
<i>Donor(s):</i> <b>Mrs. T. M. Paskaruk</b>
<i>Qualification(s):</i> Graduate student enrolled in a department of the Ontario Veterinary College.
<i>Amount:</i> 1 award of \$500

<b>Tasha Scholarship [I5065]</b>
Selection will be based on high academic standing in the completion of their DVM or relevant graduate degree. Reference recommendation related to their completion of internship or equivalent. The scholarship may be held for up to three years provided that academic performance is satisfactory. Application is not required.
<i>Donor(s):</i> <b>The Rathlyn Foundation</b>
<i>Qualification(s):</i> Students entering the Faculty of Graduate Studies, who are enrolled in a department of the Ontario Veterinary College and pursuing research and advanced clinical training in companion animals. This can include DVSc. or PhD students. Preference will be given to students in the field of pet avian and exotic species health whose research will be in the health and diseases of pet avian and exotic animal species. If this program is unavailable or no candidate is identified, the award may be given to a student specializing in internal medicine or a related area with an emphasis on research in the area of anesthesia, pain control or health and diseases of pet avian and exotic species.
<i>Amount:</i> 1 award of \$120,000 (payable over 9 semesters) every 4th year
<b>Tippy Atkins Scholarship [I5090]</b>
Apply as part of the application process for all OVC graduate awards in January of each year.
<i>Donor(s):</i> <b>Tippy Atkins</b>
<i>Qualification(s):</i> Graduate students enrolled in the Ontario Veterinary College pursuing research in canine studies.
<i>Amount:</i> 1 award of \$600
<b>Vétoquinol Scholarship in Geriatrics in Companion Animals [I5921]</b>
Apply as part of the application process for all OVC graduate awards in January of each year.
<i>Donor(s):</i> <b>Vétoquinol N-A Inc.</b>
<i>Qualification(s):</i> Graduate student who is enrolled in a department of the Ontario Veterinary College and pursuing studies related to geriatrics with a minimum 80% average.
<i>Amount:</i> 1 award of \$1,000
<b>Vétoquinol Scholarship in Swine Health [I5922]</b>
Preference will be given to students undertaking studies in metabolic diseases of swine, but students conducting research in swine behaviour and/or welfare, infectious disease, and management of systems to improve growth, production and health will also be eligible. Apply as part of the application process for all OVC graduate awards in January of each year.
<i>Donor(s):</i> <b>Vétoquinol N-A Inc.</b>
<i>Qualification(s):</i> Graduate student who is enrolled in a department of the Ontario Veterinary College and pursuing studies related to swine health with a minimum 80% average.
<i>Amount:</i> 1 award of \$1,000
<b>Zoetis Graduate Student Scholarship [I5077]</b>
Selection will be based on the relevance of the proposed research project to public health, and academic performance to date. Apply as part of the application process for all OVC graduate awards in the winter semester of each year to the Office of the Associate Dean, Students, OVC.
<i>Donor(s):</i> <b>Zoetis</b>
<i>Qualification(s):</i> Students holding a DVM degree and pursuing a post-graduate degree in the field of public health whose research will produce outcomes directly relevant to improving human and/or animal health in one of the following areas: infectious/zoonotic disease; food safety/food production; or animal welfare.
<i>Amount:</i> 1 award of \$3,250

## XIII. Learning Outcomes

### Graduate Degree Learning Outcomes

On May 27, 2013, the University of Guelph Senate approved the following five University-wide Learning Outcomes as the basis from which to guide the development of graduate degree programs, specializations and courses:

1. Critical and Creative Thinking
2. Literacy
3. Global Understanding
4. Communication
5. Professional and Ethical Behaviour

These learning outcomes are also intended to serve as a framework through which our educational expectations are clear to students and the broader public; and to inform the process of outcomes assessment through the quality assurance process (regular reviews) of programs and departments.

An on-line guide to the learning outcomes, links to the associated skills, and detailed rubrics designed to support the development and assessment of additional program and discipline-specific outcomes, are available for reference on the [Learning Outcomes website](#)

#### Critical and Creative Thinking

Critical and creative thinking is a concept in which one applies logical principles, after much inquiry and analysis, to solve problems with a high degree of innovation, divergent thinking and risk taking. Those mastering this outcome show evidence of integrating knowledge and applying this knowledge across disciplinary boundaries. Depth and breadth of understanding of disciplines is essential to this outcome. At the graduate level, originality in the application of knowledge (master's) and undertaking of research (doctoral) is expected.

In addition, Critical and Creative Thinking includes, but is not limited to, the following outcomes: Independent Inquiry and Analysis; Problem Solving; Creativity; and Depth and Breadth of Understanding.

#### Literacy

Literacy is the ability to extract information from a variety of resources, assess the quality and validity of the material, and use it to discover new knowledge. The comfort in using quantitative literacy also exists in this definition, as does using technology effectively and developing visual literacy.

In addition, Literacy includes, but is not limited to, the following outcomes: Information Literacy, Quantitative Literacy, Technological Literacy, and Visual Literacy.

#### Global Understanding

Global understanding encompasses the knowledge of cultural similarities and differences, the context (historical, geographical, political and environmental) from which these arise, and how they are manifest in modern society. Global understanding is exercised as civic engagement, intercultural competence and the ability to understand an academic discipline outside of the domestic context.

In addition, Global Understanding includes, but is not limited to, the following outcomes: Global Understanding, Sense of Historical Development, Civic Knowledge and Engagement, and Intercultural Competence.

#### Communication

Communication is the ability to interact effectively with a variety of individuals and groups, and convey information successfully in a variety of formats including oral and written communication. Communication also comprises attentiveness and listening, as well as reading comprehension. It includes the ability to communicate and synthesize information, arguments, and analyses accurately and reliably.

In addition, Communication includes, but is not limited to, the following outcomes: Oral Communication, Written Communication, Reading Comprehension, and Integrative Communication.

#### Professional and Ethical Behaviour

Professional and ethical behaviour requires the ability to accomplish the tasks at hand with proficient skills in teamwork and leadership, while remembering ethical reasoning behind all decisions. The ability for organizational and time management skills is essential in bringing together all aspects of managing self and others. Academic integrity is central to mastery in this outcome. At the graduate level, intellectual independence is needed for professional and academic development and engagement.

In addition, Professional and Ethical Behaviour includes, but is not limited to, the following outcomes: Teamwork, Ethical Reasoning, Leadership, Personal Organization and Time Management, and Intellectual Independence.

XIV. Administration & Faculty

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Dean

Jonathan A. Newman BA, PhD State Univ. of New York

Associate Dean, Research and Graduate Studies

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Associate Dean, Academic

B. Husband BSc, MSc Alberta, PhD Toronto

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Associate Dean, Academic

K. Godfrey BSc Victoria, MSc Surrey, PhD Oxford Brookes, MBA Leicester

Assistant Dean and Executive Director of Executive Programs

C. Evans BSc, Toronto, MA, PhD Guelph

College of Engineering and Physical Science

Dean

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Associate Dean, Academic

K. Gordon BSc Guelph, PhD Western, P.Eng

Assistant Dean, Research and Graduate Studies

L. Brown MSc, PhD Moscow State

College of Social and Applied Human Sciences

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**Associate Dean, Research**

B. Leach BA Carleton, MA, PhD Toronto

**Associate Dean, Academic**

B. Sheldrick BA Carleton, LLB Toronto, MA, PhD York

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**Ontario Agricultural College**

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**Interim Associate Dean, Research and Innovation**

R. Hallett BSc Toronto, MPM, PhD Simon Fraser

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**Ontario Veterinary College**

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**Associate Dean, Student**

P. Conlon BSc (Agr), MSc McGill, DVM, PhD Guelph

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**The Faculty of Graduate Studies**

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**Assistant Vice-President (Graduate Studies)**

Ben Bradshaw BA Trent, PhD Guelph

**Associate Dean**

Teresa J.D. Crease BSc, MSc Windsor, PhD Washington

**Graduate Faculty**

Members of regular graduate faculty are appointed from among the faculty members of the university, on recommendation of their department chair or director of a school to the Board of Graduate Studies. Membership is contingent upon continuing participation in the graduate program of the university and is subject to annual review. Faculty members in departments without graduate programs may be appointed as graduate faculty in another department.

**Graduate Faculty Categories**

*Regular Graduate Faculty:* Regular Graduate Faculty are tenured and tenure stream faculty at the University of Guelph. (Contractually-limited appointments are not included in this category — see Associated and Special Graduate Faculty.) In most cases, Regular Graduate Faculty are expected to hold a PhD or the most senior degree in their particular area of expertise with an appropriate level of scholarship. Exceptions to this guideline must be accompanied by justification to the Board of Graduate Studies outlining the nature and extent of the experience or other training that equips the nominee for membership of Regular Graduate Faculty. To retain active status, individuals nominated to Regular Graduate Faculty must be involved on a regular basis with aspects of graduate education including advising students (as principal advisor or as co-advisor) and examining students and teaching graduate courses. Departments, programs and schools are expected to provide support in the form of mentoring for faculty newly appointed to the University, especially individuals who do not possess previous experience advising students. As part of the commitment to mentoring, a newly appointed Faculty Member may be required to serve as co-advisor linked in the early part of his/her career with a more experienced Faculty Member. Such decision shall normally not extend beyond three years from the date of appointment, and shall be reviewed by the Dean in his/her annual meeting with the Faculty Member, and the dean shall decide, in consultation with the Faculty Member, when the Faculty Member may commence serving as principal advisor. It is expected that the performance of Regular Graduate Faculty will be assessed as an integral part of the Promotion and Tenure process. Where there are substantiated concerns in the Faculty Member's performance of aspects of graduate education, the Faculty Member may continue to hold active Regular Graduate Faculty status; however, restriction(s) may be placed on some or all of his/her graduate education activities.

*Associated Graduate Faculty:* Associated Graduate Faculty are appointed to serve as co-advisors and may participate in all other aspects of graduate education, but they may not serve as primary advisors. Associated Graduate Faculty status is not normally for members of the tenure stream of faculty at the University of Guelph, but rather for individuals who are Professor Emeritus/Emerita, University Professor Emeritus/Emerita, or hold a senior academic degree in their particular area of expertise and have appropriate research experience. Tenure track Faculty Members who are not engaged in all aspects of graduate education may hold this status if they continue to be involved in some aspect of graduate education. Associated Graduate Faculty should have experience serving on graduate student advisory committees. Departments, programs, and schools are expected to provide support for Associated Graduate Faculty that is appropriate to their particular situation, graduate student advisory experience, and role(s) in the graduate program. Appointments are for a four-year term, renewable upon application and a satisfactory performance review conducted by the host program, department, or school.

*Special Graduate Faculty:* Special Graduate Faculty are appointed for specific tasks in support of graduate programs, such as teaching graduate courses and serving on advisory and/or examination committees, but they may not serve as advisor or co-advisor. The roles and responsibilities of the nominee must be defined at the time of nomination, and each revision of the roles and responsibilities must be submitted for approval by the Board of Graduate Studies. Although senior academic qualification and experience is desirable for Special Graduate Faculty, this is not essential. The term will be consistent with the nature of the appointment.

With rare exception, graduate students are not permitted to serve as graduate course instructors. Graduate students are also not permitted to serve as members on either the advisory or examination committees of another graduate student. Research associates and post-doctoral fellows may not be nominated as advisory committee members for students supervised by their faculty advisor and/or supervisor.

The complete Policy on Appointment to Graduate Faculty Status can be found at <http://www.uoguelph.ca/policies/>

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**The Board Of Graduate Studies**

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**Chair**

Marc Coppolino BSc Waterloo, MSc, PhD Toronto

**Members**

ex-officio

The President

The Provost and Vice-President Academic

The Associate Vice-President Academic

The Vice-President Research

The Associate Vice-President Student Affairs

The Chief Librarian

The Assistant Vice-President (Graduate Studies)

The Associate Dean of Graduate Studies

**Senate-appointed**

Six faculty members

Four graduate student senators

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**The Office of Graduate and Postdoctoral Studies**

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**L. Winn**, Executive Secretary to the Assistant Vice-President (Graduate Studies)**P. Sinclair**, Director, BA, Guelph**Admission & Marketing****N. Pankerichan**, Manager, Graduate Admission & Marketing**C. Fairchild**, Graduate Admission Specialist - COA, CBS, OAC, OVC**P. Gazo**, Graduate Admission Specialist - CSAHS, CBE, CPES**A. Keller**, Graduate Service Assistant**K. Whyllie**, Marketing Assistant**Records & Postdoctoral****N. Knopp**, Manager, Postdoctoral Services & Graduate Operations**P. Aberdeen**, Graduate Records & Colleague Officer**C. Morris**, Graduate Records & Postdoctoral Officer**Scholarships****K. Campbell**, Graduate Scholarships Service Associate**D. Drohan-Jennings**, Graduate Scholarships Service Associate**Curriculum****N. Timperio**, Manager, Graduate Curriculum

## Graduate Students' Association

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All graduate students of the University of Guelph, including part-time students, are members of the association and are encouraged to participate in its events and activities.

The purposes of the association are: to represent the graduate student body in all matters pertinent to its welfare; to act as a liaison between the graduate student body and faculty, the administration and the undergraduate student body; and to promote social and cultural activities.

The Grad Lounge is a licensed lounge facility and common area. It is located on Level 5, of the University Centre, Ext. 58117. These facilities provide a focal point for social and cultural activities of graduate students.

The GSA administers the Dental Plan and sets guidelines and policies on the Health Plan for all full-time graduate students.

The office for the Graduate Students' Association is beside the Graduate Student Lounge, University Centre, Level 5 (Room 524 U.C. North) Ext. 56685.

### **Elections are held in February for the following executive positions (term effective May 1 to April 30 of each year):**

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- President
- Vice-President Internal
- Vice-President External
- Vice-President Finance
- Vice-President Activities and Media

The governing body of the Association is the Board of Directors, consisting of the executive officers and departmental representatives. For a current listing of monthly meeting dates, please call the GSA office at Ext. 56685 or visit the GSA website: [www.uoguelph.ca/~gsa](http://www.uoguelph.ca/~gsa). All graduate students are welcome to attend.

## The Office of Student Affairs

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### Associate Vice-President (Student Affairs)

B. Whiteside BA, MA Guelph

### Assistant to the Vice-President (Student Affairs)

J. Westlake BA Guelph (on-leave)

Kara McFarlane

The Associate Vice President, Student Affairs, is responsible for student services programs at the University of Guelph. This includes addressing the needs of individual students through specific student services programs and working to create an environment that is conducive to intellectual and personal growth.

The Office of Student Affairs is located in the University Centre, Level 4. The Associate V.P. (Student Affairs) is responsible for overall management of the Departments of Athletics, Student Health Services, Student Housing Services, Co-operative Education and Career Services, Student Life and Counselling Services, Child Care and Learning Centre, and Health and Performance Centre.

Student Affairs' Units provide learning opportunities and support services to help students achieve their goals in the context of the University's learning objectives and to be effective contributors in society. Student Affairs staff are committed to helping students by promoting a sense of personal responsibility and self-reliance in addition to assisting in specific problem-solving activities.

## XV. Course Descriptions

### General Information, Course Labelling and levels

Each course is identified by a two-part code. The first part of the code refers to the subject area, the second to the level of the course. Thus, the course PSYC\*6000 is a course in the subject area of Psychology (PSYC\*XXXX). The series 6000, 7000 indicate graduate courses. Most graduate courses are offered in one semester with a final grade. Multiple semester courses are designed to require more than one semester for completion. Students register in each of the semesters in which they are actively engaged in course requirements and will receive an INP (in progress) interim grade designation in each semesters prior to completion. A grade is recorded in the final semester of offering.

### Course Information

The letters S, F, W indicate the University's intention to offer the course in the Summer (S), Fall (F) or Winter (W) semester during the academic year covered by this Calendar. Although courses normally will be offered in the semester indicated, students preparing their course programs are advised to consult the Undergraduate/Graduate Course Timetable. The University cannot guarantee that all courses will be offered in the exact semester indicated.

The letter U indicates that an intended offering has not been assigned to the course. Students should consult the Undergraduate/Graduate Course Timetable posted on [WebAdvisor](#) or contact the departments offering those courses to determine the semester offerings.

The credit weight for each course appears in brackets [ ]. A credit weight of [0.50] indicates 10-12 student effort hours, including class time, on academic tasks associated with the course.

### Course Prerequisites

In lists of course prerequisites, "or" conditions are spelled out explicitly, but "and" conditions are indicated with a comma ",". For example: "PSYC\*7130, PSYC\*7140, PSYC\*7170 means "PSYC\*7130, PSYC\*7140 and PSYC\*7170". A number of courses have stated prerequisites which are prior requirements for entry to the course. Students who do not satisfy course prerequisites, or who in the opinion of the instructor do not possess an equivalent background to that of the stated prerequisites, are not eligible to enroll in the course. When some specific background is desirable but not required, the course description will include a statement of recommended background. It is understood that the instructor may accept equivalent courses from other institutions in place of the stated prerequisites. Students who wish to enroll in courses for which they do not have the stated prerequisite(s) must obtain instructor approval.

### Restrictions

Restrictions - A restriction is a "rule" that is placed on the computer system (Colleague) at the direction of an academic department so that particular students may not register in particular courses or because the courses are restricted to the students in a particular program.. The course may be restricted because there is sufficient over-lap in content with another course so that it is inappropriate for the student to take a similar course for credit. In a different instance, the course may be restricted by "Instructor Consent" so that the student must discuss the special requirements of the course with the instructor before enrolling.



## Appendix A - Courses

Courses are listed in the appendix in alphabetic order and may also be found listed under the program in which they are offered.

### Accounting

#### ACCT\*6100 Integrated Cases I U [0.50]

“Integrated Cases I” is a required course for students pursuing a Chartered Professional Accountant (CPA) designation and will provide students with an in-depth knowledge of financial reporting and auditing. The course will integrate topics from both the finance and taxation areas of the CPA competency map. The course will also assist students in developing their problem solving and decision making abilities and communication skills, which are part of the enabling competencies of the CPA competency map.

*Restriction(s):* Students in MA.MGMT and GDip.ACCT

*Department(s):* Department of Management

#### ACCT\*6200 Integrated Cases II U [0.50]

“Integrated Cases II” is a required course for students pursuing a Chartered Professional Accountant (CPA) designation and will provide students with an in-depth knowledge of management accounting. The course will integrate topics from both the strategy and governance and the finance areas of the CPA competency map. The course will also assist students in developing their problem solving and decision-making abilities and communication skills, which are part of the enabling competencies of the CPA competency map.

*Restriction(s):* Students in MA.MGMT and GDip.ACCT

*Department(s):* Department of Management

#### ACCT\*6300 Taxation F [0.50]

This course is intended to help students achieve the competencies related to Elective Module 4 (E4) – Taxation in the CPA Competency Map. It covers the competencies necessary to provide taxation services and guidance. Topics include: compliance and tax-planning issues for both individuals and corporate entities, as well as, partnerships and trusts, risk tolerance of all stakeholders involved, tax governance, controls, and risk management, and the importance of taking taxes into account when making business and investment decisions..

*Prerequisite(s):* ACCT\* 6100 and ACCT\*6200

*Restriction(s):* Students in MA.MGMT and GDip.ACCT

*Department(s):* Department of Management

#### ACCT\*6400 Performance Management U [0.50]

Performance Management is an elective course for students pursuing a Chartered Professional Accountant (CPA) designation and will build on student's management accounting knowledge from both their undergraduate courses as well as “Integrated Cases II”. The course will also assist students in further developing their problem solving and decision-making abilities and communication skills, which are part of the enabling competencies of the CPA competency map.

*Prerequisite(s):* ACCT\*6200

*Restriction(s):* Students in MA.MGMT and GDip.ACCT

*Department(s):* Department of Management

#### ACCT\*6500 Assurance U [0.50]

This course develops the competencies necessary to assess an entity's assurance needs and perform both internal audit projects and external assurance engagements. The CPA Competency Map describes in detail the two types of competencies - technical and enabling - that employers in public practice, industry, and government require of accounting professionals. As such, the CPA Competency Map will be utilized in this course to help ensure that students meet the course learning objectives.

*Restriction(s):* Students in MA.MGMT and GDip.ACCT

*Department(s):* Department of Management

#### ACCT\*6600 Financial Management U [0.50]

The course will build upon the conceptual foundation developed in undergraduate introductory finance courses. The focus of the course is on the development of competencies in identifying, analyzing, evaluating and making appropriate recommendations for investing and financing decisions in a variety of professional contexts, particularly in the areas of treasury management, valuation, and risk management. There will be a strong emphasis on applying the body of knowledge in integrated case problems.

*Restriction(s):* Students in MA.MGMT and GDip.ACCT

*Department(s):* Department of Management

### Agricultural Business

#### AGBU\*6520 Marketing Research and Analysis U [0.50]

Students will learn the fundamentals of marketing research and analysis as they apply to decision-making. The key focus of the course will be on developing a marketing plan for a real product/service. Input into the marketing plan will come from actual marketing research information collected, analyzed and interpreted by participants. Students will develop and implement background-marketing research that can be used at the conclusion of the course to build the marketing plan. In addition to developing general research skills, special topics such as perceptual mapping for positioning, conjoint analysis for pricing and clustering for segmentation will be examined.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive MBA Programs

#### AGBU\*6530 Management Issues in Agriculture U [0.50]

This course discusses the application of general management concepts and practices to agricultural production. Topics include strategies farm managers can use to assess performance, set direction, build capabilities and implement change. All readings and cases are taken from the viewpoint of an owner-operator of a commercial farming operation.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive MBA Programs

#### AGBU\*6700 Special Topics: Agribusiness Management U [0.50]

A special topic course focusing on relevant business issues or problems allowing students to enhance and further develop expertise in specific areas of management. May be offered to students in any semester.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

### Animal Science

#### ANSC\*6010 Topics in Comparative Animal Nutrition U [0.50]

Current topics in the feeding and nutrition of agricultural, companion and captive animal species. Emphasis is placed on the influence of nutrients on metabolic integration at tissue, organ and whole-animal levels. A nutritional case study will be conducted to allow students to solve practical feeding problems by applying basic nutritional principles. The course is offered every other year on even years.

*Department(s):* Department of Animal Biosciences

#### ANSC\*6030 Modelling Metabolic Processes F [0.50]

Building and testing of mathematical models of metabolic processes using continuous simulation software to assist in weekly assignments. Choice of model based on students' research interests (e.g. protein synthesis, nutrient uptake, rumen fermentation). Term project to reproduce model from scientific knowledge.

*Department(s):* Department of Animal Biosciences

#### ANSC\*6050 Biometry for Animal Sciences W [0.50]

For students involved in animal research. The course will provide outlines of appropriate presentation and analysis of experimental data with emphasis on different analytical techniques.

*Department(s):* Department of Animal Biosciences

#### ANSC\*6100 Special Project F,W,S [0.50]

Supervised program of study in some aspect of animal and poultry science that can involve an experimental project and/or detailed analysis of the literature.

*Department(s):* Department of Animal Biosciences

#### ANSC\*6210 Principles of Selection in Animal Breeding W [0.50]

Definition of selection goals, prediction of genetic progress and breeding values, and the comparison of selection programs.

*Department(s):* Department of Animal Biosciences

#### ANSC\*6240 Topics in Animal Genetics and Genomics U [0.50]

Current literature and classical papers pertaining to quantitative genetics, animal breeding and animal genomics are reviewed in detail through presentation, discussion and critical analysis.

*Department(s):* Department of Animal Biosciences

#### ANSC\*6250 Growth and Metabolism W [0.50]

Animal growth and metabolism are considered at the cellular level in a manner that extends beyond the basic disciplines of biometrics and biochemistry with attention focused on the main carcass components — muscle, fat and bone.

*Department(s):* Department of Animal Biosciences

<b>ANSC*6360 Techniques in Animal Nutrition Research W [0.50]</b>
Theory and/or practices of techniques to evaluate feedstuffs and determine nutrient utilization in poultry, swine and ruminants is covered through lectures, short laboratories and a major project. <i>Department(s):</i> Department of Animal Biosciences
<b>ANSC*6370 Quantitative Genetics and Animal Models F [0.50]</b>
The course covers quantitative genetics theory associated with animal models; linear models applied to genetic evaluation of animals; estimation of genetic parameters for animal models; and computing algorithms for large datasets. <i>Department(s):</i> Department of Animal Biosciences
<b>ANSC*6390 QTL and Markers W [0.50]</b>
Advanced training in QTL mapping and selection assisted by genetic markers. <i>Department(s):</i> Department of Animal Biosciences
<b>ANSC*6400 Mammalian Reproduction W [0.50]</b>
Discussions and applications of methodology for collection and examination of gametes and embryos and for measurements of hormones in biological fluids. <i>Offering(s):</i> Offered in odd-numbered years. <i>Department(s):</i> Department of Animal Biosciences
<b>ANSC*6440 Advanced Critical Analysis in Applied Ethology F [0.50]</b>
Students explore the process of scientific inquiry and experimental design within the context of applied ethology research. Discussions include the peer review process, critical analyses and applications of methods for applied animal behaviour research. <i>Department(s):</i> Department of Animal Biosciences
<b>ANSC*6450 Topics in Animal Biotechnology F [0.50]</b>
The course will explore current methods and recent advances of biotechnology, innovation, and emerging translational products of significance to animal production and human health. <i>Prerequisite(s):</i> MCB*2050 / MBG*2040 / ANSC*4050 or equivalent <i>Department(s):</i> Department of Animal Biosciences
<b>ANSC*6460 Lactation Biology F [0.50]</b>
An in-depth systems analysis of lactation, comparing the cow, pig, rat, human and seal. Mammary development from conception through to lactogenesis, lactation and involution will be covered. Hypotheses of regulation of the biochemical pathways of milk synthesis will be tested in relation to experimental observations. <i>Department(s):</i> Department of Animal Biosciences
<b>ANSC*6470 Advanced Animal Nutrition and Metabolism I F [0.50]</b>
A systematic review of key aspects of energy, protein, amino acid and carbohydrate utilization and metabolism in farm animals. <i>Department(s):</i> Department of Animal Biosciences
<b>ANSC*6480 Advanced Animal Nutrition and Metabolism II W [0.50]</b>
A systematic review of key aspects of lipid, vitamin and mineral utilization and metabolism in farm animals. <i>Department(s):</i> Department of Animal Biosciences
<b>ANSC*6490 Advanced Dairy Management W [0.50]</b>
A comprehensive systems science and integrative capstone course that encompasses the “closing of the loop” education of dairy production systems. Students will be exposed to real-time issues relating to dairy production from, environment, economics, nutrition, housing, health, welfare, society and agrology. This course will allow the student to practice their training from the courses they have been exposed to as undergraduates into many case study evaluations on farms provincially, nationally and internationally. <i>Restriction(s):</i> Instructor consent required. <i>Department(s):</i> Department of Animal Biosciences
<b>ANSC*6600 Scientific Communication I F,W [0.25]</b>
This course is required for completion of a thesis-based MSc degree. Via, reading, guest lectures, online modules and in-class discussion, students will learn about the principles of effective communication, and with training and feedback create a departmental webpage and oral presentation outlining their research plans. <i>Restriction(s):</i> Restricted to Animal Biosciences students. <i>Department(s):</i> Department of Animal Biosciences
<b>ANSC*6610 Thesis Proposal and Professional Development I F,W [0.25]</b>
This course is required for successful completion of an MSc thesis degree. With guidance and instruction, students complete a research proposal, or a literature review for their thesis. Students will also spend 8 hours on professional development (e.g. via mygradskills.ca, MITAC Step workshops). <i>Restriction(s):</i> Restricted to Animal Biosciences students. <i>Department(s):</i> Department of Animal Biosciences

<b>ANSC*6620 Scientific Communication II F,W [0.00]</b>
This course is required for successful completion of a PhD degree. Via reading, guest lectures, online modules and in-class discussion, students will learn about the principles of effective communication, and with training and feedback, create a departmental webpage and oral presentation outlining their research plans. <i>Prerequisite(s):</i> ANSC*6600 <i>Restriction(s):</i> Restricted to Animal Biosciences PhD students. <i>Department(s):</i> Department of Animal Biosciences
<b>ANSC*6630 Thesis Proposal and Professional Development II F,W [0.00]</b>
This course is required for successful completion of a PhD degree. With guidance and instruction, students will complete a research proposal, or a literature review for their thesis. Students will also spend 8 hours on professional development (e.g. via mygradskills.ca, MITAC Step workshops). <i>Prerequisite(s):</i> ANSC*6610 <i>Restriction(s):</i> Restricted to Animal Biosciences PhD students. <i>Department(s):</i> Department of Animal Biosciences
<b>ANSC*6700 Animals in Society: Historical and Global Perspectives on Animal Welfare F [0.50]</b>
A seminar course covering society's duties to animals. Students will learn about the major ethical theories that deal with society's duties towards animals, the main scientific approaches to animal welfare, and the relationship of science to ethics. A brief history of human-animal relationships will be covered and cultural differences described. Students will use this to analyze some current issues. <i>Department(s):</i> Department of Animal Biosciences
<b>ANSC*6710 Assessing Animal Welfare in Practice W [0.50]</b>
A lecture/seminar course covering the principles of applied animal welfare assessment. Students will learn what influences an animal welfare assessment and will understand the components necessary to create an effective and targeted animal welfare program for industry or regulatory application. <i>Offering(s):</i> Winter offering on-campus, Summer offering Distance Education. <i>Prerequisite(s):</i> ANSC*6700 <i>Department(s):</i> Department of Animal Biosciences
<b>ANSC*6720 Scientific Assessment of Affective States in Animals W [0.50]</b>
Graduate students will explore the biology and validity of behavioural and physiological techniques used in animal welfare assessment such as: sympathetic activation, HPA functioning, stereotypic behaviour and preference responses. A combination of lecture, instructor-led discussion and student-led discussion will explore these methods of animal welfare assessment. <i>Department(s):</i> Department of Animal Biosciences
<b>ANSC*6730 Applied Environmental Physiology and Animal Housing W [0.50]</b>
A lecture/seminar course covering the principles of applied environmental physiology including temperature regulation, space requirements, animal responses to light and other aspects of the physical environment. Students pursue a topic in depth to develop or update recommended codes of practice and resource-based standards. <i>Department(s):</i> Department of Animal Biosciences
<b>ANSC*6740 Special Topics in Applied Animal Welfare Science S [0.50]</b>
A lecture/seminar course covering in depth topics in applied animal welfare science. The course will review the scientific research into the welfare of a specific animal species or a specific animal welfare problem common across species, focusing on the main threats to welfare, relevant indicators of welfare, and possible solutions to improve welfare. <i>Department(s):</i> Department of Animal Biosciences
<b>ANSC*6900 Major Paper in Animal and Poultry Science F,W,S [1.00]</b>
A detailed, critical review of an area of study related to the specialization of students in the MSc by course work and major paper option that includes analysis and interpretation of relevant data. <i>Department(s):</i> Department of Animal Biosciences

## Anthropology

<b>ANTH*6000 Public Issues Anthropology F [0.50]</b>
This course will examine the interface between anthropological and public understandings of public issues, with sensitivity to the presence or absence of anthropological insights. The course will assure that students become well versed in how to synthesize the resources of various branches of the discipline. <i>Restriction(s):</i> Restricted to incoming students in the program. <i>Department(s):</i> Department of Sociology and Anthropology
<b>ANTH*6080 Anthropological Theory F [0.50]</b>
An examination of classical and contemporary anthropological theory, including an emphasis on the most recent directions in the discipline. <i>Department(s):</i> Department of Sociology and Anthropology

<b>ANTH*6140 Qualitative Research Methods W [0.50]</b>
An examination of the methods of qualitative research, including participant observation and unstructured interviews, as well as the ethical considerations of fieldwork. Other topics, such as comparative and historical methods, may be included. <i>Department(s):</i> Department of Sociology and Anthropology
<b>ANTH*6270 Diversity and Social Equality U [0.50]</b>
This course will examine a range of approaches used in the study of intergroup relations, with special emphasis on struggles over influence and power. Students will acquire a deeper understanding of the complex intersection, as well as the overlap among forms of identity and group mobilization based on ethnic, linguistic, regional, class, gender, racial and other forms of social division. The course may also cover native issues and policies related to multiculturalism, equity and local or regional autonomy. <i>Department(s):</i> Department of Sociology and Anthropology
<b>ANTH*6420 Global Agro-Food Systems, Communities and Rural Change U [0.50]</b>
This course will reflect recent sociological interests in food studies and global agro-food systems, resources and the environment, community sustainability, rural-urban linkages, the transnationalization of labour regimes, and social movements in the rural context. The course will encourage students to take a comparative and historical approach, focussing on cross-national and inter-regional studies where possible, and to examine how class, gender, race and ethnicity play out in each particular substantive topic comprising the rural field. <i>Department(s):</i> Department of Sociology and Anthropology
<b>ANTH*6460 Gender and Development F [0.50]</b>
Cross-cultural and historical changes in gender relations and the roles/positions of women brought about by industrialization and the development of the world system. Critical examination of the predominant theories of gender relations, in so far as these inform development research and action in societies with different socio-economic systems. Introduction to the latest theories and research in the area of women and development, as well as with social and political actions undertaken by women themselves. This is one of the two alternative core courses for the International Development Studies collaborative specialization. <i>Department(s):</i> Department of Sociology and Anthropology
<b>ANTH*6480 Work, Gender and Change in a Global Context U [0.50]</b>
This course will consider some of the theoretical frameworks available for examining work, workers and work places in the context of globalization, economic restructuring, and shifts in public policy. Using case studies of particular work worlds, the course may include topics such as changing patterns of work and employment in comparative contexts, labour regimes, industrial and organizational change, organizations and protest, education for work, and the regulation of work. The course will focus on the dialectical relationship between the configurations of gender, class, race and ethnicity and the transformation of work. <i>Department(s):</i> Department of Sociology and Anthropology
<b>ANTH*6550 Selected Topics in Theory and Research U [0.50]</b>
This course will be offered with varying content focusing on theory or research. <i>Department(s):</i> Department of Sociology and Anthropology
<b>ANTH*6600 Reading Course U [0.50]</b>
A program of directed reading, complemented with the writing of papers or participation in research. Reading courses are arranged by students through their advisors or advisory committees and must be approved by the chair of the department. This course may be repeated provided different content is involved. <i>Department(s):</i> Department of Sociology and Anthropology
<b>ANTH*6660 Major Paper U [1.00]</b>
The major paper is an extensive research paper for those who do not elect to complete a thesis. It may be taken over two semesters. <i>Department(s):</i> Department of Sociology and Anthropology
<b>ANTH*6700 Pro-seminar F-W [0.00]</b>
The pro-seminar concerns matters involved in graduate studies and later work as a professional anthropologist, including how to form a graduate advisory committee, assistantship responsibilities, presentation skills, exploration of careers in anthropology, writing grant proposals, reports and articles, and teaching. <i>Department(s):</i> Department of Sociology and Anthropology

## Art History and Visual Culture

<b>AVC*6100 Proseminar: Critical Methods I F [0.50]</b>
This proseminar explores the histories, theories, and methodologies of the fields of art history, visual culture, and material culture. <i>Department(s):</i> School of Fine Art and Music

<b>AVC*6200 Proseminar: Critical Methods II W [0.50]</b>
This seminar is a multi-disciplinary survey of critical theory. The aim is to consider which bodies of theory have been—and continue to be—lively options for the practice of critical thought in relation to visual culture, especially post-1968. The course explores issues which also possess cultural, social and political relevance, theories which affected all the humanities and social sciences, and themes that are also deeply relevant outside the academy. These include: the institutions and networks of knowledge, identity politics, race, sexuality, gender and class, amongst others. <i>Prerequisite(s):</i> AVC*6100 <i>Department(s):</i> School of Fine Art and Music
<b>AVC*6300 Special Topics in Art History and Visual Culture F [0.50]</b>
This seminar explores issues of historical and critical method by focusing them through the lens of a particular area of concern within the fields of art history, visual culture, and/or material culture. <i>Department(s):</i> School of Fine Art and Music
<b>AVC*6310 Topics in Art &amp; Visual Culture I W [0.50]</b>
This seminar course is designed to explore one or more issues in Art and Visual Culture depending on the expertise of the instructor. Offered in conjunction with ARTH*4310. Extra work is required of graduate students. Students should consult the department for specific offerings. <i>Restriction(s):</i> Credit may be obtained for only one of AVC 6310 or ARTH 4310. <i>Department(s):</i> School of Fine Art and Music
<b>AVC*6320 Topics in Art &amp; Visual Culture II F [0.50]</b>
This seminar course is designed to explore one or more issues in Art and Visual Culture depending on the expertise of the instructor. Offered in conjunction with ARTH*4320. Extra work is required of graduate students. Students should consult the department for specific offerings. <i>Restriction(s):</i> Credit may be obtained for only one of AVC 6320 or ARTH 4320. <i>Department(s):</i> School of Fine Art and Music
<b>AVC*6330 Topics in Art &amp; Visual Culture III W [0.50]</b>
This seminar course is designed to explore one or more issues in Art and Visual Culture depending on the expertise of the instructor. Offered in conjunction with ARTH*4330. Extra work is required of graduate students. Students should consult the department for specific offerings. <i>Restriction(s):</i> Credit may be obtained for only one of AVC 6330 or ARTH 4330 <i>Department(s):</i> School of Fine Art and Music
<b>AVC*6340 Topics in Art &amp; Visual Culture IV F [0.50]</b>
This seminar course is designed to explore one or more issues in Art and Visual Culture depending on the expertise of the instructor. Offered in conjunction with ARTH*4340. Extra work is required of graduate students. Students should consult the department for specific offerings. <i>Restriction(s):</i> Credit may be obtained for only one of AVC 6340 or ARTH 4340. <i>Department(s):</i> School of Fine Art and Music
<b>AVC*6350 Topics in Art &amp; Visual Culture V F [0.50]</b>
This seminar course is designed to explore one or more issues in Art and Visual Culture depending on the expertise of the instructor. Offered in conjunction with ARTH*4350. Extra work is required of graduate students. Students should consult the department for specific offerings. <i>Restriction(s):</i> Credit may be obtained for only one of AVC 6350 or ARTH 4350. <i>Department(s):</i> School of Fine Art and Music
<b>AVC*6370 Practicum I: Art Institutions F [0.50]</b>
The practicum provides students with an opportunity to gain practical experience through work with an artist, curator, or other museum or arts professional. This experience may be based in a museum department, gallery, artist's studio, or arts publication office. The course should result in a substantial piece of work - for example, preparatory work for an exhibition, an analysis of a segment of a permanent collection, or a survey or catalogue of an artist's archives. The student is required to submit a written report upon completion of the course. <i>Restriction(s):</i> Admission to the Graduate Program in Art History and Visual Culture Instructor consent required. <i>Department(s):</i> School of Fine Art and Music

<b>AVC*6400 Practicum II: Art Institutions W [0.50]</b>	
The practicum provides students with an opportunity to gain practical experience through work with an artist, curator, or other museum or arts professional. This experience may be based in a museum department, gallery, artist's studio, or arts publication office. The course should result in a substantial piece of work - for example, preparatory work for an exhibition, an analysis of a segment of a permanent collection, or a survey or catalogue of an artist's archives. The student is required to submit a written report upon completion of the course.	
<i>Restriction(s):</i>	Admission to the Graduate Program in Art History and Visual Culture Instructor consent required.
<i>Department(s):</i>	School of Fine Art and Music
<b>AVC*6500 Directed Reading U [0.50]</b>	
Each student establishes, in consultation with the faculty member chosen, the content of this special study within the instructor's area of expertise. Faculty varies.	
<i>Department(s):</i>	School of Fine Art and Music
<b>AVC*6800 Art History and Visual Culture Major Research Paper F,W,S [1.00]</b>	
The Master's Research Project is a 10,000-15,000 word paper that requires original research and argumentation.	
<i>Restriction(s):</i>	Admission to the Graduate Program in Art History and Visual Culture, course-work students only
<i>Department(s):</i>	School of Fine Art and Music

## Bioinformatics

<b>BINF*6110 Genomic Methods for Bioinformatics W [0.50]</b>	
This course provides an introduction to current and emerging methods used to generate genomic data analyzed in bioinformatics. This may include techniques for DNA sequencing as well as transcriptome, proteome and metabolome analysis. The objective is to develop an appreciation for the challenges of producing data.	
<i>Restriction(s):</i>	Restricted to students in Bioinformatics programs. Students in other programs may consult with course instructor.
<i>Department(s):</i>	Dean's Office, College of Biological Science
<b>BINF*6210 Software Tools for Biological Data Analysis and Organization F [0.50]</b>	
This course will familiarize students with tools for the computational acquisition and analysis of molecular biological data. Key software for gene expression analyses, biological sequence analysis, and data acquisition and management will be presented. Laboratory exercises will guide students through application of relevant tools.	
<i>Restriction(s):</i>	Restricted to students in Bioinformatics programs. Students in other programs may consult with course instructor.
<i>Department(s):</i>	Dean's Office, College of Biological Science
<b>BINF*6410 Bioinformatics Programming F [0.50]</b>	
This course will introduce bioinformatics students to programming languages. Languages such as C and Perl will be introduced with a focus on bioinformatics applications. The topics covered will serve to aid students when existing software does not satisfy their needs.	
<i>Restriction(s):</i>	Restricted to students in Bioinformatics programs. Students in other programs may consult with course instructor.
<i>Department(s):</i>	Dean's Office, College of Biological Science
<b>BINF*6420 Biosequence Pattern Analysis W [0.50]</b>	
This course is an overview course on different approaches to analyze biological sequences. Basic concepts are introduced, as well as related algorithms.	
<i>Restriction(s):</i>	Restricted to students in Bioinformatics programs. Students in other programs may consult with course instructor.
<i>Department(s):</i>	Dean's Office, College of Biological Science
<b>BINF*6500 PhD Research Writing in Bioinformatics F,W,S [1.00]</b>	
Background literature pertinent to the student's initial research direction will be studied. Starting with a reading list provided by the advisor and the instructor, the student will build on this list and construct a major literature review over two semesters. As the student begins to generate initial ideas for their own research direction, their ideas are written and explained. The emphasis will be on a sub-field or sub-fields of bioinformatics and the depth of study will be appropriate to the doctoral level.	
<i>Restriction(s):</i>	PhD students in Bioinformatics program
<i>Department(s):</i>	Dean's Office, College of Biological Science
<b>BINF*6890 Topics in Bioinformatics F [0.50]</b>	
Selected topics in bioinformatics will be covered. The course might focus on biological or informatics topics, or upon a mixture of both.	
<i>Restriction(s):</i>	Restricted to students in Bioinformatics programs. Students in other programs may consult with course instructor.
<i>Department(s):</i>	Dean's Office, College of Biological Science

<b>BINF*6970 Statistical Bioinformatics W [0.50]</b>	
This course presents a selection of advanced approaches for the statistical analysis of data that arise in bioinformatics, especially genomic data. A central theme to this course is the modelling of complex, often high-dimensional, data structures.	
<i>Prerequisite(s):</i>	Introductory courses in statistics, mathematics and programming
<i>Restriction(s):</i>	Restricted to students in Bioinformatics programs. Students in other programs may consult with course instructor.
<i>Department(s):</i>	Dean's Office, College of Biological Science
<b>BINF*6999 Bioinformatics Master's Project F,W,S [1.00]</b>	
A major research paper is completed and presented by students in the Master of Bioinformatics program.	
<i>Prerequisite(s):</i>	BINF*6110, BINF*6210
<i>Restriction(s):</i>	Restricted to MBNF students only
<i>Department(s):</i>	Dean's Office, College of Biological Science

## Biomedical Science

<b>BIOM*6070 Pregnancy, Birth and Perinatal Adaptations S [0.50]</b>	
This course promotes understanding of the physiology of the placenta, and its role in fetal, perinatal and adult health. It is offered through videoconference involving University of Guelph, Queen's University and University of Waterloo. Parts are customized to student's interests within pregnancy physiology.	
<i>Department(s):</i>	Department of Biomedical Sciences
<b>BIOM*6100 Research Proposal in Biomedical Sciences F-W [0.50]</b>	
This is a 2 semester course (students must register for the course in each semester) focused on preparing students for their MSc defense while improving their critical thinking, oral communication skills and written communication skills. Students will submit a research proposal and present a seminar on their research proposal. Students will also write lay summaries on other student's seminars.	
<i>Restriction(s):</i>	Instructor consent required.
<i>Restriction(s):</i>	Restricted to MSc students (thesis-based) registered in their first year in the Department of Biomed Sci.
<i>Department(s):</i>	Department of Biomedical Sciences
<b>BIOM*6110 Research Methods in Biomedical Sciences F-W [0.50]</b>	
To provide a theoretical and practical introduction to basic and advanced laboratory techniques for graduate students in Biomedical. Sciences. Routine and specialized procedures for light microscopy and various lab techniques, including but not limited to qPCR, protein assays, HPLC, Histology, cell culture and flow cytometry, are examined. Each technique is extensively examined through lectures, discussions and practical exercises. (This is a two semester course that begins in the Fall semester.)	
<i>Department(s):</i>	Department of Biomedical Sciences
<b>BIOM*6130 Vertebrate Developmental Biology U [0.50]</b>	
The principles of vertebrate development are examined through lectures, discussions and practical exercises. Topics include aspects of gametogenesis, fertilization, implantation, embryonic and fetal development and experimental manipulation of embryos. Emphasis is on mammalian development and topics may vary depending on student needs and interests.	
<i>Department(s):</i>	Department of Biomedical Sciences
<b>BIOM*6160 Cellular Biology U [0.50]</b>	
An integrative course that examines aspects of cell biology in the context of recent research advancements. Topics are chosen based on student interest and faculty expertise and are explored through a combination of lectures, student seminars and group discussions.	
<i>Department(s):</i>	Department of Biomedical Sciences
<b>BIOM*6300 Cancer Biology W [0.50]</b>	
Directed to students pursuing cancer research and based on two 1.5-hour lectures and a 2-hour tutorial per week, the general aim of this course is to familiarize students with general concepts in cancer biology and the most commonly used methodologies in cancer research. Apart from improving students' general understanding of cancer biology, the course seeks to enhance critical thinking, writing and oral presentation skills by means of a seminar presentation, weekly tutorial discussions and the preparation of two literature reviews. Offered in conjunction with BIOM*4150. Extra work is required for graduate students.	
<i>Restriction(s):</i>	Credit may be obtained for only one of BIOM*4150 or BIOM*6300.
<i>Department(s):</i>	Department of Biomedical Sciences

<b>BIOM*6310 Advanced Cancer Biology F [0.50]</b>
This course explores advanced topics in cancer biology including cancer etiology, detection and screening and therapeutic strategies. Students will also critically evaluate the scientific literature as well as cancer related articles disseminated to the general public. <i>Restriction(s):</i> Instructor consent required. <i>Department(s):</i> Department of Biomedical Sciences
<b>BIOM*6400 Critical Thinking in Medicinal Research F [0.50]</b>
This course will explore a variety of issues related to the scientific ideals and practical realities of research in the health sciences. Topics include critical thinking, critical appraisal of the medical literatures (with emphasis on clinical trials), the principles of evidence-based medicine, and selected issues related to scientific integrity. <i>Prerequisite(s):</i> Undergraduate or graduate course in statistics. <i>Department(s):</i> Department of Biomedical Sciences
<b>BIOM*6490 Introduction to Drug Development W [0.50]</b>
Drug development is the process of integrating scientific data from several disciplines in order to demonstrate efficacy and safety of the new chemical entity for regulatory approval. This course will provide an overview of the drug development process including preclinical and clinical aspects of drug development. <i>Restriction(s):</i> Instructor consent required. <i>Department(s):</i> Department of Biomedical Sciences
<b>BIOM*6570 Biochemical Regulation of Physiological Processes U [0.50]</b>
This course focuses on the regulation of vertebrate physiological processes, such as electrolyte and water balance, temperature regulation, growth and energy metabolism, by hormones and other biological regulators that act through cellular receptors and intracellular biochemical-control pathways. <i>Department(s):</i> Department of Biomedical Sciences
<b>BIOM*6601 Special Topics in Reproductive Biology and Biotechnology U [0.25]</b>
Permits in-depth exploration of interdisciplinary aspects of biomedical research. Topics such as inflammation, reproductive immunology and neoplasia have been offered. <i>Department(s):</i> Department of Biomedical Sciences
<b>BIOM*6602 Special Topics in Reproductive Biology and Biotechnology U [0.50]</b>
See BIOM*6601 above. <i>Department(s):</i> Department of Biomedical Sciences
<b>BIOM*6610 Vascular Biology U [0.50]</b>
An interdisciplinary course in which the interrelationships between vascular proteins, cellular elements and the maintenance of vascular integrity are examined. Structural-functional relationships in vascular biology are explored through seminar presentations, group discussions and small group participation in problem based examples of vascular dysfunction. <i>Department(s):</i> Department of Biomedical Sciences
<b>BIOM*6701 Special Topics in Development, Cell and Tissue Morphology U [0.25]</b>
Permits further in depth study of developmental and morphological sciences. <i>Department(s):</i> Department of Biomedical Sciences
<b>BIOM*6702 Special Topics in Development, Cell and Tissue Morphology U [0.50]</b>
See BIOM*6701 <i>Department(s):</i> Department of Biomedical Sciences
<b>BIOM*6712 Special Topics in Physiology &amp; Biochemistry U [0.50]</b>
This course involves an appropriate combination of an experimental procedure (or project), seminars, selected reading or a literature review outside the thesis subject, developed according to the student's requirements. <i>Department(s):</i> Department of Biomedical Sciences
<b>BIOM*6721 Special Topics in Pharmacology-Toxicology U [0.25]</b>
This course will comprise a combination of an experimental procedure (or project), seminars, selected reading or a literature review outside the thesis subject, developed based on the student's requirements. Topics could include clinical pharmacology/toxicology, pharmaco-epidemiology/economics, gerontological or perinatal pharmacology and toxicokinetics. <i>Department(s):</i> Department of Biomedical Sciences
<b>BIOM*6722 Special Topics in Biomedical Pharmacology-Toxicology U [0.50]</b>
See BIOM*6721 <i>Department(s):</i> Department of Biomedical Sciences

<b>BIOM*6800 Gene Expression in Health and Disease W [0.50]</b>
This course presents the molecular concepts of gene expression and the functional consequences of abnormal expression in pathological conditions. The conceptual, methodological and applied aspects of gene expression will be illustrated through student and faculty seminars, written reports, group discussions, and debates. <i>Department(s):</i> Department of Biomedical Sciences
<b>BIOM*6900 Research Project in Biomedical Sciences W,S,F [1.00]</b>
This course is a lab-based, one-semester research project course for students in the course-based Master of Biomedical Sciences (MBS). As part of this course, students will complete a research paper and grant proposal pertaining to the research topic as well as a poster presentation of the project. <i>Restriction(s):</i> Course restricted to students registered in the course-based MBS. Instructor consent required. <i>Department(s):</i> Department of Biomedical Sciences

## Biotechnology

<b>BIOT*6500 Molecular Biotechnology F [0.50]</b>
This course will provide an overview of molecular approaches relevant to a broad range of biotechnology industries including those found in medical, microbial, protein, pharmaceutical, environmental and agricultural fields. <i>Department(s):</i> Department of Molecular and Cellular Biology
<b>BIOT*6550 Biodiversity and Biotechnology W [0.50]</b>
Biological diversity includes the variability among living organisms spanning genetic, species, habitat and geographic scales, thereby encompassing all living things and associated systems. This course will provide an overview of DNA-based approaches used to analyze and characterize the main principles of biodiversity followed by discussions of the impact of biologically diverse communities within the biotechnology sector. <i>Department(s):</i> Department of Molecular and Cellular Biology
<b>BIOT*6600 Innovation Management F [0.50]</b>
This course will focus on the integration of science and business from initial discovery through to commercialization. This integration involves resolving issues related to technical, market and financial feasibility. Topics will include the innovation process, assessment of markets, development of business models and managing projects under high uncertainty. <i>Department(s):</i> Department of Management
<b>BIOT*6610 Cases in Biotechnology Management W [0.50]</b>
This course will examine contemporary issues in biotechnology / science-based business through a case-based approach. Topics from across the spectrum of business disciplines (marketing, management, strategy, intellectual property, etc.) will be examined. Time permitting, a live case with an industry partner will be used. <i>Prerequisite(s):</i> BIOT*6600 <i>Department(s):</i> Department of Management
<b>BIOT*6700 Communication in Science and Business W [0.50]</b>
The goal of this course is to develop written, and oral presentation skills to effectively communicate ideas and experiments in both scientific and business contexts. Students will be asked to write and orally communicate a research proposal. <i>Department(s):</i> Department of Molecular and Cellular Biology
<b>BIOT*6800 Research Project S [1.00]</b>
The students will be matched with a research advisor in their first semester and write a research proposal on their project in the second semester communication course. During the time they do their research project, they will be expected to do the research work that they propose and then to prepare a written report of their results and conclusions as well as to give a poster presentation on this. The research project can be undertaken with any appropriate faculty member, or with an approved off-campus institution. <i>Restriction(s):</i> Students registered in Master of Biotechnology program <i>Department(s):</i> Department of Molecular and Cellular Biology

## Biophysics

<b>BIOP*6000 Concepts in Biophysics W [0.50]</b>
This course will emphasize basic concepts in molecular, cellular and structural biophysics arising from key journal publications and their impact on present day research trends. <i>Department(s):</i> Dean's Office, College of Engineering and Physical Sciences
<b>BIOP*6010 Biophysics Seminar U [0.00]</b>
This public research seminar is based on presentations by all PhD students in the Biophysics program in yearly intervals after passing the qualifying exam and by all MSc students in their second year of studies. Students are required to attend all seminars presented during the semester in which they are registered for the course. <i>Department(s):</i> Dean's Office, College of Engineering and Physical Sciences

**BIOP\*6100 Scientific Communication and Research Methods in Biophysics U [0.50]**

The development and refinement of the skills of scientific communication, emphasizing oral presentation and writing skills, in the context of developing a literature review or thesis proposal. All Biophysics students will normally take this within 4 semesters of entering the program.

*Department(s):* Dean's Office, College of Engineering and Physical Sciences

**BIOP\*6950 Advanced Topics in Biophysics U [0.50]**

This course provides opportunities for graduate students to study special topics in contemporary biophysical research under the guidance of graduate faculty members with pertinent expertise. Proposed course descriptions are considered by the Director of the Biophysics program on an ad hoc basis, and the course will be offered according to demand.

*Department(s):* Dean's Office, College of Engineering and Physical Sciences

**Business****BUS\*6050 Management Communications U [0.50]**

Examination of the theory, function and practice of managerial communications with particular emphasis on developing communication strategies and skills.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**BUS\*6100 Food and Agribusiness Economics and Policy U [0.50]**

An analysis of economic and policy issues relevant for food and agribusiness managers in affluent economies, with emphasis on the economic and policy environment that exists within North America.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**BUS\*6110 Foundations of Leadership U [0.50]**

The course will enhance participants' interpersonal competency, as well as their knowledge and understanding of the theory and research underlying the impact of team management and collaboration on the organization.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**BUS\*6120 Food and Agribusiness Marketing U [0.50]**

A study of marketing decision-making in food and agribusiness firms, with emphasis on the formulation of strategic marketing plans.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**BUS\*6140 Foundations of Human Resource Management U [0.50]**

This course examines the essential human resource management functions of planning, staffing, employee development, compensation, health and safety, labour relations, and legal compliance, in a variety of organizational settings.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**BUS\*6150 Research Methods for Managers U [0.50]**

Students learn to formulate a research problem, undertake a literature review, and to select and use appropriate quantitative and qualitative techniques for the collection and analysis of relevant data. The course also promotes the use of the World Wide Web as an information resource.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**BUS\*6180 Financial and Managerial Accounting U [0.50]**

This course emphasizes the gathering and use of financial information to facilitate effective financial and management decisions. Cases are used to approach the subject from the perspective of the user of accounting information rather than that of the supplier.

*Department(s):* Executive Programs

**BUS\*6200 Financial Management U [0.50]**

This course takes the viewpoint of the senior financial officer of a commercial enterprise. The focus is on the management of cash, accounts receivable, inventories and capital assets, as well as on the sourcing of funds through short-term liabilities, long-term debt and owners' equity.

*Prerequisite(s):* BUS\*6180

*Restriction(s):* Non MBA students only by permission of instructor.

*Department(s):* Executive Programs

**BUS\*6220 Special Topics in Management Issues U [0.50]**

An advanced course for those specializing in management, marketing or organizational behaviour. Deals with current and future topics, trends and problems in the industry, strategic planning, and the integration of management, marketing, and organizational behaviour.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**BUS\*6230 Special Topics in Business U [0.50]**

Advanced course for those specializing in organizational behaviour. Deals with in-depth analysis of industry organizational behaviour, management of current and future problems, reorganizations, corporate cultures, multi-cultural organizations, and ethics.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**BUS\*6300 Business Practices for Sustainability U [0.50]**

This course focuses on critical strategic and managerial issues related to sustainability and introduces students to concepts linking organizational strategies and sustainability principles. It explores how managers can integrate consideration of the environment and society into business strategies and business practices to improve competitive advantage and create environmental, social and economic value.

*Department(s):* Executive Programs

**BUS\*6320 Hospitality and Tourism Marketing U [0.50]**

Analysis and application of marketing foundations through integration of marketing variables with real-world situations and in-depth analysis of strategic marketing issues.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**BUS\*6400 Canadian Business Law: Addressing Legal Issues in Organizations F,W [0.50]**

This course will introduce you to Canadian business law and give you an understanding of legal principals as they apply to business organizations. After reviewing basic foundational concepts and sources of law in Canada, we will undertake a more in-depth review of practical legal issues and solutions that arise in various business environments. Topics include contracts, torts, employment law, class action and conflict resolution.

*Restriction(s):* Executive Program students only

*Department(s):* Executive Programs

**BUS\*6450 Global Business Today U [0.50]**

This course will survey the key issues related to doing business internationally including the cultural context for global business, cross border trade and investment, ethics, the global monetary system, foreign exchange challenges and effectively competing in the global environment.

*Restriction(s):* Non MBA/MA Leadership students only by permission of Executive Programs Office.

*Department(s):* Executive Programs

**BUS\*6500 Governance for Sustainability U [0.50]**

This course introduces MBA students to the rise of environmentalism and state-led environmental management, and the evolving world of environmental governance. Coupled with this review is coverage of some key contemporary environmental issues of relevance to business executives such as climate change and fisheries decline.

*Restriction(s):* Executive Program students only

*Department(s):* Executive Programs

**BUS\*6510 Hospitality and Tourism Revenue Management U [0.50]**

This course discusses revenue maximization strategies and tactics that improve the profitability of businesses that work in fixed capacity environments, face time-varied demand, their product is homogeneous and their cost structure reflects a high proportion of fixed and a low proportion of variable cost items.

*Prerequisite(s):* HTM\*6300

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**BUS\*6520 Managing Price Risk U [0.50]**

The course deals with the use of futures, options and other instruments for marketing, risk management and investment purposes. Emphasis is placed on the development and implementation of trading strategies and on the policy and corporate governance framework necessary to support effective management.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**BUS\*6550 Managing Service Quality U [0.50]**

A holistic and interdisciplinary approach is used to explore the principles of service management. The course will enhance participants' understanding of what actually constitutes quality, the nature of service, and strategies for improving it.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**BUS\*6590 Organizational Theory and Design U [0.50]**

Core concepts in organizational theory and their interrelationships as well as concepts such as group decision making and intragroup and intergroup dynamics are explored.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**BUS\*6600 Sustainable Value Creation S [0.50]**

Many organizations have redefined their business strategies in line with principles of sustainability in order to maximize value creation for the organization and its stakeholders. In this course students will critically examine these sustainability drivers and strategic approaches to value creation.

*Restriction(s):* Executive Program students only

*Department(s):* Executive Programs

**BUS\*6700 Strategic Management & Business Game U [0.50]**

An integrative course which draws together the conceptual theories and models of the graduate program core. Utilizes conceptual, analytical, problem identification, and problem solving skills.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**BUS\*6790 Operations Management U [0.50]**

This course applies operations research theory and practices to management problem solving and decision-making. The focus is on modelling service and product delivery systems and major emphasis is placed on managerial problems in hospitality, tourism, and food and agribusiness organizations.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**BUS\*6800 Readings in Leadership I U [0.50]**

This course is available to individuals or groups of graduate students. Students will complete a set of readings and an associated paper as approved by designated faculty. Specific learning objectives consistent with the University's will be developed each time the course is offered.

*Department(s):* Executive Programs

**BUS\*6810 Readings in Leadership II U [0.50]**

This course is available to individuals or groups of graduate students. Students will complete a set of readings and an associated paper as approved by designated faculty. Specific learning objectives consistent with the University's will be developed each time the course is offered.

*Prerequisite(s):* BUS\*6800 (or may be taken concurrently)

*Department(s):* Department of Management

**BUS\*6820 Readings in Management U [0.50]**

This course is available to individuals or groups of graduate students. Students will complete a set of readings and an associated paper as approved by designated faculty. Specific learning objectives consistent with the University's will be developed each time the course is offered.

*Department(s):* Department of Management

**BUS\*6830 Foundational Theories of Leadership F [0.50]**

This doctoral seminar introduces students to the underlying philosophical assumptions that support empirical research methods within management studies. The challenge facing future researchers, leaders and managers is to distill vast amounts of information into meaningful and action oriented knowledge.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Management

**BUS\*6840 Foundational Theories of Management W [0.50]**

This doctoral seminar provides a survey of classic and contemporary management thought. The objective of this course is to explore foundational and emerging areas of inquiry that are influential in the realm of management theory and practice.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Management

**BUS\*6850 Marketing Strategy U [0.50]**

An advanced course for those specializing in marketing. Deals with marketing theories, models, and specific subsets of marketing such as pricing, consumer and industrial-buyer behaviour, distribution, services, and service-delivery concepts.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Department of Management

**BUS\*6900 Major Research Project U [1.00]**

A detailed critical review of an area of study specific to the specialization of students in the MBA by course work and major paper option.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Department of Management

## Capacity Development and Extension

**CDE\*6070 Foundations of Capacity Building and Extension U [0.50]**

Contemporary issues and changes in rural communities and the implications for building community capacity. Students will be introduced to and examine dominant paradigms of community capacity building for meeting rural needs.

*Department(s):* School of Environmental Design and Rural Development

**CDE\*6260 Research Design U [0.50]**

Provides students with abilities and knowledge to undertake, formulate and implement research in their chosen area of development. Students are expected to acquire the ability to identify research question and the appropriate designs to answer such questions.

*Department(s):* School of Environmental Design and Rural Development

**CDE\*6290 Special Topics in Capacity Building and Extension U [0.50]**

Selected study topics which may be pursued in accordance with the special needs of students in the program.

*Department(s):* School of Environmental Design and Rural Development

**CDE\*6311 Community Engagement and Public Participation U [0.50]**

This course will explore the philosophy and principles of public participation. An emphasis will be placed on those practices and methods that can be used to engage communities and organizations within a participatory framework.

*Department(s):* School of Environmental Design and Rural Development

**CDE\*6320 Capacity Building for Sustainable Development U [0.50]**

Learning processes enhancing human capital in civil society and the organizational and managerial capabilities that can empower communities to meet their economic, social, cultural and environmental needs. Examines development and underdevelopment and the role of non-formal education and administration in facilitation social change in peripheral regions from an interdisciplinary perspective.

*Department(s):* School of Environmental Design and Rural Development

**CDE\*6330 Facilitation and Conflict Management U [0.50]**

Explore the theories of leadership, practice leadership skills and activities, and develop an understanding of the role facilitation and conflict management play in organizational success. Emphasizes personal individual development through practice, lecture and group discussion. Service learning through facilitation of community meetings will be part of the course.

*Restriction(s):* Instructor consent required.

*Department(s):* School of Environmental Design and Rural Development

**CDE\*6410 Readings in Capacity Building and Extension U [0.50]**

A program of supervised independent study related to the student's area of concentration.

*Restriction(s):* Instructor consent required.

*Department(s):* School of Environmental Design and Rural Development

**CDE\*6420 Communication for Social and Environmental Change U [0.50]**

Communication process for social change and development including participatory media. Students engage in community-based work involving multi-media projects. Course covers the history of development communication and current praxis in Canada and internationally.

*Restriction(s):* Instructor consent required.

*Department(s):* School of Environmental Design and Rural Development

**CDE\*6690 Community Environmental Leadership U [0.50]**

This course explores the relationships between the environment and socio-economic issues at the community level and the resulting conflict. Using the social change model, this course examines the linkages between advocacy, decision-making and conflict and the development of strategies to mitigate community conflict.

*Restriction(s):* Instructor consent required.

*Department(s):* School of Environmental Design and Rural Development

<b>CDE*6900 Major Research Paper U [1.00]</b>
Students select a topic and write a paper that does not necessarily include original data but is an analysis and synthesis of materials dealing with the topic selected.
<i>Restriction(s):</i> Instructor consent required.
<i>Department(s):</i> School of Environmental Design and Rural Development

## Chemistry

<b>CHEM*7100 Selected Topics in Inorganic Chemistry U [0.50]</b>
Discussion of specialized topics related to the research interests of members of the centre. Special topics could include, for example: bioinorganic chemistry; inorganic reaction mechanisms; synthetic methods in inorganic and organometallic chemistry; homogeneous and heterogeneous catalysis; chemistry of polynuclear compounds.
<i>Department(s):</i> Department of Chemistry
<b>CHEM*7120 X-ray Crystallography U [0.50]</b>
Introduction: crystals, basic concepts; space groups: the reciprocal lattice; x-ray diffraction; the phase problem; structure factors; electron density; small molecule structure solution, structure refinement, structure results, journals and databases, paper writing.
<i>Department(s):</i> Department of Chemistry
<b>CHEM*7130 Chemistry of Inorganic Solid State Materials U [0.50]</b>
Introduction to solid state chemistry, common crystal structures, principles of solid state synthesis, theory and experimental methods for characterizing solids, including thermal analysis techniques, powder x-ray and neutron diffraction methods; special topics to include one or more of the optical, electronic, magnetic, or conductive properties of inorganic materials. Prerequisites: one semester-long undergraduate course (at least third-year level) in inorganic chemistry, preferably with content in structural and/or solid state.
<i>Department(s):</i> Department of Chemistry
<b>CHEM*7150 Structure and Bonding in Inorganic Chemistry U [0.50]</b>
Free electron, Hückel and extended Hückel methods for molecules and clusters. Perturbation theory. Applications of group theory in inorganic chemistry; Jahn-Teller effects in molecules and solids. Energy bands in one, two and three dimensions. Prerequisites: three semester-long undergraduate courses in inorganic chemistry and one semester-long undergraduate course in quantum mechanics or group theory.
<i>Department(s):</i> Department of Chemistry
<b>CHEM*7170 Advanced Transition Metal Chemistry U [0.50]</b>
Magnetochemistry of transition metal compounds. Electronic spectra of complex ions including applications of molecular orbital and ligand field theories. Stabilization of unusual oxidation states and co-ordination numbers. Bonding, structure and reactivity of certain important classes of metal complexes, e.g., metal hydrides, metal-metal bonded species, biologically significant model systems such as macrocycles.
<i>Department(s):</i> Department of Chemistry
<b>CHEM*7180 Advanced Organometallic Chemistry U [0.50]</b>
Reactions, structure and bonding of organometallic compounds of transition and non-transition metals.
<i>Department(s):</i> Department of Chemistry
<b>CHEM*7200 Selected Topics in Analytical Chemistry U [0.50]</b>
Special topics could include, for example: trace analysis using modern instrumental and spectroscopic methods; advanced mass spectrometry (instrumentation and interpretation of spectra); analytical aspects of gas and liquid chromatography.
<i>Department(s):</i> Department of Chemistry
<b>CHEM*7240 Chemical Instrumentation U [0.50]</b>
Instrumental components and optimum application; rudiments of design; electrical, spectral, migrational and other methods.
<i>Department(s):</i> Department of Chemistry
<b>CHEM*7260 Topics in Analytical Spectroscopy U [0.50]</b>
Atomic emission and absorption spectroscopy; methods of excitation and detection; quantitative applications. Molecular electronic spectroscopy, UV, visible and Raman; instrumental characteristics; applications to quantitative determinations, speciation, measurements of equilibrium, etc. Sources and control of errors and interferences. Determination and description of colour.
<i>Department(s):</i> Department of Chemistry
<b>CHEM*7270 Separations U [0.50]</b>
Material to be covered is drawn from the following topics: diffusion; isolation of organic material from the matrix; chromatographic techniques - principles of chromatographic separation, gas (GLC, GSC), liquid (LLC, LSC, GPC, IEC), supercritical fluid (SFC) chromatographies; GC-MS, CG-FTIR; electrophoresis, flow field fractionation. Prerequisites: undergraduate level course in instrumental analysis.
<i>Department(s):</i> Department of Chemistry

<b>CHEM*7280 Electroanalytical Chemistry U [0.50]</b>
A study of electroanalytical techniques and their role in modern analytical chemistry. The underlying principles are developed. Techniques include chronamperometry, chronocoulometry, polarography, voltammetry, chronopotentiometry, coulometric titrations, flow techniques, electrochemical sensors and chemically modified electrodes.
<i>Department(s):</i> Department of Chemistry
<b>CHEM*7290 Surface Analysis U [0.50]</b>
<i>Department(s):</i> Department of Chemistry
<b>CHEM*7300 Proteins and Nucleic Acids U [0.50]</b>
Determination of protein sequence and 3-dimensional structure, protein anatomy; prediction of protein structure; intermolecular interactions and protein-protein association; effects of mutation. Nucleic acid structure and anatomy; DNA and chromatin structure; RNA structure; snRNPs and ribozymes; protein-nucleic acid interactions.
<i>Department(s):</i> Department of Chemistry
<b>CHEM*7310 Selected Topics in Biochemistry U [0.50]</b>
Discussion of specialized topics related to the research interests of members of the centre: for example, recent offerings have included peptide and protein chemistry, biochemical toxicology, medical aspects of biochemistry, glycolipids and glycoproteins, redox enzymes, biological applications of magnetic resonance, etc.
<i>Department(s):</i> Department of Chemistry
<b>CHEM*7360 Regulation in Biological Systems U [0.50]</b>
Mechanisms of regulation of metabolism - enzyme clusters; phosphorylation and protein kinases/phosphatases, repression and induction, protein turnover. Regulation of transcription, translation and mRNA processing. Cell cycle and control of cell division.
<i>Department(s):</i> Department of Chemistry
<b>CHEM*7370 Enzymes U [0.50]</b>
Mechanisms of rate enhancement. Enzyme kinetics - steady state; inhibitors; bisubstrate enzymes; fast reaction kinetics. Enzyme reaction mechanisms. Structural and genetic modification of enzymes. Catalytic antibodies. Binding processes. Multiple sites and co-operativity. Allosteric enzymes and metabolic control. Catalysis by RNA.
<i>Department(s):</i> Department of Chemistry
<b>CHEM*7380 Cell Membranes and Cell Surfaces U [0.50]</b>
Membrane proteins and lipids - structure and function; dynamics; techniques for their study; model membrane systems. Membrane transport. The cytoskeleton. Membrane protein biogenesis, sorting and targeting. Signal transduction across membranes. The cell surface in immune responses.
<i>Department(s):</i> Department of Chemistry
<b>CHEM*7400 Selected Topics in Theoretical Chemistry U [0.50]</b>
Discussion of specialized topics related to the research interests of the members of the centre. Special topics could include for example: theory of intermolecular forces; density matrices; configuration interaction; correlation energies of open and closed shell systems; kinetic theory and gas transport properties; theory of the chemical bond.
<i>Department(s):</i> Department of Chemistry
<b>CHEM*7450 Statistical Mechanics U [0.50]</b>
Review of classical and quantum mechanics; principles of statistical mechanics; applications to systems of interacting molecules; imperfect gases, liquids, solids, surfaces and solutions.
<i>Department(s):</i> Department of Chemistry
<b>CHEM*7460 Quantum Chemistry U [0.50]</b>
Approximate solutions of the Schrodinger equation and calculations of atomic and molecular properties.
<i>Department(s):</i> Department of Chemistry
<b>CHEM*7500 Selected Topics in Physical Chemistry U [0.50]</b>
Discussion of specialized topics related to the research interests of the members of the centre. Special topics could include for example: principles of magnetic resonance in biological systems; collisions, spectroscopy and intermolecular forces, surface chemistry; catalysis; electrolyte theory; non-electrolyte solution theory, thermodynamics of biological systems; thermodynamics.
<i>Department(s):</i> Department of Chemistry
<b>CHEM*7550 Kinetics - Dynamics U [0.50]</b>
Empirical analysis. Kinetic theory of gases. Potential energy surfaces. Unimolecular rates. Relaxation and steady state methods. Diffusion rates. Rates between polar molecules. Energy transfer.
<i>Department(s):</i> Department of Chemistry



<b>CHEM*7560 Spectroscopy U [0.50]</b>
Aspects of electronic vibrational and rotational spectroscopy of atoms, molecules, and the solid state. Relevant aspects of quantum mechanics, Dirac notation, and angular momentum will be discussed. Group Theory will be presented and its implications for spectroscopy introduced. Prerequisites: one semester-long undergraduate course in quantum mechanics or the approval of the instructor. <i>Department(s):</i> Department of Chemistry
<b>CHEM*7600 Selected Topics in Organic Chemistry U [0.50]</b>
Two or three topics from a range including: bio-organic chemistry; environmental organic chemistry; free radicals; heterocyclic molecules; molecular rearrangements; organometallic chemistry; photochemistry; natural products. <i>Department(s):</i> Department of Chemistry
<b>CHEM*7640 Synthetic Organic Reactions U [0.50]</b>
Named organic reactions and other synthetically useful reactions are discussed. The mechanism, stereochemical implications and use in organic synthesis of these reactions will be presented. Examples from the organic literature will be used to illustrate these aspects. <i>Department(s):</i> Department of Chemistry
<b>CHEM*7650 Strategies in Organic Synthesis U [0.50]</b>
The synthesis of organic compounds is discussed and emphasis is placed on the design of synthetic routes. Examples drawn from the literature are used to illustrate this synthetic planning. <i>Prerequisite(s):</i> CHEM*7640 <i>Department(s):</i> Department of Chemistry
<b>CHEM*7660 Organic Spectroscopy U [0.50]</b>
Ultraviolet, infrared, resonance spectroscopy and mass spectrometry, with emphasis on applications to studies of organic molecules. <i>Department(s):</i> Department of Chemistry
<b>CHEM*7690 Physical Organic Chemistry U [0.50]</b>
Linear free energy relationships; substituent effects and reactive intermediates. <i>Department(s):</i> Department of Chemistry
<b>CHEM*7700 Principles of Polymer Science U [0.50]</b>
Introduction to the physical chemistry of high polymers, principles of polymer synthesis, mechanisms and kinetics of polymerization reactions, copolymerization theory, polymerization in homogeneous and heterogeneous systems, chemical reactions of polymers. Theory and experimental methods for the molecular characterization of polymers. <i>Department(s):</i> Department of Chemistry
<b>CHEM*7710 Physical Properties of Polymers U [0.50]</b>
The physical properties of polymers are considered in depth from a molecular viewpoint. Rubber elasticity, mechanical properties, rheology and solution behaviour are quantitatively treated. <i>Prerequisite(s):</i> CHEM*7700 or equivalent <i>Department(s):</i> Department of Chemistry
<b>CHEM*7720 Polymerization and Polymer Reactions U [0.50]</b>
The reactions leading to the production of polymers are considered with emphasis on emulsion and suspension polymerization and polymerization reaction engineering. Polymer degradation, stabilization and modification reactions are also considered in depth. <i>Prerequisite(s):</i> CHEM*7700 or equivalent. <i>Department(s):</i> Department of Chemistry
<b>CHEM*7730 Selected Topics in Polymer Chemistry U [0.50]</b>
Discussion of specialized topics of polymer chemistry related to the research interests of the faculty or prominent scientific visitors. Special topics could include, for example: polymer stabilization and degradation; mechanical properties; polymer principles in surface coatings; organic chemistry of synthetic high polymers; estimation of polymer properties; reactions of polymers; polymerization kinetics. <i>Department(s):</i> Department of Chemistry
<b>CHEM*7940 MSc Seminar U [0.50]</b>
A written literature review and research proposal on the research topic will be presented and defended in a 30-minute public seminar. This requirement is to be completed by all thesis-option MSc students within two semesters of entering the program. <i>Department(s):</i> Department of Chemistry
<b>CHEM*7950 PhD Seminar U [0.00]</b>
<i>Department(s):</i> Department of Chemistry

<b>CHEM*7970 MSc Research Paper U [0.50]</b>
An experimental project normally based on the CHEM*7940 research proposal, supervised by the advisor, taking three to four months to complete. This project may be completed at any time during the student's program, but it must follow CHEM*7940. A written report is required, and a seminar based on the content of the report will be presented. The report must be completed as per the project/thesis guidelines of the University campus on which the student is registered. This course normally will follow the course CHEM*7940 MSc Seminar. <i>Department(s):</i> Department of Chemistry
<b>CHEM*7980 MSc Thesis U [0.00]</b>
<i>Department(s):</i> Department of Chemistry
<b>CHEM*7990 PhD Thesis U [0.00]</b>
<i>Department(s):</i> Department of Chemistry

## Computing and Information Science

<b>CIS*6000 Distributed Systems U [0.50]</b>
The evolution of distributed computer systems. Models for distributed processing. Taxonomy of multiprocessor systems. Interconnection networks. Memory and I/O for distributed architectures. Performance of distributed systems. Architectural issues of distributed systems <i>Department(s):</i> School of Computer Science
<b>CIS*6020 Artificial Intelligence U [0.50]</b>
An examination of Artificial Intelligence principles and techniques such as: logic and rule based systems; forward and backward chaining; frames, scripts, semantic nets and the object-oriented approach; the evaluation of intelligent systems and knowledge acquisition. A sizeable project is required and applications in other areas are encouraged. <i>Department(s):</i> School of Computer Science
<b>CIS*6030 Information Systems U [0.50]</b>
Relational and other database systems, web information concurrency protocols, data integrity, transaction management, distributed databases, remote access, data warehousing, data mining. <i>Department(s):</i> School of Computer Science
<b>CIS*6050 Neural Networks U [0.50]</b>
Artificial neural networks, dynamical recurrent networks, dynamic input/output sequences, communications signal identification, syntactic pattern recognition. <i>Department(s):</i> School of Computer Science
<b>CIS*6060 Bioinformatics U [0.50]</b>
Data mining and bioinformatics, molecular biology databases, taxonomic groupings, sequences, feature extraction, Bayesian inference, cluster analysis, information theory, machine learning, feature selection. <i>Department(s):</i> School of Computer Science
<b>CIS*6070 Discrete Optimization U [0.50]</b>
This course will discuss problems where optimization is required and describes the most common techniques for discrete optimization such as the use of linear programming, constraint satisfaction methods, and genetic algorithms. <i>Department(s):</i> School of Computer Science
<b>CIS*6080 Genetic Algorithms U [0.50]</b>
This course introduces the student to basic genetic algorithms, which are based on the process of natural evolution. It is explored in terms of its mathematical foundation and applications to optimization in various domains. <i>Department(s):</i> School of Computer Science
<b>CIS*6090 Hardware/Software Co-design of Embedded Systems U [0.50]</b>
Specification and design of embedded systems, system-on-a-chip paradigm, specification languages, hardware/software co-design, performance estimation, co-simulation and validation, processes architectures and software synthesis, retargetable code generation and optimization. <i>Department(s):</i> School of Computer Science
<b>CIS*6100 Parallel Processing Architectures U [0.50]</b>
Parallelism in uniprocessor systems, parallel architectures, memory structures, pipelined architectures, performance issues, multiprocessor architectures. <i>Department(s):</i> School of Computer Science
<b>CIS*6120 Uncertainty Reasoning in Knowledge Representation U [0.50]</b>
Representation of uncertainty, Dempster-Schafer theory, fuzzy logic, Bayesian belief networks, decision networks, dynamic networks, probabilistic models, utility theory. <i>Department(s):</i> School of Computer Science

<b>CIS*6130 Object-Oriented Modeling, Design and Programming U [0.50]</b>
Objects, modeling, program design, object-oriented methodology, UML, CORBA, database <i>Department(s):</i> School of Computer Science
<b>CIS*6140 Software Engineering U [0.50]</b>
This course will discuss problems where optimization is required and describes the most common techniques for discrete optimization such as the use of linear programming, constraint satisfaction methods, and meta-heuristics. <i>Department(s):</i> School of Computer Science
<b>CIS*6160 Multiagent Systems U [0.50]</b>
Intelligent systems consisting of multiple autonomous and interacting subsystems with emphasis on distributed reasoning and decision making. Deductive reasoning agents, practical reasoning agents, probabilistic reasoning agents, reactive and hybrid agents, negotiation and agreement, cooperation and coordination, multiagent search, distributed MDP, game theory, and modal logics. <i>Department(s):</i> School of Computer Science
<b>CIS*6200 Design Automation in Digital Systems U [0.50]</b>
Techniques and software tools for design of digital systems. Material covered includes high-level synthesis, design for testability, and FPGAs in design and prototyping. <i>Department(s):</i> School of Computer Science
<b>CIS*6320 Image Processing Algorithms and Applications U [0.50]</b>
Brightness transformation, image smoothing, image enhancement, thresholding, segmentation, morphology, texture analysis, shape analysis, applications in medicine and biology. <i>Department(s):</i> School of Computer Science
<b>CIS*6420 Soft Computing U [0.50]</b>
Neural networks, artificial intelligence, connectionist model, back propagation, resonance theory, sequence processing, software engineering concepts. <i>Department(s):</i> School of Computer Science
<b>CIS*6490 Analysis and Design of Computer Algorithms U [0.25]</b>
The design and analysis of efficient computer algorithms: standard methodologies, asymptotic behaviour, optimality, lower bounds, implementation considerations, graph algorithms, matrix computations (e.g. Strassen's method), NP-completeness. <i>Department(s):</i> School of Computer Science
<b>CIS*6650 Topics in Computer Science I U [0.50]</b>
This special topics course examines selected, advanced topics in computer science that are not covered by existing courses. The topic(s) will vary depending on the need and the instructor. <i>Department(s):</i> School of Computer Science
<b>CIS*6660 Topics in Computer Science II U [0.50]</b>
This is a reading course. Its aim is to provide background knowledge to students who need to get a head-start in their thesis research fields early during their program while no suitable regular graduate courses are offered. Admission is under the discretion of the instructor. <i>Restriction(s):</i> Instructor consent required. <i>Department(s):</i> School of Computer Science
<b>CIS*6890 Technical Communication and Research Methodology U [0.50]</b>
This course aims to develop students' ability in technical communication and general research methodology. Each student is expected to present a short talk, give a mini lecture, review a conference paper, write a literature survey and critique fellow students' talks and lectures. <i>Department(s):</i> School of Computer Science

## Clinical Studies

<b>CLIN*6010 Clinical Medicine F [0.50]</b>
These are in-service clinical training courses based on case material presented to the student in the Veterinary Teaching Hospital. Under supervision, the student is expected to take primary responsibility for case management including decisions related to diagnosis, therapy and client/referring veterinarian communications. Case material studied in each course reflects a different clinical subspecialty commonly occurring in the Fall (F), Winter (W), and Summer (S) semesters respectively. <i>Department(s):</i> Department of Clinical Studies

<b>CLIN*6030 Clinical Medicine W [0.50]</b>
These are in-service clinical training courses based on case material presented to the student in the Veterinary Teaching Hospital. Under supervision, the student is expected to take primary responsibility for case management including decisions related to diagnosis, therapy and client/referring veterinarian communications. Case material studied in each course reflects a different clinical subspecialty commonly occurring in the Fall (F), Winter (W), and Summer (S) semesters respectively. <i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6031 Clinical Medicine S [0.50]</b>
These are in-service clinical training courses based on case material presented to the student in the Veterinary Teaching Hospital. Under supervision, the student is expected to take primary responsibility for case management including decisions related to diagnosis, therapy and client/referring veterinarian communications. Case material studied in each course reflects a different clinical subspecialty commonly occurring in the Fall (F), Winter (W), and Summer (S) semesters respectively. <i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6170 Clinical Surgery F [0.50]</b>
These are in-service clinical training courses based on case material presented to the student in the Veterinary Teaching Hospital. Under supervision, the student is expected to take primary responsibility for case management including decisions related to diagnosis, therapy and client/referring veterinarian communications. Case material studied in each course reflects a different clinical subspecialty occurring in Fall (F), Winter (W), and Summer (S) semesters respectively. The student is required to prepare a paper for publication in a recognized peer review journal based on clinical case material presented to the teaching hospital. As an alternative, the paper can be an in-depth review article on a clinically relevant topic. <i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6180 Clinical Surgery W [0.50]</b>
These are in-service clinical training courses based on case material presented to the student in the Veterinary Teaching Hospital. Under supervision, the student is expected to take primary responsibility for case management including decisions related to diagnosis, therapy and client/referring veterinarian communications. Case material studied in each course reflects a different clinical subspecialty occurring in Fall (F), Winter (W), and Summer (S) semesters respectively. The student is required to prepare a paper for publication in a recognized peer review journal based on clinical case material presented to the teaching hospital. As an alternative, the paper can be an in-depth review article on a clinically relevant topic. <i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6181 Clinical Surgery S [0.50]</b>
These are in-service clinical training courses based on case material presented to the student in the Veterinary Teaching Hospital. Under supervision, the student is expected to take primary responsibility for case management including decisions related to diagnosis, therapy and client/referring veterinarian communications. Case material studied in each course reflects a different clinical subspecialty occurring in Fall (F), Winter (W), and Summer (S) semesters respectively. The student is required to prepare a paper for publication in a recognized peer review journal based on clinical case material presented to the teaching hospital. As an alternative, the paper can be an in-depth review article on a clinically relevant topic. <i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6190 Neurology F [0.50]</b>
Basic principles of lesion localization in the domestic species with discussions of diagnostic problems in veterinary neurology. Offered alternate years. <i>Restriction(s):</i> Instructor consent required. <i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6200 Concepts and Application of Infection Control U [0.50]</b>
This course will involve principles of infection control in veterinary hospitals, drawing heavily from information from human medicine and evaluating human information in a veterinary context. <i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6270 Applied Surgical Principles U [0.25]</b>
General surgical principles associated with surgical and related treatment of various body systems. This is an applied course with laboratory and written components. Prerequisite: must have prior surgical training. <i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6310 Advanced Equine Veterinary Orthopaedics U [0.50]</b>
This course will provide the student with an in-depth understanding of orthopaedic practice and will facilitate revision of materials to prepare board certification. <i>Prerequisite(s):</i> DVM or BSc <i>Department(s):</i> Department of Clinical Studies

<b>CLIN*6330 Advanced Principles of Diagnostic Imaging U [0.50]</b>
This course is intended for students pursuing a career in veterinary radiology. Using a lecture-discussion format, the science of x-ray production and the fundamentals of other diagnostic imaging modalities will be presented. The specific applications of these techniques to research and clinical situations will be investigated.
<i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6350 Advanced Radiology I F,W,S [0.50]</b>
Radiographic changes seen in diseases of the thorax and abdomen are demonstrated by using radiographs. Contrast and special studies are included where applicable.
<i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6370 Advanced Radiology II F [0.50]</b>
A continuation of CLIN*6350, covering radiographic abnormalities of the neurological and skeletal systems.
<i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6380 Electrocardiography in Domestic Animals F,W,S [0.50]</b>
This course will deal with the study of the electrocardiography of the cat, dog, cow and horse. Students will review the mechanisms of arrhythmogenesis and the role of anti-arrhythmic agents in the control of arrhythmogenesis.
<i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6420 Anesthesiology I S [0.50]</b>
A course in advanced veterinary anesthesia and allied topics such as fluid, acid-base, and electrolyte balance, shock therapy, and cardio pulmonary resuscitation.
<i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6440 Anesthesiology II F,W,S [0.50]</b>
A discussion, reading and investigative course on research methods in comparative anesthesiology.
<i>Prerequisite(s):</i> CLIN*6420 is normally a prerequisite
<i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6460 Anesthesiology III: Species Specific and Coexisting Disease Considerations F-W [0.50]</b>
A course in advanced veterinary anesthesia that focuses on the scientific literature related to the anesthesia of specific species and veterinary patients with varying underlying diseases.
<i>Prerequisite(s):</i> DVM; CLIN*6420 and CLIN*6440
<i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6550 Small Animal Internal Medicine I F [0.50]</b>
This is a graduate course designed for DVSc students and residents pursuing further study in the area. The basis of the course is the acquisition and application of knowledge of the pathophysiologic mechanisms of disease. Subject areas to be addressed may include: cardiovascular disease, respiratory disease and acid-base-electrolyte abnormalities.
<i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6560 Small Animal Internal Medicine II W [0.50]</b>
A continuation of Small Animal Internal Medicine I. Subject areas to be addressed may include: endocrine diseases, pharmacodynamics, renal disease and neurologic disease.
<i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6570 Large Animal Internal Medicine I W [0.50]</b>
Advanced study in general medicine and pathophysiologic principles of disorders of the gastrointestinal and urinary systems in ruminants, swine and horses. Offered every third year.
<i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6580 Large Animal Internal Medicine II W [0.50]</b>
Advanced study in general medicine and the pathophysiologic principles of disorders of the cardiovascular, respiratory and musculo-skeletal systems of ruminants and horses. Offered every third year.
<i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6590 Large Animal Internal Medicine III W [0.50]</b>
Advanced study in general medicine and the pathophysiologic principles of neonatal disorders and disorders of the nervous system, skin and general systemic disorders. Offered every third year.
<i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6600 Equine Soft Tissue Surgery I F,W,S [0.50]</b>
Based on required reference reading, every other week discussion will cover advanced soft tissue procedures performed in equine surgery. Guest lectures on selected topics will be presented. Laboratory will be given.
<i>Department(s):</i> Department of Clinical Studies

<b>CLIN*6610 Equine Soft Tissue Surgery II F,W,S [0.50]</b>
Based on required reference reading, every other week discussion will cover advanced soft tissue procedures performed in equine surgery. Guest lectures on selected topics will be presented. Laboratory will be given.
<i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6620 Ruminant Surgery W [0.50]</b>
Through lectures/seminars, medical and surgical laboratories, and detailed case discussions, this course provides practical experience in ruminant medical, radiological and surgical procedures and in problem-solving related to ruminant practice.
<i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6661 Respiratory Physiology &amp; Pathophysiology U [0.50]</b>
This is a graduate course designed for veterinarians pursuing advanced training in residency and DVSc programs. The course will cover normal respiratory anatomy, physiology and pulmonary function. A focus on respiratory pathophysiology will include respiratory failure, oxygen therapy and positive pressure ventilation. (offered every three years).
<i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6670 Structure &amp; Function of Animal Skin F,W,S [0.50]</b>
A review of structure and function of skin in veterinary dermatology including the epidermis, dermis, subcutis and adnexal tissue. Application of knowledge in a clinical setting will follow with attention to modalities that will improve the epidermal barrier
<i>Restriction(s):</i> Instructor consent required.
<i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6680 Readings in Cardiology I F,W,S [0.50]</b>
Original articles, review articles and textbook chapters dealing with the most recent concepts of pathophysiology, diagnostic procedures and therapeutic advancements will be reviewed, analyzed and discussed.
<i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6690 Readings in Cardiology II F,W,S [0.50]</b>
Readings in Cardiology II will be a continuation of the format of Readings in Cardiology I with further readings in clinical cardiology.
<i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6700 Pathophysiology in Small Animal Surgery I F,W,S [0.50]</b>
Based on required reference reading, weekly discussions will cover the disease mechanisms involved in medical problems commonly encountered in small animal surgical practice. Guest lectures on selected topics will be presented.
<i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6710 Pathophysiology in Small Animal Surgery II F,W,S [0.50]</b>
Based on required reference reading, weekly discussions will cover the disease mechanisms involved in medical problems commonly encountered in small animal surgical practice. Guest lectures on selected topics will be presented.
<i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6800 Surgical Oncology Procedures F,W [0.50]</b>
This is a combined reading and laboratory course that will cover the major surgical oncology procedures. The relevant readings will be covered, followed by a cadaver laboratory to teach the students the important features of each procedure. (Offered in alternate years)
<i>Restriction(s):</i> Restricted to DVSc students in small animal surgery Instructor consent required.
<i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6900 Clinical "Grand Rounds" Seminar F-W [0.25]</b>
This course allows each participant the opportunity to present a clinical case to colleagues in the veterinary school. The topic must be approved by the course co-ordinator. The oral presentation will be evaluated, as will the written presentation, which should be in a form suitable for submission to a veterinary journal.
<i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6920 Veterinary Clinical Practice I F [0.50]</b>
These are in-service clinical training courses for intern/graduate-diploma students based on case material presented to the Veterinary Teaching Hospital. Under supervision, the intern/graduate-diploma student, as part of a service team with a faculty clinician, is expected to hone his/her diagnostic, therapeutic and surgical skills, and gain experience with animal restraint and nursing care. They will also develop a problem-oriented approach to health management and disease. Case material studied in each course reflects the clinical problems commonly occurring in the Fall, Winter and Summer semesters respectively.
<i>Restriction(s):</i> Instructor consent required.
<i>Department(s):</i> Department of Clinical Studies

<b>CLIN*6930 Veterinary Clinical Practice II W [0.50]</b>
These are in-service clinical training courses for intern/graduate-diploma students based on case material presented to the Veterinary Teaching Hospital. Under supervision, the intern/graduate-diploma student, as part of a service team with a faculty clinician, is expected to hone his/her diagnostic, therapeutic and surgical skills, and gain experience with animal restraint and nursing care. They will also develop a problem-oriented approach to health management and disease. Case material studied in each course reflects the clinical problems commonly occurring in the Fall, Winter and Summer semesters respectively.
<i>Restriction(s):</i> Instructor consent required.
<i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6940 Veterinary Clinical Practice III S [0.50]</b>
These are in-service clinical training courses for intern/graduate-diploma students based on case material presented to the Veterinary Teaching Hospital. Under supervision, the intern/graduate-diploma student, as part of a service team with a faculty clinician, is expected to hone his/her diagnostic, therapeutic and surgical skills, and gain experience with animal restraint and nursing care. They will also develop a problem-oriented approach to health management and disease. Case material studied in each course reflects the clinical problems commonly occurring in the Fall, Winter and Summer semesters respectively.
<i>Restriction(s):</i> Instructor consent required.
<i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6950 Special Topics in Clinical Studies F,W,S [0.50]</b>
<i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6960 Special Topics: Zoological Med F,W [0.50]</b>
Preparation for the ACZM examination and based on the published ACZM examination reading list. Students will prepare reading assignments that will be discussed during scheduled time. Each semester will focus on a specific taxon group. A mock examination will be provided on an ACZM sub-specialty (typically birds, reptiles, wildlife, terrestrial mammals or aquatic medicine).
<i>Restriction(s):</i> Instructor consent required.
<i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6970 Neurology II U [0.50]</b>
Advanced study in neurolocalization with a focus on functional neuroanatomy and diagnostic procedures in the domestic species. This two-semester course is offered every 2-3 years.
<i>Restriction(s):</i> Instructor consent required.
<i>Department(s):</i> Department of Clinical Studies
<b>CLIN*6990 Project in Clinical Studies F,W,S [1.00]</b>
This course involves participation in a clinical research project or clinical retrospective study. A review of the relevant literature will be performed. A manuscript suitable for publication in a peer-reviewed journal will be prepared, and the study will be presented in a departmental seminar.
<i>Restriction(s):</i> Only available to students enrolled in the MSc by Coursework Program.
<i>Department(s):</i> Department of Clinical Studies

## Creative Writing

<b>CRWR*6000 Plenary Course: Writers on Writing F [0.50]</b>
This required plenary course addresses important historical and contemporary perspectives on creative writing as an art, a practice, and a profession. Readings, discussion and visits from writers and other literary professionals will help students to articulate effectively their own literary aesthetic and to develop professional skills.
<i>Restriction(s):</i> MFA.CW students only
<i>Department(s):</i> School of English and Theatre Studies
<b>CRWR*6010 Plenary Course: Writers in the World F [0.50]</b>
This required plenary course addresses changing and conflicting ideas about the responsibilities of the writer in the world. Readings, discussion, and visits from writers and other literary professionals will help students to articulate effectively their own positions and to develop professional skills.
<i>Restriction(s):</i> MFA.CW students only
<i>Department(s):</i> School of English and Theatre Studies

<b>CRWR*6100 Poetry Workshop F-W [0.50]</b>
The Poetry Workshop engages students in an intensive program of reading and writing work. The workshops will be strongly focused on writing and on responding to the work of students in the course with productive, constructive criticism. Students will have the opportunity to work closely with a nationally recognized poet to develop their own skills as poets and editors. Students are expected to read widely and to develop their understanding of the technical aspects of their craft.
<i>Restriction(s):</i> MFA.CW students only
<i>Department(s):</i> School of English and Theatre Studies
<b>CRWR*6200 Fiction Workshop F-W [0.50]</b>
The Fiction Workshop engages students in an intensive program of reading and writing work. The workshops will be strongly focused on writing and on responding to the work of students in the course with productive, constructive criticism. Students will have the opportunity to work closely with a nationally recognized author to develop their skills as writers and editors. Students are expected to read widely and to develop their understanding of the technical aspects of their craft.
<i>Restriction(s):</i> MFA.CW students only
<i>Department(s):</i> School of English and Theatre Studies
<b>CRWR*6300 Drama Workshop U [0.50]</b>
The Drama Workshop engages students in an intensive program of writing and reading work. Students will produce a substantial amount of dramatic writing and will also provide constructive criticism of the work of other workshop participants. Required reading will cover a wide range of dramatic literature and the study of dramatic forms and techniques.
<i>Restriction(s):</i> MFA.CW students only
<i>Department(s):</i> School of English and Theatre Studies
<b>CRWR*6400 Practicum in Creative Writing U [0.50]</b>
In this course of guided study, the student will work on a creative project with a mentor who is a recognized member of the professional writing community.
<i>Restriction(s):</i> MFA.CW students only
<i>Department(s):</i> School of English and Theatre Studies
<b>CRWR*6500 Non-Fiction Workshop U [0.50]</b>
The Non-Fiction Workshop engages students in a reading and writing intensive program of creative non-fiction. The workshops will be strongly focused on writing and will involve the creation and revision of a substantial body of new work in the genre, as well as critiquing the work of other students in the course. The reading component will focus on texts from a varied social and cultural range (e.g. family memoir, travel narrative, cultural memoir, themed meditation).
<i>Restriction(s):</i> MFA.CW students only
<i>Department(s):</i> School of English and Theatre Studies
<b>CRWR*6600 Special Topics in Creative Writing U [0.50]</b>
A variable-content course focusing on a particular issue or approach to writing within one genre of creative writing (fiction, poetry, drama, etc.) or a particular issue or approach to writing that is at work across multiple genres.
<i>Department(s):</i> School of English and Theatre Studies

## Criminology and Criminal Justice Policy

<b>CCJP*6000 Courts W [0.50]</b>
This course examines courts from a variety of political, social, and socio-legal perspectives depending on the interest of the instructor(s). Particular attention will be paid to the role of courts in shaping criminal justice policy through such means as constitutional decisions and sentencing decisions.
<i>Restriction(s):</i> CCJP students. Instructor consent required.
<i>Department(s):</i> Department of Sociology and Anthropology, Department of Political Science
<b>CCJP*6100 Governing Criminal Justice F [0.50]</b>
This course analyzes criminal justice policy and governance of the criminal justice system from applied and theoretical perspectives. Particular attention is paid to the interplay between criminal justice policy and management and the larger political process.
<i>Restriction(s):</i> CCJP students
<i>Department(s):</i> Department of Political Science

**CCJP\*6200 Professional Seminar in CCJP F,W [0.25]**

This course introduces students to graduate studies in the program; to the professions of sociology, political science and criminology; and to professional life in occupations related to criminal justice. It includes information on the following: the program and how it relates to criminology, sociology and political science; library and computer research; research in the field; challenges facing criminal justice professionals; applying for further graduate study and research funding; and skill development.

*Restriction(s):* CCJP students

*Department(s):* Department of Sociology and Anthropology, Department of Political Science

**CCJP\*6300 Research Methods in Criminal Justice F [0.75]**

This course introduces students to the primary methods, data sources and statistical methods used in criminal justice and criminology research. Particular attention will be paid to the role research and methods and statistics play in shaping criminal justice/criminological theory, research and policy.

*Restriction(s):* CCJP students. Instructor consent required.

*Department(s):* Department of Sociology and Anthropology

**CCJP\*6660 Major Research Paper S,F,W [1.00]**

The major paper is an extensive research paper for those who do not elect to complete a thesis. It may be taken over two semesters.

*Restriction(s):* Restricted to CCJP graduate students

*Department(s):* Department of Sociology and Anthropology, Department of Political Science

## Economics

**ECON\*6000 Microeconomic Theory I U [0.50]**

A graduate course in microeconomics, intended for PhD students, presenting a rigorous treatment of the analysis of choices for consumers and producers with and without strategy and uncertainty, partial and general equilibrium, and the fundamental theorems of welfare economics.

*Department(s):* Department of Economics and Finance

**ECON\*6010 Microeconomic Theory II U [0.50]**

Advanced topics in modern microeconomics to include elements of game theory, information economics, economics of risk and uncertainty, the theory of incentives and others.

*Prerequisite(s):* ECON\*6000

*Department(s):* Department of Economics and Finance

**ECON\*6020 Macroeconomic Theory I U [0.50]**

A first graduate course in macroeconomics, presenting a rigorous introduction to the tools and basic models of dynamic general equilibrium theory. The topics covered include economic growth and development, economic fluctuations, and monetary and fiscal policies.

*Department(s):* Department of Economics and Finance

**ECON\*6040 Macroeconomic Theory II U [0.50]**

This course considers the dynamics resulting from intertemporal optimization models. Foundations of unemployment theory. Approaches to business cycles. Models of long-run growth.

*Prerequisite(s):* ECON\*6020

*Department(s):* Department of Economics and Finance

**ECON\*6050 Introduction to Econometric Methods U [0.50]**

Introduction to the specification, estimation and testing of economic models. Topics include the classical linear regression model, t tests, structure tests, specification error, the consequences of the violation of the classical assumptions, detection and correction of autocorrelation and heteroscedasticity.

*Department(s):* Department of Economics and Finance

**ECON\*6060 Mathematical Methods for Economics F [0.00]**

This course is designed to provide students with the necessary mathematical tools to follow the contents of the core economics and econometrics courses in the MA program and successfully complete them. The material covered will include advanced topics in linear algebra, multivariate optimization techniques and comparative statics.

*Department(s):* Department of Economics and Finance

**ECON\*6090 Game Theory U [0.50]**

This course introduces the student to game theory, which is an important tool for modelling economic situations with multi-person interaction. Economic applications such as oligopoly, bargaining, auctions, and public goods provision will be discussed. Broader applications to voting games, candidate strategy, war games, and parlour games will also be briefly discussed. Students need to be very familiar with optimization and single person decision-making.

*Department(s):* Department of Economics and Finance

**ECON\*6100 Experimental Economics U [0.50]**

This course examines the use of the experimental methodology in economics. We will study how experiments have been used to test theories in many subfields within economics. In the process, students will learn how to construct and run economics experiments and analyze experimental data.

*Department(s):* Department of Economics and Finance

**ECON\*6110 Mathematical Economics U [0.50]**

This course introduces students to the mathematical techniques used in advanced economic analysis. Topics covered in any year: analysis of dynamic economic models and optimization in dynamic economic models.

*Department(s):* Department of Economics and Finance

**ECON\*6140 Econometrics I U [0.50]**

Topics include a review of the classical linear regression model, applications of generalized least squares, maximum likelihood methods and various statistical test procedures.

*Department(s):* Department of Economics and Finance

**ECON\*6160 Econometrics II U [0.50]**

Topics include maximum likelihood as a method of estimation and inference, nonlinear estimation and simultaneous equations. Also more specialized topics such as limited-dependent-variable models and non-parametric regression methods may be covered.

*Department(s):* Department of Economics and Finance

**ECON\*6170 Topics in Econometrics U [0.50]**

This is an advanced econometrics topics course that covers the area of non-parametric and semiparametric estimation and testing of econometrics models, including time series and panel data semiparametric models.

*Department(s):* Department of Economics and Finance

**ECON\*6180 Econometric Methods U [0.50]**

This course follows ECON\*6050. It covers estimation by instrumental variables, estimations of simultaneous systems, asymptotic distribution theory, maximum likelihood estimation, binary choice and limited dependent variable models, and issues in time series analysis.

*Department(s):* Department of Economics and Finance

**ECON\*6200 Economic History U [0.50]**

This course considers topics in economic history which vary from year to year. The emphasis will be usually on late-19th or 20th century topics and often involves a world emphasis. Student presentations and papers form a large part of the course.

*Department(s):* Department of Economics and Finance

**ECON\*6300 International Trade Theory U [0.50]**

This course provides a rigorous treatment of both positive and normative aspects of trade theory through extensive use of general equilibrium models under varying assumptions. Topics may also include barriers to trade, international factor movements, growth and development, and strategic trade policy.

*Department(s):* Department of Economics and Finance

**ECON\*6320 International Finance U [0.50]**

This course deals with the theoretical policy and issues of international finance. Topics may include exchange rate determination, capital flows in international markets, the financing of trade flows, and open economy macroeconomic models and policy issues.

*Department(s):* Department of Economics and Finance

**ECON\*6350 Economic Development U [0.50]**

This course examines economic development from an international perspective: theories, history, policies and prospects.

*Department(s):* Department of Economics and Finance

**ECON\*6370 Economic Development in Historical Perspective U [0.50]**

This course will examine the experience of economic development focusing on the emergence of the Third World. Topics for discussion will vary from year to year; they may include the impact of trade expansion during the eighteenth and nineteenth centuries, the role of manufacturing as a leading sector, statist vs. the new classical approaches to government policy, and others.

*Department(s):* Department of Economics and Finance

**ECON\*6380 Financial Economics U [0.50]**

This course has three objectives: (i) build a common background for all students in asset pricing and corporate finance in order to facilitate discussion of finance research; (ii) provide an in-depth look at selected finance topics, and (iii) expose students to top published research papers.

*Department(s):* Department of Economics and Finance

**ECON\*6390 Empirical Finance and Financial Econometrics U [0.50]**

This course covers topics in empirical finance, involving the integration of financial theory, financial econometrics, and data analysis. Students will learn how empirical research in finance is conducted through reading involving both textbooks and journal articles and from conducting an independent research project.

*Department(s):* Department of Economics and Finance

**ECON\*6400 Public Finance U [0.50]**

This course surveys the normative theory of the public sector. Topics may include public expenditure theory, tax theory, cost benefit analysis and fiscal federalism.

*Department(s):* Department of Economics and Finance

**ECON\*6490 Money and Banking U [0.50]**

This course studies monetary economies using overlapping generations models, MIU models and CIA models. More specifically, we will study major issues in money and banking, such as the role of money and banks, the cost of inflation, and the optimal monetary policies.

*Department(s):* Department of Economics and Finance

**ECON\*6500 Microeconomic Theory MA U [0.50]**

A first graduate course in microeconomics, intended for Master students, presenting a rigorous treatment of the analysis of choices in markets and organizations. It covers consumer theory, general equilibrium, uncertainty, game theory, and information economics.

*Restriction(s):* Restricted to MA students only.

*Department(s):* Department of Economics and Finance

**ECON\*6600 Labour Economics U [0.50]**

Major themes in labour market theory including static and dynamic labour demand and supply, migration and wage structures and dynamics, unemployment, migration and the role of social programs.

*Department(s):* Department of Economics and Finance

**ECON\*6610 Topics in Labour Economics U [0.50]**

This course complements ECON\*6600. Topics include advanced issues in family labour supply, human capital, wage bargaining and contract theory, search theory, duration analysis and its application to major labour market spells such as employment and unemployment.

*Department(s):* Department of Economics and Finance

**ECON\*6650 Economics of Social Welfare U [0.50]**

This course deals with the analysis of social welfare programs, concentrating on national health insurance. It covers their structure, incentives and distribution effects, and includes empirical analysis of existing programs.

*Department(s):* Department of Economics and Finance

**ECON\*6700 Industrial and Market Organization U [0.50]**

The major topics of industrial organization are analyzed from both a game theoretic perspective and from a Structure-Conduct-Performance perspective. Typical topics include: oligopoly theory, determinants of industrial structure, Coase theorem, market entry, advertising, research and development, product differentiation, and price discrimination.

*Department(s):* Department of Economics and Finance

**ECON\*6750 Managerial Economics U [0.50]**

The course introduces students to the latest developments in the economic analysis of the inside workings and organization of firms. The course tries to explain the diversity of economic organizations, and more generally why economic activity is sometimes carried out through firms and sometimes through markets. For graduate students outside the Department of Economics and Finance.

*Department(s):* Department of Economics and Finance

**ECON\*6770 Financial Management U [0.50]**

This course examines the implications of financing decisions made by firms in a world of uncertainty. Topics such as capital budgeting, capital structure, dividend policy, market efficiency and capital asset pricing will be analyzed from the perspective of corporate finance and portfolio management theory. Co-requisite: AGE\*6070. For graduate students outside the Department of Economics and Finance.

*Department(s):* Department of Economics and Finance

**ECON\*6800 Environmental Economics U [0.50]**

A topics course concerning the interrelationships between economic activities and the state of the natural environment. Topics may include: pollution and economic growth; energy use and environmental quality; international trade and pollution; policies for controlling pollution; techniques for assessing the benefits of environmental improvement.

*Department(s):* Department of Economics and Finance

**ECON\*6810 Economic Theory of Natural Resources Use U [0.50]**

This course examines economic models of the use of non-renewable resources to analyze issues such as resource conservation, sustainable development, taxation of resource rents, and price determination in resource markets.

*Department(s):* Department of Economics and Finance

**ECON\*6820 Security Analysis and Portfolio Management U [0.50]**

This course has three goals: 1. to teach students how to analyze companies in the context of constructing equity portfolios. 2. to help students understand the valuation process of firms and calculate companies intrinsic value. 3. to make students aware of the role and activities of equity security analysts in highly competitive markets.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Economics and Finance

**ECON\*6930 Reading Course U [0.50]**

In some circumstances, students may arrange to take a reading course under the direction of a faculty member.

*Department(s):* Department of Economics and Finance

**ECON\*6940 Research Project U [1.00]**

All students who choose the research project option in the MA program will register in this course. Research projects are written under the direct supervision of a faculty member. Normally, research projects are completed within one or two semesters. Students must make a presentation of their work and a copy of the final report must be submitted to the Department before the final grade is submitted to the Office of Graduate and Postdoctoral Studies.

*Department(s):* Department of Economics and Finance

**ECON\*6950 Finance Research Project S [0.50]**

This program is a supervised research project exclusively for students in the Finance Specialization stream in the MA program. Students may elect either to write a major paper in a finance-related topic or to do a placement in a financial consulting company to conduct a structured portfolio analysis. Students must indicate their preference prior to the start of the summer semester to the Graduate Program Coordinator, who will oversee placements.

*Prerequisite(s):* ECON\*6000, ECON\*6140, ECON\*6380, ECON\*6820, AND ECON\*6930,

*Restriction(s):* For students in the MA Economics Finance Specialization

*Department(s):* Department of Economics and Finance

**Environmental Design and Rural Development****EDRD\*6000 Qualitative Analysis in Rural Development U [0.50]**

Nature and use of qualitative data collection and analysis techniques by practitioners in the planning, implementation and evaluation of rural planning and development activities in both domestic and international settings.

*Department(s):* School of Environmental Design and Rural Development

**EDRD\*6050 Farming Systems Analysis and Development W [0.50]**

An introduction to the Farming Systems Research/Extension approach to solving problems in tropical and sub-tropical agricultural and livestock production systems including problem diagnosis, stakeholder identification and the process of generation, adaption and validation of solutions.

*Department(s):* School of Environmental Design and Rural Development

**EDRD\*6100 Disaster Planning and Management U [0.50]**

This course take a multi-hazard perspective and is designed to challenge the students to examine the relationship between disaster and development, to learn how hazards become disasters, as well as the techniques for effective planning and managing disasters from a long-term development perspective.

*Offering(s):* Offered through Distance Education format only.

*Department(s):* School of Environmental Design and Rural Development

**EDRD\*6630 Regional Planning S [0.50]**

An examination of the theory and practice of regional planning in an international and Canadian environment, including a discussion of the various tools available to analysis the regional economy.

*Department(s):* School of Environmental Design and Rural Development

**EDRD\*6690 Program Evaluation U [0.50]**

An advanced seminar dealing with the theory and practice of program evaluation focusing on public sector programs in agriculture and rural development, international and domestic case studies.

*Department(s):* School of Environmental Design and Rural Development

## Engineering

### ENGG\*6000 Advanced Heat and Mass Transfer U [0.50]

Basic physical principles of transport phenomena. Heat and mass transfer methods for physical systems. Time and volume averaging. Dimensional analysis.

*Department(s):* School of Engineering

### ENGG\*6010 Assessment of Engineering Risk U [0.50]

The question of "how safe is safe enough?" has no simple answer. In response, this course develops the bases by which we can assess and manage risk in engineering. Course deals with fate and transport issues associated with risk, as relevant to engineering and how these aspects are employed in the making of decisions.

*Prerequisite(s):* STAT\*2040 or STAT\*2120

*Department(s):* School of Engineering

### ENGG\*6020 Advanced Fluid Mechanics U [0.50]

Laminar and turbulent flow. Turbulence and turbulence modelling. Boundary-layer flow. Compressible flow. Potential flow.

*Department(s):* School of Engineering

### ENGG\*6030 Finite Difference Methods U [0.50]

Numerical solution of partial differential equations of flow through porous media; flow of heat and vibrations; characterization of solution techniques and analysis of stability; convergence and compatibility criteria for various finite difference schemes.

*Department(s):* School of Engineering

### ENGG\*6050 Finite Element Methods U [0.50]

Boundary-value problems. Methods of approximation. Time dependent problems. Isoparametric elements. Numerical integration. Computer implementation. Mesh generation and layouts. Two-dimensional finite elements.

*Department(s):* School of Engineering

### ENGG\*6060 Engineering Systems Modelling and Simulation U [0.50]

A study of theoretical and experimental methods for characterizing the dynamic behaviour of engineering systems. Distributed and lumped parameter model development. Digital simulation of systems for design and control.

*Department(s):* School of Engineering

### ENGG\*6070 Medical Imaging U [0.50]

Digital image processing techniques including filtering and restoration; physics of image formation for such modalities as radiography, MRI, ultrasound.

*Prerequisite(s):* ENGG\*3390 or equivalent

*Department(s):* School of Engineering

### ENGG\*6080 Engineering Seminar U [0.00]

The course objective is to train the student in preparing, delivering and evaluating technical presentations. Each student is required to: (a) attend and write critiques on a minimum of six technical seminars in the School of Engineering; and (b) conduct a seminar, presenting technical material to an audience consisting of faculty and graduate students in the school. This presentation will then be reviewed by the student and the instructor.

*Department(s):* School of Engineering

### ENGG\*6090 Special Topics in Engineering U [0.50]

A course of directed study involving selected readings and analyses in developing knowledge areas which are applicable to several of the engineering disciplines in the School of Engineering.

*Department(s):* School of Engineering

### ENGG\*6100 Machine Vision U [0.50]

Computer vision studies how computers can analyze and perceive the world using input from imaging devices. Topics covered include image pre-processing, segmentation, shape analysis, object recognition, image understanding, 3D vision, motion and stereo analysis, as well as case studies.

*Department(s):* School of Engineering

### ENGG\*6110 Food and Bio-Process Engineering U [0.50]

Kinetics of biological reactions, reactor dynamics and design. Food rheology and texture; water activity and the role of water in food processing; unit operations design-thermal processing; and drying, freezing and separation processes.

*Department(s):* School of Engineering

### ENGG\*6120 Fermentation Engineering U [0.50]

Modelling and design of fermenter systems. Topics include microbial growth kinetics, reactor design, heat and mass transfer. Instrumentation and unit operations for feed preparation and product recovery. Prerequisite: undergraduate course in each of microbiology, heat and mass transfer, and biochemistry or bioprocess engineering.

*Department(s):* School of Engineering

### ENGG\*6130 Physical Properties of Biomaterials U [0.50]

Rheology and rheological properties. Contact stresses between bodies in compression. Mechanical damage. Aerodynamic and hydro-dynamic characteristics. Friction.

*Department(s):* School of Engineering

### ENGG\*6140 Optimization Techniques for Engineering U [0.50]

This course serves as a graduate introduction into combinatorics and optimization. Optimization is the main pillar of Engineering and the performance of most systems can be improved through intelligent use of optimization algorithms. Topics to be covered: Complexity theory, Linear/Integer Programming techniques, Constrained/Unconstrained optimization and Nonlinear programming, Heuristic Search Techniques such as Tabu Search, Genetic Algorithms, Simulated Annealing and GRASP.

*Department(s):* School of Engineering

### ENGG\*6150 Bio-Instrumentation U [0.50]

Instrumentation systems. Transducers. Amplifier circuits. Recording methods. Spectroscopy & colorimetry. Radiation, humidity, pH and noise measurements. Chromatography.

*Restriction(s):* ENGG\*3450 or equivalent.

*Department(s):* School of Engineering

### ENGG\*6160 Advanced Food Engineering U [0.50]

Application of heat and mass transfer, fluid flow, food properties, and food- processing constraints in the design and selection of food process equipment. Development of process specifications for the control of the flow of heat and moisture and the associated microbial, nutritional and organoleptic change in foods. Food system dynamics and process development.

*Department(s):* School of Engineering

### ENGG\*6170 Special Topics in Food Engineering U [0.50]

A course of directed study involving selected readings and analyses in developing knowledge areas of food engineering.

*Department(s):* School of Engineering

### ENGG\*6180 Final Project in Biological Engineering U [1.00]

A project course in which a problem of advanced design or analysis in the area of biological engineering is established, an investigation is performed and a final design or solution is presented.

*Restriction(s):* This course is open only to students in the biological MEng program.

*Department(s):* School of Engineering

### ENGG\*6190 Special Topics in Biological Engineering U [0.50]

A course of directed study involving selected readings and analyses in developing knowledge areas of biological engineering.

*Department(s):* School of Engineering

### ENGG\*6260 Colloids, Interfaces and Emulsions W [0.50]

This course focuses on the theory and the applications of colloid and interface science in the environmental, chemical, and food sectors. Major topics include the forces of interactions between colloids, the stabilization and destabilization of emulsions and foams, and polymeric fluids and gels.

*Prerequisite(s):* CHEM\*1040 or equivalent, CHEM\*1050 or equivalent

*Department(s):* School of Engineering

### ENGG\*6290 Special Topics in Mechanical Engineering U [0.50]

A course of directed study involving selected readings and analyses in developing knowledge areas of mechanical engineering.

*Department(s):* School of Engineering

### ENGG\*6300 Research Methods in Bioengineering U [0.50]

Research methodologies used in bioengineering are reviewed and assessed in the context of a diverse range of applications: biomechanics, control and instrumentation, ergonomics, diagnostic tools, biomaterials and food safety. The scientific method is discussed in terms of defining research problems, appropriate tests and hypotheses, experimental methods, data analysis and drawing conclusions. The objective is to guide students as they develop a coherent research proposal and deepen their understanding of the breadth of the discipline. (Offered in alternate years)

*Restriction(s):* Instructor consent required.

*Department(s):* School of Engineering

### ENGG\*6310 Advanced Electromechanical Devices U [0.50]

Course covers: switched reluctance motor, brushless motor, linear motor, axial flux motor, and harmonic drive motor with applicable actuators. Other topics introduced include: Electromagnetic micro power generation, design and analysis of cooling systems and control mechanism. Background in electromagnetism required. (Offered in alternate years)

*Department(s):* School of Engineering

**ENGG\*6320 Advanced Topics in Mechatronics U [0.50]**

This course covers materials related to mechatronics systems in terms of dynamics, control, sensing, estimation. The course covers advanced topics in these areas and provides students the tools to model, analyze, and control these systems. The focus is on vehicles and robots (mobile robots).

*Department(s):* School of Engineering

**ENGG\*6340 Bioenergy and Biofuels U [0.50]**

Theoretical and hands-on experience in bio-renewable energy areas prepares students from diverse backgrounds for a career in the biorefinery industry, academia, or entrepreneurial endeavors. Also deals with the technologies of converting biomass into upgraded energy, value added products, fuels, and chemicals. Thermodynamics background helpful.

*Department(s):* School of Engineering

**ENGG\*6350 Flow Induced Vibrations U [0.50]**

Course covers fluid-structure interaction problems with an emphasis on analytical and numerical methods. Topics include vortex and turbulence induced vibration, galloping and flutter, fluid-elastic instability, and acoustic resonance. Various case studies and applications will be discussed. Background in fluid mechanics and vibrations required. (Offered in alternate years)

*Department(s):* School of Engineering

**ENGG\*6360 Fuel Cell Technology U [0.50]**

Examination of principles governing fuel cell technology and the technical challenges associated with developing fuel cell systems. Topics include the chemical thermodynamics and electrochemical kinetics of fuel cells, the evolution of fuel cell technology, and fuel cell system design. Background in materials and thermodynamics required.

*Department(s):* School of Engineering

**ENGG\*6370 Heat Transfer in Porous Media U [0.50]**

Course covers general conservation equations for studying the flow and heat transfer through porous media. Application and case studies of porous materials will be discussed. Modelling techniques will be shown for a particular application area. Background in Heat Transfer required. (Offered in alternate years)

*Department(s):* School of Engineering

**ENGG\*6380 Simulation Analysis of Discrete Event Systems U [0.50]**

Many complex engineering, operations, and business systems can be modeled as discrete-event systems. Efficient management and operation of these systems requires simulation to study their performance. Case studies and applications will be presented and discussed. (Offered in alternate years)

*Department(s):* School of Engineering

**ENGG\*6390 Final Project in Mechanical Engineering U [1.00]**

A project course in which a problem of advanced design or analysis in the area of mechanical engineering is established, an investigation is performed and a final design or solution is presented.

*Restriction(s):* This course is only open to students registered in the School of Engineering

*Department(s):* School of Engineering

**ENGG\*6400 Mobile Devices App Development U [0.50]**

This course provides an introduction to developing applications for mobile devices. The emphasis will be on the fundamentals of mobile application programming. This is primarily a project-based course in which the goal is to produce a working app by the end of the course. The purpose of this course is to create new inter-disciplinary applications of mobile devices. Graduate students from all disciplines at the University of Guelph are invited to take the course for credit.

*Department(s):* School of Engineering

**ENGG\*6440 Advanced Biomechanical Design U [0.50]**

Biomechanical Design from concept through prototyping and testing. This course will investigate and apply techniques used for biomechanical design including reverse engineering, solid modelling, geometric tolerancing, testing and rapid prototyping. Instructor's signature required.

*Department(s):* School of Engineering

**ENGG\*6450 Queueing Theory & Traffic Modeling in Data Networks U [0.50]**

Network traffic modeling. Transient and steady-state analysis of Markov chains. Queueing analysis. Admission and access control. Flow control protocols. Congestion control. End-to-end performance bounds analysis.

*Restriction(s):* Engineering graduate students. Instructor consent required.

*Department(s):* School of Engineering

**ENGG\*6500 Introduction to Machine Learning U [0.50]**

The aim of this course is to provide students with an introduction to algorithms and techniques of machine learning particularly in engineering applications. The emphasis will be on the fundamentals and not specific approach or software tool. Class discussions will cover and compare all current major approaches and their applicability to various engineering problems, while assignments and project will provide hands-on experience with some of the tools.

*Department(s):* School of Engineering

**ENGG\*6510 Analog Integrated Circuit Design U [0.50]**

In this course, operating principles and design techniques of analog integrated circuits are introduced with emphasis on device and system modelling. These circuits include analog and switched-capacitor filters, data converters, amplifiers, oscillators, modulators, circuits for communications, sensor readout channels, and circuits for integrated memories. It is recommended that students are familiar with the fundamentals of linear systems, circuit analysis, and electronic devices.

*Department(s):* School of Engineering

**ENGG\*6520 VLSI Digital Systems Design U [0.50]**

This course will introduce the principles of VLSI MOSFET digital design from a circuit and system perspective. Advanced topics include: power issues related to each level of design abstraction; voltage and frequency scaling; power to speed tradeoffs; ASIC digital design flow; Verilog intergrationintegration; ASIC case studies. It is recommended that students are familiar with the fundamentals of digital circuits and electronic devices.

*Department(s):* School of Engineering

**ENGG\*6530 Reconfigurable Computing U [0.50]**

This course serves as a graduate introduction into reconfigurable computing systems. It introduces students to the analyses, synthesis and design of embedded systems and implementing them using Field Programmable Gate Arrays. Topics include: Programmable Logic devices, Hardware Description Languages, Computer Aided Design Flow, Hardware Accelerators, Hardware/Software Co-design techniques, Run Time Reconfiguration, High Level Synthesis. It is recommended that students are familiar with the fundamentals of digital design and hardware description languages.

*Department(s):* School of Engineering

**ENGG\*6540 Advanced Robotics U [0.50]**

This course is intended for graduate students who have some knowledge and interest in robotics. The course covers modelling, design, planning control, sensors and programming of robotic systems. In addition to lectures, students will work on a term project in which a problem related to robotics systems will be studied. Instructors signature required.

*Department(s):* School of Engineering

**ENGG\*6550 Intelligent Real-Time Systems U [0.50]**

Soft real-time systems, hard real-time systems, embedded systems, time handling and synchronization, deadlines, preemption, interruption, RTS languages, RTS/ operating systems, system life-cycle, petri nets, task scheduling and allocation, fault-tolerance, resource management, RTS/search techniques, dealing with uncertainty.

*Department(s):* School of Engineering

**ENGG\*6560 Advanced Digital Signal Processing U [0.50]**

Discrete-time signals and systems, z transform, frequency analysis of signals and systems, fourier transform, fast fourier transform, design of digital filters, signal reconstruction, power spectrum estimation.

*Department(s):* School of Engineering

**ENGG\*6570 Advanced Soft Computing U [0.50]**

Neural dynamics and computation from a single neuron to a neural network architecture. Advanced neural networks and applications. Soft computing approaches to uncertainty representation, multi-agents and optimization.

*Prerequisite(s):* ENGG\*4430 or equivalent

*Department(s):* School of Engineering

**ENGG\*6580 Advanced Control Systems U [0.50]**

This course will start with state space analysis of multi-input multi-output control systems. Then state space design will be presented. After that, nonlinear control systems and soft computing based intelligent control systems will be studied. Finally, hybrid control systems, H infinite control and uncertainty and robustness in control systems will be addressed.

*Department(s):* School of Engineering

**ENGG\*6590 Final Project in Engineering Systems and Computing U [1.00]**

A project course in which a problem of advanced design or analysis in the area of Engineering Systems and Computing is established by the student, an investigation is performed, and a report on the final design or solution selected is presented.

*Restriction(s):* This course is only open to students in the engineering systems and computing MEng program.

*Department(s):* School of Engineering



**ENGG\*6600 Special Topics in Engineering Systems and Computing U [0.50]**

A course of directed study involving selected readings and analyses in developing knowledge areas of Engineering Systems and Computing.

*Department(s):* School of Engineering

**ENGG\*6610 Urban Stormwater Management U [0.50]**

Continuous stormwater management models and model structure. Catchment discretization and process disaggregation. Pollutant build-up, wash off and transport. Flow and pollutant routing in complex, looped, partially surcharged pipe/channel networks including pond storage, storage tanks, diversion structures, transverse and side weirs, pump stations, orifices, radical and leaf gates and transient receiving water conditions (including tides). Pollutant removal in sewer networks, storage facilities and treatment plants.

*Department(s):* School of Engineering

**ENGG\*6630 Environmental Contaminants: Fate Mechanisms U [0.50]**

Analysis of fate mechanisms associated with environmental contaminants. Focus on substances which are generally considered to be hazardous to humans, or other animal life at low concentrations. Study of physicochemical properties and fate estimation on control and remediation strategies. Quantitative analysis of contaminant partitioning and mass flows, including cross-media transport and simultaneous action of contaminant fate mechanisms.

*Department(s):* School of Engineering

**ENGG\*6650 Advanced Air Quality Modelling U [0.50]**

Analysis of analytical and computational models used to predict the fate of airborne contaminants; role of air quality models for the solution of engineering-related problems; analysis of important boundary layer meteorology phenomena that influence the fate of air pollutants; conservation equations and mathematical solution techniques; model input requirements such as emissions inventories; Gaussian models; higher-order closure models; Eulerian photochemical grid models.

*Department(s):* School of Engineering

**ENGG\*6660 Renewable Energy U [0.50]**

The engineering principles of renewable energy technologies including wind, solar, geothermal and biomass will be examined, including technology-specific design, economic and environmental constraints. Students will compare the relative merits of different energy technologies and gain a knowledge base for further study in the field.

*Restriction(s):* Engineering graduate students. Instructor consent required.

*Department(s):* School of Engineering

**ENGG\*6670 Hazardous Waste Management U [0.50]**

This course will define the different types of hazardous wastes that currently exist and outline the pertinent legislation governing these wastes. Information will be presented on different ways to handle, treat and dispose the hazardous waste, including separation, segregation, minimization, recycling and chemical, physical, biological, and thermal treatment. Also to be discussed are hazardous waste landfills and site remediation technologies. Specifics include design and operation of hazardous landfill sites, handling and treatment of leachate, comparison of pertinent soil remediation technologies. Case studies will be reviewed.

*Department(s):* School of Engineering

**ENGG\*6680 Advanced Water and Wastewater Treatment U [0.50]**

This design course will discuss advanced technologies not traditionally covered during an undergraduate curriculum. An important consideration will be the reuse of water.

*Department(s):* School of Engineering

**ENGG\*6740 Ground Water Modelling U [0.50]**

Introduction to current groundwater issues, definition of terms, review of fundamental equations describing fluid and contaminant transport in saturated groundwater zones. Mathematical techniques (analytical, FE and FD) for the solution of the fundamental equations. Application of numerical groundwater models to a variety of situations. Case studies. Review of groundwater models used in industry.

*Department(s):* School of Engineering

**ENGG\*6790 Special Topics in Environmental Engineering U [0.50]**

A course of directed study involving selected readings and analyses in developing knowledge areas of environmental engineering.

*Department(s):* School of Engineering

**ENGG\*6800 Deterministic Hydrological Modelling U [0.50]**

Deterministic hydrological models. Function of watershed models for hydraulic design, environmental assessment, operation of water control structures, flood warning. Calculation algorithms.

*Department(s):* School of Engineering

**ENGG\*6820 Measurement of Water Quantity and Quality U [0.50]**

This course covers techniques used to measure rates of movement and amounts of water occurring as precipitation, soil water, ground water and streamflow. Available measurements of water quality are surveyed. Calculation procedures involved in the use of indirect indicators of water quantity and quality individually and in combination are described.

*Department(s):* School of Engineering

**ENGG\*6840 Open Channel Hydraulics U [0.50]**

Basic concepts, energy principle; momentum principle; flow resistance; non-uniform flow; channel controls and transitions; unsteady flow; flood routing.

*Department(s):* School of Engineering

**ENGG\*6860 Stream and Wetland Restoration Design U [0.50]**

Explores the multi-disciplinary principles of stream and wetland restoration and the tools and techniques for restoration design. Restoration design is approached from a water resources engineering perspective with emphasis on hydrological and hydraulic techniques. Numerous case studies are examined as a means to identify more successful design approaches.

*Prerequisite(s):* ENGG\*3650 or equivalent.

*Department(s):* School of Engineering

**ENGG\*6880 Soil Erosion and Fluvial Sedimentation U [0.50]**

Students will be able to (i) describe processes related to soil erosion by water, (ii) describe processes related to fluvial sedimentation, (iii) evaluate and prescribe structural and non-structural control methods, and (iv) run at least one soil erosion/fluvial sedimentation computer model if the course is satisfactorily completed.

*Department(s):* School of Engineering

**ENGG\*6900 Final Project in Water Resources Engineering U [1.00]**

A project course in which an advanced design problem in the area of watershed engineering is established, a feasibility investigation performed and a final design presented.

*Restriction(s):* This course is open only to students in the water resources MEng program.

*Department(s):* School of Engineering

**ENGG\*6910 Special Topics in Water Resources Engineering U [0.50]**

A course of directed study involving selected readings and analyses in developing knowledge areas of water resources engineering.

*Department(s):* School of Engineering

**ENGG\*6950 Final Project in Environmental Engineering U [1.00]**

A project course in which a problem of advanced design or analysis in the area of environmental engineering is established, an investigation is performed and a final design or solution is presented.

*Restriction(s):* This course is only open to students in the Environmental MEng program.

*Department(s):* School of Engineering

**ENGG\*6980 Special Topics in Computer Engineering U [0.50]**

This course addresses specialized topics in one or more aspects of Computer Engineering not covered by other graduate courses. Includes selected readings and thorough analyses in emerging knowledge areas, advanced engineering tools, and current technical developments. May be repeated for credit as topics vary.

*Department(s):* School of Engineering

**ENGG\*6990 Final Project in Computer Engineering U [1.00]**

An independent project carried out under the supervision of a Computer Engineering faculty member in which an advanced modelling or design problem and the desired outcomes are defined, possible solutions are synthesized and analyzed, and a final model or design is evaluated. Regular meetings, final report, and presentation required.

*Restriction(s):* This course is open only to students in the Computer Engineering MEng program.

*Department(s):* School of Engineering

**English****ENGL\*6002 Topics in the History of Criticism U [0.50]**

This course deals with various aspects of the field of literary criticism, focusing on a specific problem or question each time it is offered. Topics may include the investigation of a specific critical debate - the debate between the Ancients and the Moderns, for instance - or the various ways in which a particular concept - such as didacticism or intentionality - has been treated or is being treated in literary studies.

*Department(s):* School of English and Theatre Studies

**ENGL\*6003 Problems of Literary Analysis U [0.50]**

Variable in content and practical in orientation this course seeks to familiarize the student with particular critical techniques and approaches by applying specific examples of those approaches and methods to particular topics (e.g., cultural studies and renaissance literature, discourse analysis and the Victorian novel, computer-mediated analysis and the theatre of the absurd).

*Department(s):* School of English and Theatre Studies

**ENGL\*6201 Topics in Canadian Literature U [0.50]**

A course to be offered at least once every academic year. This course in Canadian Literature may focus on cross-genre study or on single genres such as poetry, biography, the short story, literary memoir and/or autobiography, and poetic prose. The focus may be on such topics as the literary and general cultural production of a time-period, an age group (such as children's literature), or a specific region (such as Atlantic Canada, the Prairies, or the West Coast), or may bring together texts from two or more categories to allow for a comparative study. Other possible topics include: post-modernism and the creation of an ex-centric Canadian canon; multiculturalism and the transcultural aesthetics of Canadian writing; the construction and reinvention of a national identity and literature; and literary history, influence, reception and critique.

*Department(s):* School of English and Theatre Studies

**ENGL\*6209 Topics in Colonial, Postcolonial and Diasporic Literature U [0.50]**

A course to be offered at least once every academic year. A comparative study of postcolonial literatures in English. Topics may include a focus on a single area, such as India, the Caribbean, Africa, Australia, or New Zealand or may focus on the comparative study of some of these literatures, considering the construction of Third World, diasporic, or settler-invader colonies, or writing and reading practices in colonial, neo-colonial, and postcolonial environments.

*Department(s):* School of English and Theatre Studies

**ENGL\*6412 Topics in Medieval/Renaissance Literature U [0.50]**

An examination of the literature of Britain in the medieval and/or early modern periods. Topics may focus on a single author, a specific genre, or relationships between the literary and the cultural.

*Department(s):* School of English and Theatre Studies

**ENGL\*6421 Topics in Eighteenth Century and Romantic Literature U [0.50]**

A examination of the literature of Britain between the 17th century and the latter part of the 18th century. Topics may focus on a single author, a specific genre, or relationships between the literary and the cultural.

*Department(s):* School of English and Theatre Studies

**ENGL\*6431 Topics in Nineteenth Century Literature U [0.50]**

This course is a study of the literature of Britain, Canada, the United States, or another region from the late 18th century until the start of the First World War. Topics may focus on a single author, a specific genre, or a central critical question.

*Department(s):* School of English and Theatre Studies

**ENGL\*6441 Topics in Modern British Literature U [0.50]**

A study of the literature of Britain in the twentieth century. This course includes a consideration of the interaction between literature and culture in the period - sometimes through the examination of a specific author, sometimes through the study of a particular genre or issue.

*Department(s):* School of English and Theatre Studies

**ENGL\*6451 Topics in American Literature U [0.50]**

Topics may include a focus on a single region, such as the American West, on a single time period, such as the Civil War, on a specific genre, such as the novels of frontier women, or other issues in American literary studies.

*Department(s):* School of English and Theatre Studies

**ENGL\*6611 Topics in Women's Writing U [0.50]**

In the past the course has dealt with Victorian women poets, with the place of women in the literature of the American West, and with other issues of interest to students of women's writing and the broader issues of feminist theory.

*Department(s):* School of English and Theatre Studies

**ENGL\*6621 Topics in Children's Literature U [0.50]**

Past offerings have involved a focus on a specific author - such as Lucy Maud Montgomery - or on a specific kind of writing for or by children.

*Department(s):* School of English and Theatre Studies

**ENGL\*6641 Topics in Scottish Literature U [0.50]**

Courses under this rubric are concerned with the various literatures produced by Scots both within and beyond the boundaries of Scotland. The course could involve the study of a specific genre, the investigation of a specific theme, or the examination of a particular author over the course of her/his career.

*Department(s):* School of English and Theatre Studies

**ENGL\*6691 Interdisciplinary Studies U [0.50]**

Designed to provide the opportunity to explore alternative fields and modes of critical inquiry, this variable-content course will study the relationship between literary study and other forms of intellectual inquiry such as the relationship between literature and sociology, between critical theory and psychology, between literary history and historical fact.

*Department(s):* School of English and Theatre Studies

**ENGL\*6801 Reading Course I U [0.50]**

An independent study course, the nature and content of which is agreed upon between the individual student and the person offering the course. Subject to the approval of the student's advisory committee and the graduate program committee.

*Department(s):* School of English and Theatre Studies

**ENGL\*6802 Reading Course II U [0.50]**

An independent study course, the nature and content of which is agreed upon between the individual student and the person offering the course. Subject to the approval of the student's advisory committee and the graduate program committee.

*Department(s):* School of English and Theatre Studies

**ENGL\*6803 Research Project U [1.00]**

An independent study course, the content of which is agreed upon between the individual student and the person offering the course. Subject to the approval of the student's advisory committee and the Graduate Program Committee. This course is designed to provide the student with the opportunity to conduct an extended research project that, while not as complex or as extensive as a thesis, still provides the student with training in research methodology.

*Department(s):* School of English and Theatre Studies

**ENGL\*6811 Special Topics in English U [0.50]**

Depending on the research interests of the instructor, courses under this rubric explore topics in the study of literature that do not fall neatly under the rubrics above. In the past the course has dealt with literature and aging, and with issues in the field of popular culture.

*Department(s):* School of English and Theatre Studies

**Environmental Sciences****ENVS\*6000 Physical Environment of Crops and Forests F [0.50]**

Recent literature on temperature, humidity, radiation, wind, gases and particles in crop and forest environments; evapotranspiration and photosynthesis of plant communities; modification of microclimates; applied micrometeorology.

*Offering(s):* Offered in even-numbered years.

*Department(s):* School of Environmental Sciences

**ENVS\*6040 Molecular Basis of Plant-Microbe Interactions F [0.50]**

A lecture and seminar course on recent advances in the study of plant-microbe interactions. Topics included are the biochemical, physiological and genetic aspects of plant defenses and the interaction of plants with pathogenic and mutualistic bacteria, fungi and viruses. Offered in conjunction with PBIO\*4000. Extra work is required of graduate students.

*Restriction(s):* Credit may be obtained for only one of ENVS\*6040 or PBIO\*4000.

*Department(s):* School of Environmental Sciences

**ENVS\*6050 Micrometeorology W [0.50]**

Exchanges of mass, momentum and energy between the surface and the atmosphere will be studied in the context of larger-scale meteorology. Diffusion and turbulence in and above plant canopies will be examined from theoretical and practical perspectives. Topics include time-series analysis, micrometeorological measurement theory, and basic principles of atmospheric science.

*Offering(s):* Offered in even-numbered years.

*Department(s):* School of Environmental Sciences

**ENVS\*6060 Meteorological Instrumentation W [0.50]**

Theoretical and practical aspects of electronic circuits, sensors, and equipment used in meteorological research.

*Prerequisite(s):* ENVS\*4210 or equivalent

*Department(s):* School of Environmental Sciences

**ENVS\*6190 Environmental Microbial Technology U [0.50]**

Current topics in selected areas of environmental microbial technology. An emphasis will be placed on the physiology and genetics of microorganisms useful in environmental biotechnology. The course involves extensive use of current journal articles.

*Restriction(s):* Undergraduate degree in microbiology or related discipline.

*Department(s):* School of Environmental Sciences

**ENVS\*6242 Special Topics in Atmospheric Science F,W,S [0.50]**

Students will explore topics within atmospheric science such as climatology, animal biometeorology, air pollution meteorology, and hydrometeorology. Normally, an independent course of study will be developed with a faculty advisor and one or more students in the semester prior to enrollment. Occasionally, the course will be offered as a lecture/seminar in a particular area, to be advertised in the semester prior to offering. Typically, students will produce a major paper or scientific report.

*Restriction(s):* Instructor consent required.

*Department(s):* School of Environmental Sciences

**ENVS\*6280 Soil Physics W [0.50]**

The soil as a physical system with special regard to soil water movement and the diffusion and dispersion of chemical substances. Numerical techniques and computer solutions will be developed.

*Department(s):* School of Environmental Sciences

**ENVS\*6300 Quantitative Pedology F [0.50]**

Pedology considers the morphology, survey, geography, characterization and analysis, development, classification, and interpretation of soil. This course focuses on the quantification of pedology, employing modern digital instrumentation, computational capacity and analytical strategies. Students explore how such multi-scale, spatial-temporal information is used in critical zone modeling.

*Prerequisite(s):* At least an introductory soil, ecology or physical geography course.

*Co-requisite(s):* Students with only an introductory level soil course are encouraged to audit ENVS\*4390.

*Restriction(s):* Students who have received credit for ENVS\*6250 will not be able to register for this course.

*Department(s):* School of Environmental Sciences

**ENVS\*6340 Colloquium in Insect Systematics W [0.25]**

Weekly discussions and seminars dealing with current topics in systematic entomology.

*Offering(s):* Offered in odd-numbered years.

*Department(s):* School of Environmental Sciences

**ENVS\*6350 Soil Organic Matter and Biochemistry F [0.50]**

(1) Soil organic matter characterization, (2) dynamics of soil organic matter, (0.5) nutrient cycling.

*Offering(s):* Offered in odd-numbered years.

*Department(s):* School of Environmental Sciences

**ENVS\*6360 Soil and Water Chemistry F [0.50]**

Thermodynamics of soil solutions; solution-solid phase equilibria; reaction kinetics; computer modelling of solute-mineral interactions.

*Department(s):* School of Environmental Sciences

**ENVS\*6400 Soil Nitrogen Fertility and Crop Production W [0.50]**

Emphasis will be placed on soil N transformations and processes, and N sources for crops; field experimentation methods; environmental issues.

*Department(s):* School of Environmental Sciences

**ENVS\*6440 Field Sampling Strategies and Geostatistics W [0.50]**

Concepts and practical aspects of collecting, synthesizing and interpreting data from spatially and temporally variable and/or correlated fields. Hands-on experience in describing spatial structure of large data sets (supplied by student or instructor) using available software.

*Offering(s):* Offered in even-numbered years.

*Department(s):* School of Environmental Sciences

**ENVS\*6450 Multivariate Environmental Data Analysis W [0.50]**

This course will examine the application of statistical techniques to analyzing multivariate environmental data. Methods will include Ordination (e.g., Principal Components Analysis, NDMS), Multivariate Regression (e.g., Partial Least Squares Regression), and Structural Equation Modelling. Emphasis will be placed on peer and collaborative learning through discussion, and comparative application of analyses to multivariate environmental data.

*Prerequisite(s):* At least one undergraduate course in statistics.

*Restriction(s):* Instructor consent required.

*Department(s):* School of Environmental Sciences

**ENVS\*6452 Special Topics in Ecosystem Science and Biodiversity F,W,S [0.50]**

Students will explore topics within ecosystem science such as terrestrial ecology, forest science, aquatic systems and environmental biology. Normally, an independent course of study will be developed with a faculty advisor and one or more students in the semester prior to enrollment. Occasionally, the course will be offered as a lecture/seminar in a particular area, to be advertised in the semester prior to offering. Typically, students will produce a major paper or scientific report.

*Restriction(s):* Instructor consent required.

*Department(s):* School of Environmental Sciences

**ENVS\*6460 Environmental Remediation W [0.50]**

This course will discuss environmental remediation topics including, but not limited to, using plants, microorganisms and substrates (e.g., soil and engineered materials) to improve air, water and soil quality. For example, this course will explore the current sciences and technologies of living walls to improve indoor air quality, green roofs to manage storm water and air pollutants, and constructed wetlands to treat wastewater. Environmental remediation is, by nature, multidisciplinary, involving chemistry, physics, biology, engineering, landscape design, etc.

*Department(s):* School of Environmental Sciences

**ENVS\*6470 The Science and Management of Multiple Stressors in the Great Lakes F [0.50]**

In this two-week lecture-field course, students will learn about historical and current environmental issues affecting the Great Lakes basin from the perspective of multiple stressors and their cumulative impacts. The importance of linking science and policy, and the role important of governments, are emphasized.

*Restriction(s):* Instructor consent required.

*Department(s):* School of Environmental Sciences

**ENVS\*6500 Environmental Sciences Research Project U [1.00]**

A concise, critical review of an area of study related to the field chosen by the student including analyses and interpretation of relevant data. The project will be written in the form of a scientific paper and presented to the department as a seminar.

*Restriction(s):* Available only to students registered in the Environmental Sciences: MES program.

*Department(s):* School of Environmental Sciences

**ENVS\*6501 Integrating Science and Policy in Environmental Science F [0.50]**

A case-study approach, based on current and historical issues, and involving presentations from faculty, professionals and students, will be used to develop an advanced understanding of current issues in the environmental sciences, including examination of the underlying science and management of the issues, and the effectiveness of associated policies.

*Restriction(s):* Preference will be given to students in the MES.ENVS:L.

*Department(s):* School of Environmental Sciences

**ENVS\*6502 Seminar in Environmental Sciences W [0.50]**

This course will provide an interactive and critical forum for students to participate in an advanced discussion and debate on current environmental issues, and to learn about the practical skill set(s) required by various employment sectors in solving these issues.

*Restriction(s):* Instructor consent required. Preference will be given to students in the MES program.

*Department(s):* School of Environmental Sciences

**ENVS\*6503 Biogeochemistry of Wetlands S [0.50]**

This course is focused on the role of wetlands in maintaining healthy ecosystems and in controlling contaminant fluxes to water. Lectures complement field and laboratory assessments of wetlands to understand element biogeochemical cycles in these transitional environments. The course includes field trips to Ontario wetlands.

*Restriction(s):* Preference will be given to students in MES.ENVS:L, MSc.ENVS and PhD.ENVS

*Department(s):* School of Environmental Sciences

**ENVS\*6505 Soil Survey and Interpretation S [0.50]**

Students will learn concepts, techniques and analysis related to the characterization of soil in the landscape. Focus will be given to soilscapes encountered in southern Ontario. Course involves multiple field excursions to examine the distribution of soils in this region.

*Restriction(s):* Preference will be given to students in MES.ENVS:L, MSc.ENVS, PhD.ENVS

*Department(s):* School of Environmental Sciences

**ENVS\*6506 Forest Ecosystem Patterns and Processes S [0.50]**

Students will learn concepts, techniques and analysis related to the ecological characterization of forests. Focus will be on southern and mid-central Ontario forests and will involve periodic excursions to various locations for the purpose of demonstrating theoretical principles, sampling techniques, in-field measurements, and collecting samples for in-lab assessment.

*Restriction(s):* Preference will be given to students in MES.ENVS:L, MSc.ENVS, PhD.ENVS

*Department(s):* School of Environmental Sciences

**ENVS\*6520 Pollinator Biology F [0.50]**

The biology of pollinators will be discussed in lectures and seminars stressing fundamental and applied aspects. The honey bee will be used as the model system.

*Offering(s):* Offered in odd-numbered years.

*Department(s):* School of Environmental Sciences

<b>ENVS*6530 Pollinator Conservation W [0.50]</b>
In this course students will explore the ecology of pollination with an emphasis on the factors affecting declines in pollinating insects as well as potential mitigation strategies to ensure long-term stability of food production and maintenance of biodiverse wild plant communities. Offered in conjunction with ENVS*4070. Extra work is required of graduate students. <i>Restriction(s):</i> Credit may be obtained for only one of ENVS*6530 or ENVS*4070. <i>Department(s):</i> School of Environmental Sciences
<b>ENVS*6540 Integrated Pest Management - Insects W [0.50]</b>
Concepts associated with integrated pest management of insect pests of various plant hosts will be introduced to students in an interactive lecture and laboratory format. Experiential learning and skill development, associated with economic entomology, will also be emphasized. <i>Offering(s):</i> Offered annually <i>Restriction(s):</i> Credit may be obtained for only one of ENVS*6540 and ENVS*4100 <i>Department(s):</i> School of Environmental Sciences
<b>ENVS*6550 Bioactivity and Metabolism of Insecticides W [0.50]</b>
The basis of insecticide bioactivity will be examined, with emphasis on mode of action, structure-activity relationships and analytical methods. Students will choose a specific insecticide or class of insecticides as their primary topic of study for the semester. Students will participate in seminars, prepare a conference poster and complete a research paper. <i>Offering(s):</i> Offered in even-numbered years. <i>Department(s):</i> School of Environmental Sciences
<b>ENVS*6560 Forest Ecosystem Dynamics F [0.50]</b>
An exploration of energy flow and distribution in forest ecosystems. Both components will be examined in the context of biomass and productivity, perturbations and resilience. Some aspects of modelling will be covered. <i>Offering(s):</i> Offered in odd-numbered years. <i>Department(s):</i> School of Environmental Sciences
<b>ENVS*6582 Special Topics in Soil Science F,W,S [0.50]</b>
Students will explore topics within soil science such as soil physics, pedology, soil chemistry and microbiology. Normally, an independent course of study will be developed with a faculty advisor and one or more students in the semester prior to enrollment. Occasionally, the course will be offered as a lecture/seminar in a particular area, to be advertised in the semester prior to offering. Typically, students will produce a major paper or scientific report. <i>Restriction(s):</i> Instructor consent required. <i>Department(s):</i> School of Environmental Sciences
<b>ENVS*6700 Glacial Sedimentary Environments U [0.50]</b>
Students will learn about the processes and deposits of glacial environments as well as the use of sedimentary records to reconstruct past glacial environments. Case studies from modern to ancient glacial sedimentary environments will be used. Field trip included. <i>Offering(s):</i> Offered only as needed <i>Department(s):</i> School of Environmental Sciences
<b>ENVS*6710 Advanced Sedimentology U [0.50]</b>
Topics covered through case studies of sedimentary deposits and environments include facies analysis, large scale controls, and novel techniques in sedimentology. Topics may also include specific sedimentary environments or specific sedimentary deposits such as turbidites, cross-bedded strata or seismites depending on student interest. (Offered only as needed) <i>Offering(s):</i> Offered only as needed <i>Department(s):</i> School of Environmental Sciences
<b>ENVS*6720 Geology of Groundwater Systems W [0.50]</b>
This course will examine the geological characteristics and processes that influence groundwater flow systems and contaminant transport and fate in different geological settings. The course will include seminar discussions of readings, guest speakers from industry and government agencies as well as hands-on exercises in class. <i>Offering(s):</i> Offered in alternate years <i>Department(s):</i> School of Environmental Sciences
<b>ENVS*6730 Special Topics in Environmental Earth Science F,W,S [0.50]</b>
Students will explore topics within environmental earth science such as glacial geology, environmental geophysics and hydrogeology. Normally, an independent course of study will be developed with a faculty advisor and one or more students in the semester prior to enrollment. Occasionally, the course will be offered as a lecture/seminar in a particular area, to be advertised in the semester prior to offering. Typically, students will produce a major paper or scientific report. <i>Restriction(s):</i> Instructor consent required. <i>Department(s):</i> School of Environmental Sciences

<b>ENVS*6740 Environmental Organic Chemistry W [0.50]</b>
This course explores the chemical processes that influence organic compounds in the environment. Topics discussed include: the transformation of anthropogenic organic contaminants, the form and function of natural organic matter, and analytical methods including compound specific stable isotope analysis and environmental nuclear magnetic resonance. Offered in conjunction with ENVS*4370. Extra work is required of graduate students. <i>Restriction(s):</i> Credit may be obtained for only one of ENVS*6740 or ENVS*4370. Preference will be given to students in the MES.ENVS, MSc.ENVS and PhD.ENVS programs. <i>Department(s):</i> School of Environmental Sciences
<b>ENVS*6882 Special Topics in Plant and Environmental Health F,W,S [0.50]</b>
Students will explore topics within plant and environmental health such as integrated pest management, apiculture and environmental microbiology. Normally, an independent course of study will be developed with a faculty advisor and one or more students in the semester prior to enrollment. Occasionally, the course will be offered as a lecture/seminar in a particular area, to be advertised in the semester prior to offering. Typically, students will produce a major paper or scientific report. <i>Restriction(s):</i> Instructor consent required. <i>Department(s):</i> School of Environmental Sciences
<b>ENVS*6900 Research Seminar in Environmental Sciences F-W [0.50]</b>
This course provides information and training in scientific presentations for thesis-based Environmental Sciences (ENVS) programs. Students will prepare a written research proposal and make an oral presentation of their proposed studies. Students are expected to complete this course in their second or third semester of study. <i>Restriction(s):</i> Offered only to MSC.ENVS and PHD.ENVS students <i>Department(s):</i> School of Environmental Sciences

## European Studies

<b>EURO*6000 Research Methods F [0.50]</b>
This course will: a) introduce students to the field and research methods of European Studies, b) familiarize them with field-relevant research skills and methodologies. <i>Department(s):</i> School of Languages and Literatures
<b>EURO*6010 European Identities W [0.50]</b>
This core course examines historical and contemporary ideas of the 'nation' and of 'Europe' and their relationships to identity, from an interdisciplinary perspective. Using core concepts that span various disciplines, the course investigates the construction and implications of national, minority, European and EU identities. <i>Department(s):</i> School of Languages and Literatures
<b>EURO*6020 Myth, Fairy Tales and European Identities U [0.50]</b>
An exploration of how myths and fairy tales have been refashioned in European literature, music and art to express political, social or psychological concerns. Examples will be chosen from different national cultures and epochs. Content will vary according to the interests of the instructor(s). <i>Department(s):</i> School of Languages and Literatures
<b>EURO*6030 Women and the Arts in Europe: Seeking Expression U [0.50]</b>
This course examines women's participation in the arts in Europe. Content will vary according to the interests of the instructor(s). Possible approaches: an examination of women's relationships to European cultural institutions, or the extent of women's participation in central pan-European artistic movements. <i>Department(s):</i> School of Languages and Literatures
<b>EURO*6040 Europe and the Discourse of Civilization U [0.50]</b>
This course explores the genealogy of the idea of 'civilization' with respect to Europe as it emerges from the writings of medieval, renaissance, early modern and modern art historians, and its role in contemporary political discourse. Literature and music may also be included. <i>Department(s):</i> School of Languages and Literatures
<b>EURO*6060 Contemporary Europe U [0.50]</b>
This course examines the major trends and developments in European culture and society since the end of the Cold War and the post-1989 geo-political, social and cultural events. The course will focus on literature, film, art, political and economic theory and will address Europe's transcontinental relationships, inter-European immigration, the role of religious and cultural minorities, the impact of the financial crisis on the Eurozone. Offered in conjunction with EURO*4050. Extra work is required for graduate students. <i>Restriction(s):</i> Credit may be obtained for only one of EURO*6060 or EURO*4050. <i>Department(s):</i> School of Languages and Literatures

**EURO\*6070 Topics in Comparative European Culture I U [0.50]**

An examination of a topic, period, or region in any aspect of European culture. The content of the course will vary according to the topic and the professor teaching the course at any given time. It will also differ from the content of Topics in Comparative European Culture II.

*Department(s):* School of Languages and Literatures

**EURO\*6072 Topics in Comparative European Culture II U [0.50]**

An examination of a topic, period, or region in any aspect of European culture. The content of the course will vary according to the topic and the professor teaching the course at any given time. It will also differ from the content of Topics in Comparative European Culture I.

*Department(s):* School of Languages and Literatures

**EURO\*6080 Directed Reading Course F,W,S [0.50]**

An independent reading project carried out by the student under the supervision of a European Studies graduate faculty member.

*Department(s):* School of Languages and Literatures

**EURO\*6100 Research Project U [1.00]**

This research project will result in a major paper of about 12,000 words. The student chooses a topic with guidance of a faculty member. Oral examination of this work is required. The topic must be approved by the Graduate Committee.

*Department(s):* School of Languages and Literatures

**Family Relations and Applied Nutrition****FRAN\*6000 Research Methods F [0.50]**

This course includes critical appraisal of the research literature. Research ethics, subject selection, measurement issues, survey design, experimental and quasi-experimental designs, cross-sectional and longitudinal designs, scale development, questionnaire development and sampling strategies are discussed.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6010 Applied Statistics F [0.50]**

Students will learn conceptual and practical applications of statistical analyses with emphasis on hypothesis formation, data screening, test selection, inferential statistics, univariate and multivariate analysis of variance/covariance (including repeated measures designs), simple and multiple regression, logistic regression, regression diagnostics, model building and path analytic techniques. FRAN\*6000 can be taken before or while taking this course.

*Restriction(s):* Consent required for non- FRAN students.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6020 Qualitative Methods W [0.50]**

This course teaches students how to use qualitative methods as a mode of inquiry for understanding issues in human development, nutrition and family relationships. The emphasis is on project design, data collection techniques, analysis strategies and procedures for final write-up.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6070 Sexual Issues and Clinical Interventions Across the Life Span S [0.50]**

This course examines sexual issues and clinical interventions from a life span perspective. Focusing upon theory, research and clinical interventions it explores the relationship between issues in sexual development and sexual functioning. This course is offered in a one-week intensive format in coordination with the Guelph Sexuality Conference.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6080 Power Relations and Diversity in CFT U [0.50]**

This course provides a foundational review of current perspectives within and outside of the couple and family therapy literature that relate to the intersection of culture (race, ethnicity, class, gender, sexuality, ability, etc.) and oppression. Attention is given to the translation of knowledge about power relations and diversity into practice when working as a couple and family therapist with clients and professional colleagues.

*Restriction(s):* Instructor consent required for non Couple and Family Therapy students.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6090 Practicum in Couple and Family Therapy\* U [1.00]**

This course features supervised clinical practice in couple and family therapy. It involves regular clinical work with couples, families, and individuals. Students meet with faculty each week for up to six hours of supervision. Supervision over the semester will involve both group and individual/dyadic meetings.

*Restriction(s):* Available only to students in the Couple and Family Therapy program

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6095 Externship in Couple and Family Therapy S [1.00]**

This is an advanced clinical practicum in Couple and Family Therapy. Students are placed in a community agency where they accumulate 10-15 hours per week (over 3 days) of direct clinical contact time. All clinical work is supervised by a clinical supervisor on site. Travel to the community agency is usually required.

*Prerequisite(s):* FRAN\*6090

*Restriction(s):* Available only to students in the Couple and Family Therapy field of study

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6100 Clinical Issues in Couple and Family Therapy\* U [0.50]**

This course is taken four times in the two year program of study. Each offering features selected clinical issues; examination of each issue will include the socio-cultural context, theoretical location, and conceptual and practical implications for couple and family therapy.

*Restriction(s):* Available only to students in the Couple and Family Therapy field of study.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6120 Theories and Methods of Family Therapy I W [0.50]**

This course will offer an historical perspective on the development of the field of couple and family therapy beginning with family systems therapy, through intergenerational models, to current constructionist approaches. Intervention methods consistent with these conceptual frameworks are examined.

*Offering(s):* Offered in alternate years.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6130 Theories and Methods of Family Therapy II F [0.50]**

This course explores clinical theory and methods associated with structural, strategic and solution focused models of couple and family therapy. Feminist perspectives and approaches are used to examine power and gender dynamics in therapy.

*Offering(s):* Offered in alternate years.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6140 Professional Issues U [0.50]**

An exploration of ethics in couple and family therapy; legal issues in the practice of family therapy; and professional issues regarding identity, licensure and practice.

*Restriction(s):* Instructor consent required for non Couple and Family Therapy students.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6160 Introduction to Systemic Practice in Couple and Family Therapy F [0.50]**

An exploration of family process to understand diversity in family structures and functioning from a systemic conceptual framework. Applied activities in the associated tutorial section focus on developing basic communication, observational, and therapy skills. Student participation in small learning groups supports skill development and integration of theory and practice.

*Restriction(s):* Available only to students in the Couple and Family Therapy field of study

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6180 Research Issues in Couple and Family Therapy F [0.50]**

The focus of this course is on research in Couple & Family Therapy, including issues related to evidence-based practice, therapeutic outcome, and therapeutic process. A selected review of quantitative and qualitative research methods and exemplary research is included.

*Offering(s):* Offered in alternate years.

*Restriction(s):* Instructor consent required for non FRAN students.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6200 Special Topics in Family Relations and Human Development U [0.50]**

Contemporary research in family relations and human development. Research topics vary.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6210 Program Evaluation U [0.50]**

An examination of the theoretical principles and practical applications of evaluation issues and strategies. Special attention is given to services for children and families across the life span. (Offered in alternate years.)

*Offering(s):* Offered in alternate years.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6221 Evidence-Based Practice and Knowledge Translation U [0.50]**

The principles of evidence-based practice are examined using various examples of psychosocial, behavioural and health interventions. The levels of evidence, criteria for efficacy and effectiveness, and the importance and limitations of evidence-based practice will be evaluated. The process of moving knowledge derived from high quality evidence into practice will be appraised throughout the course. Students will have the opportunity to build knowledge in their own areas of interest.

*Offering(s):* Offered in alternate years.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6260 Practicum in Family Relations and Human Development U [0.50]**

Supervised practicum experience in a variety of agencies or services. Interested students are encouraged to discuss this option with their faculty advisor. Placements are arranged on an individual basis subject to the requirements of students' programs of study and must be negotiated with faculty in advance of registration.

*Offering(s):* Offered in alternate years.

*Restriction(s):* Available to FRAN graduate students only.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6270 Issues in Family-Related Social Policy U [0.50]**

This course investigates definitions of social policy, comparative family-related social policy, selected issues in Canadian family policy and frameworks for analysis of social policy. Issues in policy-related research are also explored.

*Offering(s):* Offered in alternate years.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6280 Theorizing in Family Relations and Human Development U [0.50]**

An examination of the meaning of science and theory in relation to the study of families and human development. Included is a discussion of the major social science paradigms including positivism, critical theory, social constructionism and post-modernity. This course is designed for doctoral students.

*Offering(s):* Offered in alternate years.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6310 Family Relationships Across the Life Span U [0.50]**

Considers theory and research on family and social relationships across the life span. Examples may include: parent-child, sibling, grandparent, couples, etc.

*Offering(s):* Offered in alternate years.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6320 Human Sexuality Across the Life Span U [0.50]**

This course covers research, theoretical and substantive issues relevant to studying human sexuality across the life span. Topics include: child and adolescent sexuality, sexual identity, sexuality in adulthood and old age, sexual assault, international research and sex education.

*Offering(s):* Offered in alternate years.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6330 Research Seminar U [0.25]**

Research literature in Family Relations and Human Development. Registration for this course occurs in semester 5 for MSc students and semester 7 for PhD students. Thesis students attend weekly seminars in each of the Fall and Winter semesters of their program of study.

*Restriction(s):* Available to FRAN graduate students only.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6340 Interdisciplinary Perspectives in Family Relations and Human Development U [0.50]**

This course acquaints students with the diverse disciplinary perspectives used in the study of family relations and human development. Substantive research issues provide a forum for integrating the separate perspectives and understanding the reciprocal relationship between individual and family growth and development.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6350 Major Research Paper U [1.00]**

The major research paper is an option open **only** to MSc students within the Couple and Family Therapy area. Students must demonstrate their ability to accurately synthesize and critically evaluate the literature in a specific area of interest. Detailed guidelines are provided.

*Restriction(s):* Available only to students in the Couple and Family Therapy field of study.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6370 Social Development During Childhood and Adolescence U [0.50]**

A detailed study of factors important to social development and competence from infancy through adolescence.

*Offering(s):* Offered in alternate years.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6440 Applied Factor Analysis & Structural Equation Modelling U [0.50]**

This course introduces students to exploratory factor analysis, confirmatory factor analysis, and structural equation modeling. Topics include: model selection and validation, multiple group models, measurement equivalence/invariance and latent mean analyses. This course is data-driven and students will learn through hands-on analytic experiences accompanied by in-class lectures and readings.

*Offering(s):* Offered in alternate years.

*Prerequisite(s):* FRAN\*6000, FRAN\*6010

*Restriction(s):* Consent required for non-FRAN students.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6510 Nutrition in the Community W [0.50]**

Concepts and knowledge of nutrition as applied in community and public health nutrition. Examination of current programs in applied nutrition.

*Restriction(s):* Consent required for non-FRAN students.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6550 Research Seminar U [0.25]**

Research literature in applied nutrition. Registration for this course occurs in semester 5 for MSc students and semester 7 for PhD students. Students attend weekly seminars in each of the Fall and Winter semesters of their program of study.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6560 Special Topics in Applied Human Nutrition U [0.50]**

Contemporary research and special topics in applied human nutrition. Course content is unique to each offering.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6610 Advances in Clinical Nutrition/Assessment I F [0.50]**

An advanced overview of nutritional assessment and clinical nutrition with emphasis on issues relevant to community based and non-acute care settings. Nutrition assessment methods will be discussed in depth along with emerging issues. Emphasis on clinical nutrition will be integration of theory and practice.

*Restriction(s):* For MAN and AHN students only.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6710 Practicum in Applied Human Nutrition I F [1.50]**

This course provides a practicum of 3 days per week with a dietetic-related agency or organization to develop and perform dietetic competencies (internship experience). In weekly seminars, students discuss and reflect on theory and dietetic practice issues.

*Restriction(s):* For MAN students only.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6720 Practicum in Applied Human Nutrition II W [1.50]**

This course provides a practicum of 3 days per week with a dietetic-related agency or organization to develop and perform dietetic competencies (internship experience). In weekly seminars, students discuss and reflect on theory and dietetic practice issues

*Prerequisite(s):* FRAN\*6710

*Restriction(s):* For MAN students only.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6730 Practicum in Applied Human Nutrition III S [1.50]**

This course provides a practicum of 3 days per week with a dietetic-related agency or organization to develop and perform dietetic competencies (internship experience). In weekly seminars, students discuss and reflect on theory and dietetic practice issues.

*Prerequisite(s):* FRAN\*6720

*Restriction(s):* For MAN students only.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6740 Foodservice Management in Healthcare W [0.50]**

Students will critically assess and integrate foodservice management literature and theories to address the multifactorial issues in foodservice operations in healthcare. Case studies presented by expert guests and operational projects will support student synthesis and evaluation of the literature.

*Restriction(s):* For MAN and AHN students only.

*Department(s):* Department of Family Relations and Applied Nutrition

**FRAN\*6750 Final Project in Applied Human Nutrition S,F,W [0.50]**

This supervised project includes a written report and oral presentation of an applied research project or a proposal for a research project, consisting of a literature view, purpose, methodology, and analysis plan. Students register in and work on the project for 3 consecutive semesters.

*Restriction(s):* For MAN students only.

*Department(s):* Department of Family Relations and Applied Nutrition

## Food, Agricultural and Resource Economics

### FARE\*6100 The Methodologies of Economics W [0.50]

Alternative views on the methodology of economics are reviewed and assessed. The process of problem identification in the development of a research project proposal is investigated.

*Department(s):* Department of Food, Agricultural and Resource Economics

### FARE\*6140 Major Paper in Food, Agricultural and Resource Economics U [1.00]

The major paper is an option only available to MFARE students registered in the course work master program. An original research project related to the specialization of choice in food, agricultural and resource economics will be undertaken. The project will include preparation of a written paper and an oral presentation of the findings to the faculty.

*Restriction(s):* Restricted to students in the course-based MFARE program in FARE

*Department(s):* Department of Food, Agricultural and Resource Economics

### FARE\*6380 Applied Microeconomics for Agricultural Economists F [0.50]

The objective of this course is to foster a deeper understanding of standard microeconomic concepts and their application to a wide variety of topics in food, agricultural, and resource economics. Emphasis is placed on what tool(s) to use in a wide variety of circumstances to address real life problems. Topics will include decisions by firms and consumers, market equilibrium, and production decisions.

*Prerequisite(s):* ECON\*2770 or equivalent, ECON\*2310 or equivalent, ECON\*3740 or equivalent

*Department(s):* Department of Food, Agricultural and Resource Economics

### FARE\*6400 Advanced Topics in Agricultural Economics U [0.50]

The application of economic theory and various contemporary tools of economic analysis in solving production problems in the agricultural sector of the economy.

*Department(s):* Department of Food, Agricultural and Resource Economics

### FARE\*6600 Food Security and the Economics of Agri-Food Systems in Developing Countries F [0.50]

The aim of this course is to understand the nature of food security in developing countries and relations with the economic performance of the agri-food system. Towards this aim, the course focuses on both the agri-food system's role in the supply of nutritious food and its importance as a source of livelihood and as a driver of overall processes of economic development.

*Prerequisite(s):* ECON\*1050 or equivalent, ECON\*1100 or equivalent

*Department(s):* Department of Food, Agricultural and Resource Economics

### FARE\*6720 Readings in Agricultural Economics F,S,W [0.50]

A reading course on selected topics of special interest. May be offered to individual students or to groups of students in any semester.

*Department(s):* Department of Food, Agricultural and Resource Economics

### FARE\*6800 Seminar in Agricultural Economics U [0.00]

Students in the MSc and MFARE major research paper option program must give two presentations at the annual research symposium; one in their first year outlining their research plan, and one in their second year on their thesis research results or major research paper.

*Department(s):* Department of Food, Agricultural and Resource Economics

### FARE\*6910 Applied Policy Analysis I W [0.50]

An overview of domestic and international agri-food policies and an introduction to the concepts and methods used to evaluate domestic trade policies.

*Prerequisite(s):* FARE\*6380

*Department(s):* Department of Food, Agricultural and Resource Economics

### FARE\*6920 Applied Policy Analysis II U [0.50]

A presentation and evaluation of advanced quantitative agri-food policy models and selected special topics related to domestic and trade policy evaluation.

*Prerequisite(s):* AGE\*6910 or FARE\*6910 or equivalent

*Co-requisite(s):* ECON\*3710

*Department(s):* Department of Food, Agricultural and Resource Economics

### FARE\*6930 Food Firms, Consumers and Market I F [0.50]

This course examines the application of microeconomic theory to food markets. Topics covered include: optimizing behaviour by economic agents, the certainty equivalent profit model and decision making under risk, optimal capital replacement models and their application to food system economics, consumer behaviour with respect to food products and behaviour with respect to food products and behaviour of marketing intermediaries and food processors. New developments in the economic theory of the form are surveyed.

*Prerequisite(s):* ECON\*2310 or equivalent, ECON\*3740 or equivalent

*Department(s):* Department of Food, Agricultural and Resource Economics

### FARE\*6940 Food Firms, Consumers and Markets II U [0.50]

This course builds on Food Firms, Consumers and Markets I by extending the breadth and depth of student's understanding and scope of economic analysis. Advanced techniques in producer and consumer theory, as well as advance market analysis techniques are presented and utilized. Understanding of the research process and advanced methods is emphasized throughout.

*Prerequisite(s):* AGE\*6930 or FARE\*6930

*Department(s):* Department of Food, Agricultural and Resource Economics

### FARE\*6950 Natural Resource Economics I W [0.50]

Natural Resources I introduces conventional theoretical modeling approaches to renewable resources, e.g. fisheries & forestry. Seminal theoretical literature is discussed. Emphasis is placed on setting up economic models, deriving and interpreting general results. Applied methods include dynamic optimization and regression analysis. Additional topics include Land Economics and the property rights approach.

*Prerequisite(s):* FARE\*6380

*Department(s):* Department of Food, Agricultural and Resource Economics

### FARE\*6960 Natural Resource Economics II U [0.50]

Natural Resources II reviews & extends conventional theoretical modeling approaches to renewable resources, e.g. fisheries & forestry. Seminal literature is reviewed and contemp. theoretical work and empirical papers discussed. Emphasis on extending economic models addressing natural resource issues - uncertainty, externalities & policy instruments, and derive reduced-form versions of forestry & fishery for empirical estim. & analysis. Primary method of math analysis involves dyn. opt. techniques. Detailed math derivations & proofs expected. Also- extinction, climate change, carb sequest.

*Prerequisite(s):* AGE\*6950 or FARE\*6950

*Department(s):* Department of Food, Agricultural and Resource Economics

### FARE\*6970 Applied Quantitative Methods for Agricultural Economists F [0.50]

This course exposes students to the empirical tools agricultural economists use when conducting research. Emphasis is placed on what tool(s) to use in a variety of circumstances. Topics covered will include advanced econometric techniques, optimization and simulation modelling. Students will also be exposed to the different quantitative software packages used in empirical research.

*Prerequisite(s):* ECON\*3740 or equivalent and ECON\*2770 or equivalent

*Department(s):* Department of Food, Agricultural and Resource Economics

### FARE\*6980 Agricultural Trade Relations W [0.50]

An examination of the institutional, theoretical and empirical aspects of international agri-food trade.

*Prerequisite(s):* FARE\*6380

*Department(s):* Department of Food, Agricultural and Resource Economics

### FARE\*6990 Applied Quantitative Methods for Agricultural Economists II W [0.50]

Students will develop econometric methods and models that will provide solutions to a "real world" economic problem posed by an economic firm. Along a second vein, students will replicate the empirical findings of a published paper central to their thesis. Advanced quantitative methods will be introduced.

*Prerequisite(s):* FARE\*6970

*Department(s):* Department of Food, Agricultural and Resource Economics

## Food Safety and Quality Assurance

### FSQA\*6000 Food Safety and Quality Assurance Seminar F [0.50]

Provides experiential training in forms of communication that are likely to be required in professional or academic careers in food science and technology.

*Restriction(s):* This course is open only to students in the MSc FSQA program.

*Department(s):* Department of Food Science

### FSQA\*6100 Food Law and Policy F [0.50]

The fundamentals of food policy development and Canadian and international food law are learned and practiced through online presentations, independent study and online interactions with other students and industry professionals.

*Offering(s):* Offered through Distance Education format only.

*Department(s):* Department of Food Science

### FSQA\*6150 Food Quality Assurance Management W [0.50]

Examination and review of principles and concept of quality assurance and their application to consumer products and services. Topics include applied aspects of total-quality management principles.

*Offering(s):* Offered through Distance Education format only.

*Department(s):* Department of Food Science



<b>FSQA*6200 Food Safety Systems Management W [0.50]</b>
Food safety systems are studied in four modules. (1) A brief review of plant hygiene and HACCP principles. Students with insufficient background will do supplemental study in these areas; (2) HACCP implementation and verification; (3) HACCP-based food safety programs in Canada; and (4) International Food Safety Management Systems. <i>Offering(s):</i> Offered through Distance Education format only. <i>Department(s):</i> Department of Food Science
<b>FSQA*6500 Food Safety and Quality Assurance Research Project S,F,W [1.00]</b>
An original research project related to food safety and quality assurance which includes the preparation of a written report suitable for publication and an oral presentation of the findings to the graduate faculty. <i>Department(s):</i> Department of Food Science
<b>FSQA*6600 Principles of Food Safety and Quality Assurance F [0.50]</b>
An integrated approach to factors affecting food safety and quality including microbial and chemical contamination is provided. Major food-borne disease outbreaks are studied as examples. Modern methods of quality management to minimize contamination of processed foods is discussed. <i>Offering(s):</i> Offered through Distance Education format only. <i>Department(s):</i> Department of Food Science

## Food Science

<b>FOOD*6190 Advances in Food Science U [0.50]</b>
Topics of current research interest and importance are examined. A project supervised by a faculty member is undertaken, the topic of which is chosen after considering the interests of the student. <i>Department(s):</i> Department of Food Science
<b>FOOD*6300 Food Science Communication U [0.50]</b>
This course provides experiential training in forms of communication that are likely to be required in professional or academic careers in food science and technology. <i>Restriction(s):</i> This course is only open to students in the MSc Food program. <i>Department(s):</i> Department of Food Science
<b>FOOD*6710 Special Topics in Food Chemistry U [0.25]</b>
This is a modular course in which several faculty members lecture and/or lead discussions in current topics in food chemistry. Students will complete an independent review in the area of food chemistry, participate in discussions, complete case studies, and present talks related to food chemistry. <i>Department(s):</i> Department of Food Science
<b>FOOD*6720 Special Topics in Food Microbiology U [0.25]</b>
This is a modular course in which several faculty members lecture and/or lead discussions in current topics in food microbiology. Students will complete an independent review in the area of food microbiology, participate in discussions, complete case studies, and present talks related to food microbiology. <i>Department(s):</i> Department of Food Science
<b>FOOD*6730 Special Topics in Food Physics U [0.25]</b>
This is a modular course in which several faculty members lecture and/or lead discussions in current topics in food physics. Students will complete an independent review in the area of food physics, participate in discussions, complete case studies, and present talks related to physics in foods. <i>Department(s):</i> Department of Food Science
<b>FOOD*6740 Special Topics in Food Processing U [0.25]</b>
This is a modular course in which several faculty members lecture and/or lead discussions in current topics in food processing. Students will complete an independent review in the area of food processing, participate in discussions, complete case studies, and present talks related to conventional and emerging methodologies for the processing of foods. <i>Department(s):</i> Department of Food Science
<b>FOOD*6750 Special Topics in Food for Health U [0.25]</b>
This is a modular course in which several faculty members lecture and/or lead discussions in current topics in food for health. Students will complete an independent review in the area of food and health, participate in discussions, complete case studies, and present talks related to the impact of food for health. <i>Department(s):</i> Department of Food Science
<b>FOOD*6760 Special Topics in Food Quality U [0.25]</b>
This is a modular course in which several faculty members lecture and/or lead discussions in current topics in food quality. Students will complete an independent review in the area of food quality, participate in discussions, complete case studies, and present talks related to quality of foods. <i>Department(s):</i> Department of Food Science

<b>FOOD*6770 PhD Research Writing in Food Science F,W [0.50]</b>
PhD Research Writing in Food Science provides experiential training in forms of communication that are likely to be required in professional or academic careers, helps PhD students position their research in the broader context of Food Science and Technology, and helps prepare students for the qualifying examination. <i>Restriction(s):</i> Only for Ph.D. students in Food Science Instructor consent required. <i>Department(s):</i> Department of Food Science

## French

<b>FREN*6000 Research Methods Seminar F [0.50]</b>
This course will introduce students to the field and research methods of various disciplines and of interdisciplinary studies, and it will familiarize them with field-relevant research skills and methodologies. <i>Department(s):</i> School of Languages and Literatures
<b>FREN*6020 Topics in French Literature U [0.50]</b>
This course will focus on European French literature in relation to thematic approaches including: gender and feminism, transgression, (post)colonialisms, identity and alterity. <i>Department(s):</i> School of Languages and Literatures
<b>FREN*6021 Topics in Quebec and French-Canadian Literatures U [0.50]</b>
This course will focus on how literature functions as a socio-political institution in Quebec and in French Canada. It will also deal with elements that relate more broadly to identity, reception theory and semiotics. <i>Department(s):</i> School of Languages and Literatures
<b>FREN*6022 Topics in Caribbean and African Literatures U [0.50]</b>
This course focuses on the works of major Francophone African and Caribbean fictional and theoretical works with particular attention being given to links between notions of cultural hierarchies, identity, métissage and creolization. <i>Department(s):</i> School of Languages and Literatures
<b>FREN*6030 Topics in Translation U [0.50]</b>
This course deals with various aspects of literary translation, including theories of translation, the role of reading in translation, the active translation of a text from English into French, and the reflection upon the influence of each of these categories on the others. <i>Department(s):</i> School of Languages and Literatures
<b>FREN*6031 Topics in Intermediality U [0.50]</b>
An investigation of the intersection of artistic expression taking place in literature, theatre, film, television and new media and the various effects produced by the interaction of two or more media. <i>Department(s):</i> School of Languages and Literatures
<b>FREN*6041 Topics in French and French-Canadian Sociolinguistics U [0.50]</b>
This course will allow students to explore, within the framework of sociolinguistics and applied linguistics, the relationship between language and society, with particular reference to French and the French-speaking world. <i>Department(s):</i> School of Languages and Literatures
<b>FREN*6042 Topics in FSL Pedagogy U [0.50]</b>
This compulsory course covers theories, methods, and real-life applications of the teaching/learning of a second language, specifically French. <i>Department(s):</i> School of Languages and Literatures
<b>FREN*6050 Reading Course S [0.50]</b>
An independent study course, the nature and content of which is agreed upon between the student and the professor offering the course. Subject to the approval of the graduate program coordinator. <i>Department(s):</i> School of Languages and Literatures
<b>FREN*6051 Major Research Paper U [0.50]</b>
This independent, required course allows students to pursue research in an area of particular interest to them in the field of French Studies. A compulsory major paper 40 pages in length will be required. <i>Prerequisite(s):</i> FREN*6000 <i>Department(s):</i> School of Languages and Literatures
<b>FREN*6053 Practicum in French Studies S [0.50]</b>
This course will allow students to engage in volunteer service in a francophone community. Students will be asked to forge links between knowledge acquired in the academic setting and problem-based learning in a real-world context. A list of authorized community partners will be provided. <i>Prerequisite(s):</i> FREN*6000 and FREN*6042 <i>Department(s):</i> School of Languages and Literatures



## Geography

### **GEOG\*6060 Special Topics in Geography S,F,W [0.50]**

A course on some specific topic not covered by the regular graduate courses for which there are both available faculty and sufficient interest among students.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Geography

### **GEOG\*6090 Geographical Research Methods I F [0.50]**

A review of philosophies and research methods in geography. The development and presentation of a context paper for the thesis or research project.

*Department(s):* Department of Geography

### **GEOG\*6091 Geographical Research Methods II W [0.50]**

A review of philosophies and research methods in geography. The development and presentation of a research proposal for the thesis or research project.

*Prerequisite(s):* GEOG\*6090

*Department(s):* Department of Geography

### **GEOG\*6100 Geographic Scholarship and Research F-W [0.50]**

A review of geographic scholarship including conceptual, theoretical and methodological issues in resource assessment, biophysical resources and rural socio-economic resources.

*Offering(s):* The course extends over two semesters (Fall and Winter).

*Department(s):* Department of Geography

### **GEOG\*6180 Research Project in Geography S,F,W [1.00]**

The preparation and presentation of a report on the research project approved in GEOG\*6090.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Geography

### **GEOG\*6281 Environmental Management and Governance F [0.50]**

Analysis and evaluation of environmental management and governance using geographical approaches. Emphasis is on socio-economic theories, concepts and methods which offer a more comprehensive and integrative basis for understanding environmental decisions.

*Restriction(s):* Signature required for non-geography students.

*Department(s):* Department of Geography

### **GEOG\*6330 Biotic Processes and Biophysical Systems U [0.50]**

Investigation of biotic processes influencing the composition, structure and distribution of plant and animal communities and of approaches to biophysical systems analysis, focusing on environmental system interaction at the landscape scale.

*Department(s):* Department of Geography

### **GEOG\*6340 Human-Environment Relations W [0.50]**

A critical review of philosophies, concepts and analytical methods for analysis and management of systems involving the interaction of environmental processes and human spatial activity.

*Department(s):* Department of Geography

### **GEOG\*6450 Development Geography U [0.50]**

Group identities at various scales in relation to concepts of territory and territoriality, and their changing impact on the world's political map.

*Offering(s):* Offered in alternate years.

*Department(s):* Department of Geography

### **GEOG\*6550 Environmental Modelling W [0.50]**

This course aims to provide students with an understanding of the processes and techniques involved in environmental modeling practice and will focus on the power and limitations of existing models.

*Department(s):* Department of Geography

### **GEOG\*6610 Global Hydrology F [0.50]**

An examination of global environmental hydrology including precipitation, evaporation, subsurface water and runoff. Physical processes, measurement, analytical techniques and modelling strategies will be considered in the context of global change.

*Department(s):* Department of Geography

## History

### **HIST\*6000 Historiography I F [0.50]**

This course will introduce students to some of the essential components of the historical process as exemplified by the literature produced prior to 1914. It will also assess history as a cognitive discipline in contemporary society. While the scope of the course will extend from ancient times to the eve of World War I, emphasis will be placed on 19th-century historiography.

*Department(s):* Department of History

### **HIST\*6020 Historiography II W [0.50]**

An examination of major examples of recent historical methodology, including works in cultural and social history. The student is also expected to develop and present a thesis proposal.

*Department(s):* Department of History

### **HIST\*6040 Special Reading Course U [0.50]**

Students selecting this course should speak to individual instructors to arrive at appropriate topics.

*Department(s):* Department of History

### **HIST\*6150 Scottish Archival Research U [0.50]**

This course will comprise of classroom teaching, practical instruction and work-placement within the Scottish Collection of the University of Guelph's Archives. It will introduce students to basic skills in the digitization of sources and teach competence in conservation, record creation and archival research.

*Restriction(s):* Student numbers are limited by the number of placements available in the University Archives.

*Department(s):* Department of History

### **HIST\*6190 Topics in Scottish History I U [0.50]**

This course will introduce students to selected aspects of medieval and early modern Scottish history and historiography, including the use of source materials, and practical training involving manuscripts in the University Archives.

*Department(s):* Department of History

### **HIST\*6191 Scottish History I Research U [0.50]**

Continuation of HIST\*6190 in which students prepare an in-depth research paper based on primary sources.

*Department(s):* Department of History

### **HIST\*6200 Scottish Highland and Lowland History U [0.50]**

This course will introduce students to selected aspects of Scottish history and historiography considered from a Highlands perspective and a (sometimes significantly different) Lowlands perspective, including issues surrounding the selection and use of source materials, and provide practical training involving manuscripts in the University Archives.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of History

### **HIST\*6201 Scottish Highland and Lowland Research U [0.50]**

Continuation of HIST\*6200 in which students prepare an in-depth research paper based on primary sources.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of History

### **HIST\*6230 Canada: Culture and Society U [0.50]**

A course that examines the current historiography of selected aspects of Canadian history. Topics will vary with the expertise of individual instructors.

*Department(s):* Department of History

### **HIST\*6231 Canada: Culture and Society Research U [0.50]**

Continuation of HIST\*6230 in which students prepare an indepth research paper based on primary sources.

*Department(s):* Department of History

### **HIST\*6280 Canada: Community and Identity U [0.50]**

A course that examines the current historiography of selected aspects of Canadian history. Topics will vary with the expertise of individual instructors.

*Department(s):* Department of History

### **HIST\*6281 Canada: Community and Identity Research U [0.50]**

Continuation of HIST\*6280 in which students prepare an indepth research paper based on primary sources.

*Department(s):* Department of History

### **HIST\*6290 Topics in North American History U [0.50]**

Depending on the expertise of the instructor, this course may concentrate on either the United States or Canada, or it may select an historical theme or themes common to the larger continent.

*Department(s):* Department of History

### **HIST\*6291 North American History Research U [0.50]**

Continuation of HIST\*6290 in which students prepare an indepth research paper based on primary sources.

*Department(s):* Department of History

<b>HIST*6300 Topics in Modern European History I U [0.50]</b>
This seminar course will focus on selected aspects of the political and social history of Europe between 1789 and 1989. Topics to be examined will vary according to the expertise of the faculty and the interest of the students. <i>Department(s):</i> Department of History
<b>HIST*6301 Modern European History Research I U [0.50]</b>
Continuation of HIST*6300 in which students prepare an in-depth research paper based on primary sources. <i>Department(s):</i> Department of History
<b>HIST*6310 Topics in Modern European History II U [0.50]</b>
This seminar course will focus on selected aspects of the political and social history of Europe between 1789 and 1989. Topics to be examined will vary according to the expertise of the faculty and the interest of the students. <i>Department(s):</i> Department of History
<b>HIST*6311 Modern Europe II Research U [0.50]</b>
Continuation of HIST*6310 in which students prepare an in-depth research paper based on primary sources. <i>Department(s):</i> Department of History
<b>HIST*6360 History of Sexuality and Gender U [0.50]</b>
This course will examine the history of gender and/or sexuality in different cultures, paying close attention to various theoretical approaches to understanding the history of gender and/or sexuality. The chronological and geographic focus of the course may vary according to the interests and expertise of the instructor. <i>Department(s):</i> Department of History
<b>HIST*6361 Sexuality History Research U [0.50]</b>
Continuation of HIST*6360 in which students prepare an in-depth research paper based on primary sources. <i>Department(s):</i> Department of History
<b>HIST*6370 Topics in Cultural History U [0.50]</b>
History 6370 investigates the practices of cultural history and the utility of the cultural history paradigm in the investigation of topics including politics and power, religion, war, empire, gender, class, 'race', ethnicity, the environment, and consumption. <i>Department(s):</i> Department of History
<b>HIST*6371 Cultural History Research U [0.50]</b>
Continuation of HIST*6370 in which students prepare an in-depth research paper based on primary sources. <i>Department(s):</i> Department of History
<b>HIST*6380 Topics in Early Modern European History U [0.50]</b>
This seminar course examines current issues in early modern European history as selected by the instructor(s). Participants review current research and historiography, discuss the principal debates, and develop their own perspectives through encounters with primary source materials. <i>Department(s):</i> Department of History
<b>HIST*6381 Early Modern European History Research U [0.50]</b>
Continuation of HIST*6380 in which students prepare an in-depth research paper based on primary sources. <i>Department(s):</i> Department of History
<b>HIST*6400 Major Paper U [1.00]</b>
This is to be a major piece of research, based on the extensive use of primary sources. An oral examination of this work is required. <i>Department(s):</i> Department of History
<b>HIST*6450 Quantitative Evidence and Historical Methods U [0.50]</b>
An overview of the use for historical research of quantitative evidence and methodologies. <i>Department(s):</i> Department of History
<b>HIST*6500 Topics in Global History U [0.50]</b>
This is a topical course, that explores the history of processes that take place on a worldwide scale. These may include social, cultural, economic, or environmental processes. <i>Department(s):</i> Department of History
<b>HIST*6501 Global History Research U [0.50]</b>
Continuation of HIST*6500 in which students prepare an in-depth research paper based on primary sources. <i>Department(s):</i> Department of History

<b>HIST*6520 Topics in Latin American History U [0.50]</b>
In-depth study of a particular event or process in Latin American history. Topics may include: religions, women, race and ethnicity, environment issues, intellectual history, or have a regional or temporal focus. <i>Department(s):</i> Department of History
<b>HIST*6521 Latin American History Research U [0.50]</b>
Continuation of HIST*6520 in which students prepare an in-depth research paper based on primary sources. <i>Department(s):</i> Department of History
<b>HIST*6550 Rural History U [0.50]</b>
The countryside was not the city in overalls; it had its own complex trajectory intersecting with the rest of society in interesting and surprising ways. This seminar course introduces students to the economic, social, and cultural themes of rural history. Readings come from a variety of disciplines and explore the environment, agriculture, other resource-based activities, gender, cultural traditions, material artifacts and consumption. These themes will be related to community, identity and the countryside's relationship to the larger society. <i>Department(s):</i> Department of History
<b>HIST*6560 Rural History Research U [0.50]</b>
Continuation of HIST*6550 in which students prepare an in-depth research paper based on primary sources. <i>Prerequisite(s):</i> HIST*6550 <i>Restriction(s):</i> Instructor consent required. <i>Department(s):</i> Department of History
<b>HIST*6570 Health, Science, Medicine U [0.50]</b>
This course will examine the history of health, science, and medicine. Topics may include the histories of mental illness, epidemic diseases, disability, public health, or alternative medicine. It will address expert and popular constructions of health, illness and science. <i>Department(s):</i> Department of History
<b>HIST*6580 Health, Science, Medicine Research U [0.50]</b>
Continuation of HIST*6570 in which students prepare an in-depth research paper based on primary sources. <i>Prerequisite(s):</i> HIST*6570 <i>Restriction(s):</i> Instructor consent required. <i>Department(s):</i> Department of History
<b>HIST*6590 Public History, Heritage, and Historical Consciousness U [0.50]</b>
This seminar course will examine how history is displayed in public and the formation of historical consciousness. Areas of public history to be discussed may include digital history, museum exhibits, television and film productions, historical re-enactments, commemorations, celebrations, public holidays, monuments and historic sites. <i>Department(s):</i> Department of History
<b>HIST*6600 Public History Research U [0.50]</b>
Continuation of HIST*6590 in which students prepare an in-depth research paper based on primary sources. <i>Prerequisite(s):</i> HIST*6590 <i>Restriction(s):</i> Instructor consent required. <i>Department(s):</i> Department of History
<b>HIST*6610 Histories of Tourism and Travel U [0.50]</b>
This seminar course will explore the history of modern tourism, examining the distinctions between travel and tourism in historical discourses and historiography, and engaging extensively with primary source material to examine the sector's evolution in trans-national perspective. Emphasis is placed on the development of key institutions, the influence of political environments, intercultural encounters, environmental impacts and global citizenship. <i>Department(s):</i> Department of History
<b>HIST*6620 Tourism, and Travel Histories Research U [0.50]</b>
Continuation of HIST*6610 in which students prepare an in-depth research paper based on primary sources. <i>Department(s):</i> Department of History
<b>HIST*7000 Professional Development Seminar U [0.00]</b>
All doctoral students attend the professional development seminar in their first year of the program. The seminar is designed to prepare students for success as a PhD student for their future careers. <i>Department(s):</i> Department of History

<b>HIST*7010 Qualifying Examination U [0.50]</b>
This oral examination is designed to assess 1) the student's knowledge of the subject matter and ability to integrate the material read and 2) the student's ability and promise in research.
<i>Department(s):</i> Department of History
<b>HIST*7030 Language Requirement U [0.00]</b>
A written demonstration of the student's knowledge of written French (or other appropriate second language).
<i>Department(s):</i> Department of History
<b>HIST*7040 Major Field U [0.50]</b>
The examination written following completion of the major field seminar and before the oral qualifying examination.
<i>Department(s):</i> Department of History
<b>HIST*7070 Thesis Proposal U [0.00]</b>
A written (up to 2,000 words, including citations) and oral demonstration of the proposed dissertation. The proposal will include a statement of the overall thesis of the dissertation, a description/discussion of the major research question(s), a review of the principal primary/archival sources being used, a chapter or topic outline, and a clear explanation of the originality of the thesis. Graded SAT/UNS.
<i>Restriction(s):</i> For PhD students only.
<i>Department(s):</i> Department of History
<b>HIST*7080 Colloquium U [0.00]</b>
The colloquium is a public presentation of original research, normally a chapter, significant portion, or summary of the student's thesis. Graded SAT/UNS.
<i>Restriction(s):</i> For PhD students only.
<i>Department(s):</i> Department of History
<b>HIST*7100 Canadian History Major Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7120 Scottish History Major Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7140 Early Modern European History Major Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7150 Modern European History Major Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7170 Race, Slavery, and Imperialism Major Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7190 War and Society Major Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7250 Cold War Era History Major Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7260 Medieval History Major Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7270 World History Major Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7280 Indigenous Histories of Turtle Island Major Seminar U [1.00]</b>
<i>Restriction(s):</i> Instructor consent required.
<i>Department(s):</i> Department of History
<b>HIST*7590 War and Society Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7600 Canadian History Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7610 British History Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7620 Scottish History Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7630 Community Studies Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7640 Early Modern European History Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History

<b>HIST*7650 Modern European History Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7660 Gender, Women and Family Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7670 Race, Slavery, and Imperialism Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7680 United States History Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7690 International History Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7700 Science, Medicine and Technology Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7710 Other Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7750 Cold War Era History Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7760 Medieval History Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7770 World History Minor Seminar U [1.00]</b>
<i>Department(s):</i> Department of History
<b>HIST*7780 Indigenous Histories of Turtle Island Minor Seminar U [1.00]</b>
<i>Restriction(s):</i> Instructor consent required.
<i>Department(s):</i> Department of History
<b>HIST*7990 Doctoral Thesis U [0.00]</b>
Students are required to write and successfully defend a thesis of such cogency and originality as will represent a significant contribution to knowledge. The thesis will normally be between 50,000 and 90,000 words in length. University of Guelph regulations and procedures govern this process.
<i>Department(s):</i> Department of History

## Hospitality and Tourism Management

<b>HTM*6050 Management Communications U [0.50]</b>
Examination of the theory, function and practice of managerial communications with particular emphasis on developing communication strategies and skills.
<i>Restriction(s):</i> CBE Executive Programs students only
<i>Department(s):</i> Executive Programs
<b>HTM*6110 Foundations of Management Leadership U [0.50]</b>
This course will enhance students' interpersonal skills, as well as their knowledge and understanding of the theory and research underlying effective team management and collaboration on an organization. Experiential approaches are used to enhance managerial skills.
<i>Restriction(s):</i> CBE Executive Programs students only
<i>Department(s):</i> Executive Programs
<b>HTM*6120 Special Topics in Hospitality Organizational Behaviour U [0.50]</b>
Advanced course for those specializing in organizational behaviour. Deals with in-depth analysis of industry organizational behaviour, management of current and future problems, reorganizations, corporate cultures, multi-cultural organizations, and ethics.
<i>Restriction(s):</i> CBE Executive Programs students only
<i>Department(s):</i> School of Hospitality, Food and Tourism Management
<b>HTM*6140 Foundations of Human Resource Management U [0.50]</b>
This course examines the essential human resource management functions of planning, staffing, employee development, compensation, health and safety, labour relations, and legal compliance, in a variety of organizational settings.
<i>Restriction(s):</i> CBE Executive Programs students only
<i>Department(s):</i> Executive Programs
<b>HTM*6150 Research Methods for Managers U [0.50]</b>
Students learn to formulate a research problem, undertake a literature review, and to select and use appropriate quantitative and qualitative techniques for the collection and analysis of relevant data. The course also promotes the use of the World Wide Web as an information resource.
<i>Restriction(s):</i> CBE Executive Programs students only
<i>Department(s):</i> Executive Programs

**HTM\*6170 Hospitality and Tourism Economics and Policy U [0.50]**

The course introduces participants to economic and government policy issues that impact the hospitality and tourism industry. The course provides a strategic framework for understanding the macroeconomic and policy environment that is shaped by multilateral institutions, government and the hospitality and tourism industry.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**HTM\*6220 Special Topics in Management Issues U [0.50]**

An advanced course for those specializing in management, marketing or organizational behaviour. Deals with current and future topics, trends and problems in the industry, strategic planning, and the integration of management, marketing, and organizational behaviour.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* School of Hospitality, Food and Tourism Management

**HTM\*6300 Hospitality and Tourism Marketing U [0.50]**

Analysis and application of marketing foundations through integration of marketing variables with real-world situations and in-depth analysis of strategic marketing issues.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* School of Hospitality, Food and Tourism Management

**HTM\*6330 Special Topics in Hospitality Marketing U [0.50]**

An advanced course for those specializing in marketing. Deals with marketing theories, models, and specific subsets of marketing such as pricing, consumer and industrial-buyer behaviour, distribution, services, and service-delivery concepts.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* School of Hospitality, Food and Tourism Management

**HTM\*6510 Hospitality and Tourism Revenue Management U [0.50]**

This course discusses revenue maximization strategies and tactics that improve the profitability of businesses that work in fixed capacity environments, face time-varied demand, their product is homogeneous and their cost structure reflects a high proportion of fixed and a low proportion of variable cost items.

*Prerequisite(s):* HTM\*6300

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**HTM\*6550 Managing Service Quality U [0.50]**

A holistic and interdisciplinary approach is used to explore the principles of service management. The course will enhance participants' understanding of what actually constitutes quality, the nature of service, and strategies for improving it.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**HTM\*6590 Organizational Theory and Design U [0.50]**

Core concepts in organizational theory and their interrelationships as well as concepts such as group decision making and intragroup and intergroup dynamics are explored.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**HTM\*6600 International Tourism and Tourism Marketing U [0.50]**

Analyzes the social, political and economic impacts of tourism on the world scene, as well as the global integration of tourism in today's society.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* School of Hospitality, Food and Tourism Management

**HTM\*6620 Special Topics in Tourism U [0.50]**

Advanced course for those specializing in tourism. Deals with theories of tourism generators, multi-markets, tourism multipliers, current and future trends, regulatory environments, and distributions systems.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* School of Hospitality, Food and Tourism Management

**HTM\*6630 Special Topics in Tourism U [0.50]**

Advanced course for those specializing in tourism. Deals with theories of tourism generators, multi-markets, tourism multipliers, current and future trends, regulatory environments, and distributions systems.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* School of Hospitality, Food and Tourism Management

**HTM\*6700 Strategic Management & Business Game U [0.50]**

An integrative course which draws together the conceptual theories and models of the graduate program core. Utilizes conceptual, analytical, problem identification, and problem solving skills.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**HTM\*6710 Services Management Theory I F [0.50]**

In this doctoral seminar students will assess the 'services' driven economy and the theory and practices of its constituent organizations and relationships. Through readings, facilitated discussions and seminar presentations, students will be able to identify, explain and evaluate the key theories of services management and how they are being used to apply and extend current theories and practice of services management.

*Restriction(s):* Instructor consent required.

*Department(s):* School of Hospitality, Food and Tourism Management

**HTM\*6720 Services Management Theory II W [0.50]**

This doctoral seminar is an examination of the 'services' driven economy and the theory and practices of its constituent organizations and relationships. This course builds on the foundation of Services Management I and explores key contemporary research areas on services management in more detail. Students will examine services management and value chains theory research and practice in a selection of industries, with a focus on one of the following: tourism, hospitality, food and environmental services.

*Prerequisite(s):* HTM\*6710

*Restriction(s):* Instructor consent required.

*Department(s):* School of Hospitality, Food and Tourism Management

**HTM\*6730 Cases in Management F,W,S [0.50]**

In this course, students learn how to design, research and write cases used in the management discipline: (1) the teaching case, (2) the research case, and (3) the management decision-making case, as well as related research methods and professional and creative non-fiction writing.

*Restriction(s):* Instructor consent required.

*Department(s):* School of Hospitality, Food and Tourism Management

**HTM\*6800 Operations Management U [0.50]**

This course applies operations research theory and practices to management problem solving and decision-making. The focus is on modelling service and product delivery systems and major emphasis is placed on managerial problems in hospitality, tourism, and food and agribusiness organizations.

*Restriction(s):* CBE Executive Programs students only

*Department(s):* Executive Programs

**Human Health and Nutritional Sciences****HHNS\*6000 Students Promoting Awareness of Research Knowledge S,F,W [0.25]**

This course will explore research communication through practical experience. The course will be part of the SPARK program in which students write, edit and coordinate a variety of news publications that highlight University of Guelph research activities for a wide range of audiences.

*Restriction(s):* Limited to HHNS MSc course work and project students only. Instructor consent required.

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6010 Seminar in Human Health and Nutritional Sciences S [0.50]**

Students will develop their scientific communication skills by translating a specific body of knowledge on a chosen topic into a seminar. The class will also explore scientific process-oriented concepts and issues such as effective scientific communication and dissemination of results.

*Restriction(s):* Limited to HHNS MSc course work and project students only.

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6040 Research Fronts in Nutritional and Nutraceutical Sciences F [0.50]**

Building on an information base in nutrition, biochemistry and physiology, the course comprises selected research topics pertaining to the importance of nutrition as a determinant of health throughout the life span. Distinction will be drawn between the metabolic basis of nutrient essentiality and the health protectant effects of nutraceuticals.

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6130 Advanced Skeletal Muscle Metabolism in Humans W [0.50]**

This course examines how the energy provision pathways in human skeletal muscle and associated organs meet the energy demands of the muscle cell during a variety of metabolically demanding situations.

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6320 Advances in Human Health and Nutritional Sciences Research S,F,W [0.50]**

This course provides the student with an opportunity to study a topic of choice and involves literature research on a chosen topic. The course may stand alone (MSc thesis and PhD students) or provide the background information for an experimental approach to the topic (MSc course work and project students).

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6400 Functional Foods and Nutraceuticals F [0.50]**

This course considers the relation of nutraceuticals, functional foods, designer foods, medical foods and food additives to foods and drugs. The course emphasizes the development and commercialization of nutraceuticals.

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6410 Applied Functional Foods and Nutraceuticals W [1.00]**

This course prepares students to develop an innovative product or service from conceptualization to market entry considering regulatory, product development, safety/efficacy and market readiness issues. The course applies and integrates the concepts defined in HHNS\*6400

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6440 Nutrition, Gene Expression and Cell Signalling W [0.50]**

This course emphasizes the role nutrients play as modulators of gene expression at the molecular level. The mechanisms by which nutrients modulate gene expression through specific cell signalling cascades are examined. (offered annually)

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6500 Cardiovascular and Respiratory Physiology F [0.50]**

This course will use both review articles and the primary literature to build a broad base of understanding of the cardiovascular and respiratory systems as well as explore current research in specific areas in this knowledge paradigm. Further, this course will build research skills through by strengthening critical analysis skills and both oral and written communication skills through learning about the cardiovascular and respiratory system and how they integrate.

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6700 Nutrition, Exercise and Metabolism F [0.50]**

A discussion of recent concepts in the relationships among nutrition, exercise and metabolism. Information from the molecular to the whole-body level will be presented with a focus on understanding nutrition and exercise in the human. Emphasis is placed on the development and testing of experimental hypotheses in these areas of research.

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6710 Advanced Topics in Nutrition and Exercise F [0.50]**

Advanced topics will be presented to establish an in-depth understanding of current investigations in nutrition and exercise. Based on the integrated understanding of nutrition and exercise developed in HHNS\*6700, the focus of this course will be to develop the student's ability to independently analyze original research investigations.

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6800 Research Frontiers in Integrative Biomechanics and Neurophysiology F [0.50]**

This course will provide students with a breadth of knowledge and understanding across the research frontiers pursued by the integrative biomechanics and neurophysiology group. Students will be given opportunity to practice and improve oral and written communication skills and provide constructive feedback to their peers. Additionally, this class will engage students in dialogue around topics pertinent to designing and conducting successful experiments such as hypothesis generation and ethical and practical considerations.

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6810 Research Methods in Integrative Biomechanics and Neurophysiology I F [0.50]**

This course develops a comprehensive understanding of methods and analysis related to research in biomechanics & neuroscience. Critical evaluation and application of basic signal to noise processing and electromyography is a priority. The course uses labs, assignments, and critical review of primary literature articles to develop a strong research foundation. Scientific writing and oral communication skills are emphasized via written reports and presentations, and numeracy throughout the course in data and lab assignments.

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6820 Research Methods in Integrative Biomechanics and Neurophysiology II W [0.50]**

This course develops a comprehensive understanding of methods and analysis related to research in biomechanics & neuroscience. Critical evaluation and application of 3D kinematics and programming/modelling is a priority. The course uses labs, assignments, and critical review of primary literature articles to develop a strong research foundation. Scientific writing and oral communication skills are emphasized via written reports and presentations, and numeracy throughout the course in data and lab assignments.

*Prerequisite(s):* HHNS\*6810

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6910 Basic Research Techniques and Processes S,F,W [0.50]**

Working with a faculty advisor, students will gain experience in basic aspects of scientific research. This will be accomplished through experience of one or more components of the scientific method in a laboratory setting. Objective outcomes will be evaluated and will include documentation of the experience in a written report.

*Restriction(s):* Restricted to HHNS MSc. course work and project students. Instructor consent required.

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6920 Applied Research Techniques and Processes S,F,W [0.50]**

Under the supervision of a faculty advisor, students will gain practical experience in discipline-specific aspects of research. This will be accomplished through experience in a pre-arranged practicum in an applied setting. Objective outcomes will be evaluated and will include documentation of the experience in a written report.

*Restriction(s):* Restricted to HHNS MSc. course work and project students. Instructor consent required.

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6930 Research Project S,F,W [0.50]**

Under the supervision of a faculty advisor and building on knowledge gained from Basic or Applied Research Techniques and Processes, students will carry out a specific research project to its completion. Results will be documented in a written report and communicated through a scientific poster.

*Prerequisite(s):* HHNS\*6910 or HHNS\*6920

*Restriction(s):* Restricted to HHNS MSc. course work and project students. Instructor consent required.

*Department(s):* Department of Human Health and Nutritional Sciences

**Integrative Biology****IBIO\*6000 Special Topics in Ecology and Behaviour U [0.50]**

This is a course in which several faculty lecture and/or lead discussion groups in tutorials about advances in their broad areas, or related areas, of ecology and behaviour. Topics may include animal communication, optimal foraging, life-history evolution, mating systems, population dynamics, niche theory and food-web dynamics, and will depend on who is co-ordinating the course for that particular offering. The course includes lectures and seminars in which the students actively participate.

*Department(s):* Department of Integrative Biology

**IBIO\*6010 Special Topics in Physiology U [0.50]**

This is a course in which several faculty lecture and/or lead discussion groups in tutorials about advances in their broad areas, or related areas, of physiology. Topics may include metabolic adaptation to extreme environments, behavioural and molecular endocrinology, and exercise and muscle physiology, and will depend on who is co-ordinating the course for that particular offering. The course includes lectures and seminars in which the students actively participate.

*Department(s):* Department of Integrative Biology

**IBIO\*6020 Special Topics in Evolutionary Biology U [0.50]**

This modular course reviews books and/or other publications in the field of evolutionary biology, providing knowledge of progress in this area of biology. Topics may include epigenetics, phylogenetics, developmental basis of evolutionary change, and molecular evolution. The course includes lectures and seminars in which the students participate. Offered annually.

*Department(s):* Department of Integrative Biology

**IBIO\*6070 Advances in Integrative Biology I U [0.50]**

This course provides graduate students, either individually or in groups, with the opportunity to pursue topics in specialized fields of integrative biology under the guidance of graduate faculty. Courses may be offered in any of lecture, reading/seminar, or individual project formats. A minimum enrolment may be required for some course offerings.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Integrative Biology

**IBIO\*6080 Advances in Integrative Biology II U [0.50]**

This course provides graduate students, either individually or in groups, with the opportunity to pursue topics in specialized fields of integrative biology under the guidance of graduate faculty. Courses may be offered in any of lecture, reading/seminar, or individual project formats. A minimum enrolment may be required for some course offerings.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Integrative Biology

**IBIO\*6630 Scientific Communication U [0.50]**

This course involves development and refinement of the skills of scientific communication, with emphasis on writing skills, in the context of developing a thesis proposal. This course is mandatory for MSc AND DIRECT ENTRY PhD students in the Department of Integrative Biology.

*Department(s):* Department of Integrative Biology

**International Development Studies****IDEV\*6000 Regional Context U [0.50]**

This reading course provides an opportunity for in-depth investigation about a particular region in preparation for a thesis, major paper or research project. The course normally is directed by the student's advisor.

*Department(s):* Dean's Office, College of Social and Applied Human Sciences

**IDEV\*6200 Development Theory, Issues and Process F-W [1.00]**

This course will examine key issues in development, for example: social justice, poverty and inequality, sustainability, governance and inclusiveness, and how perspectives on these issues have changed over time and differ across disciplinary perspectives. The course will be writing-intensive and focus on the development of skills in oral communication of development issues.

*Department(s):* Dean's Office, College of Social and Applied Human Sciences

**IDEV\*6300 Research and Analysis in a Development Context S [0.50]**

Students will explore alternative approaches to development research and analysis across documentary, qualitative and quantitative methods and the ethical issues associated with research in a development context. The course involves guided readings and seminar based discussions related to development research. There will be emphasis on written and oral communication of development research and analysis to diverse audiences. The course will be taught over a two-week period at the start of the summer semester. Subsequently, students will reflect on their own positionality and the development context of their research of practicum through the remainder of the Summer semester and while engaged in this activity.

*Department(s):* Dean's Office, College of Social and Applied Human Sciences

**IDEV\*6500 Fieldwork in International Development Studies U [0.50]**

This course recognizes an intensive commitment to research in an archival repository, 'in the field' or at an appropriate development institution in Canada or abroad. The course normally is directed by the student's advisor in consultation with the advisory committee

*Department(s):* Dean's Office, College of Social and Applied Human Sciences

**IDEV\*6800 Theories and Debates in Development F [0.50]**

This course examines recent approaches in development theory explaining international inequality, poverty and long-term change. It also investigates selected current debates in international development – such as food security, trade, good governance, sustainability or gender – from various discipline-based and interdisciplinary perspectives, and analyzes selected regional experiences of development.

*Restriction(s):* Restricted to students in doctoral IDEV collaborative specializations. A minimum final grade of 75% is required to remain in the IDEV collaborative specialization.

*Department(s):* Dean's Office, College of Social and Applied Human Sciences

**IDEV\*6850 Development Research and Practice W [0.50]**

In this course students establish the linkages between their doctoral research topic and the wider field of development studies and practice. The course will examine development policies and projects, ethical issues related to (cross-cultural) development research, and relationships between research and development practice.

*Restriction(s):* Restricted to students in doctoral IDEV collaborative specializations. A minimum final grade of 75% is required to remain in the IDEV collaborative specialization.

*Department(s):* Dean's Office, College of Social and Applied Human Sciences

**Landscape Architecture****LARC\*6010 Landscape Architecture Studio I F [0.50]**

Studio and field instruction introduces the student to landscape architecture through acquisition of basic professional skills and knowledge. Topics include design theory, landscape inventory and analysis, application of the design process to projects at the site scale, graphic and oral communication.

*Restriction(s):* Available only to students registered in the MLA program.

*Department(s):* School of Environmental Design and Rural Development

**LARC\*6020 Landscape Architecture Studio II F [0.50]**

Studio and field instruction introduces the student to basic knowledge and skills of site engineering as it relates to landscape architecture. Topics include surveying, principles of site grading and drainage, introduction to materials and methods of construction, and graphic communication.

*Restriction(s):* Available only to students registered in the MLA program.

*Department(s):* School of Environmental Design and Rural Development

**LARC\*6030 Landscape Architecture Studio III W [0.50]**

Studio and field instruction continues the student's development of professional knowledge and skills at the site scale. Topics include site planning principles, social factors in design, introduction to principles of planting design and architectural structures, facilitation and computer applications in design.

*Restriction(s):* Available only to students registered in the MLA program.

*Department(s):* School of Environmental Design and Rural Development

**LARC\*6040 Landscape Architecture Studio IV W [0.50]**

Studio instruction emphasizes design implementation, materials and methods of construction, principles of stormwater management, construction specifications and graphic communication using computer applications.

*Restriction(s):* Available only to students registered in the MLA program.

*Department(s):* School of Environmental Design and Rural Development

**LARC\*6120 Community Design W [0.50]**

Studio and field instruction emphasizes integration of ecological, social, cultural and historical factors in the comprehensive design of urban and special use landscapes at the neighbourhood and community scale.

*Restriction(s):* Available only to students registered in the MLA program.

*Department(s):* School of Environmental Design and Rural Development

**LARC\*6340 Landscape History Seminar F [0.25]**

A lecture/seminar course focussed on the history of Landscape Architecture. Skills emphasize the development of oral and writing skills.

*Restriction(s):* Available only to students registered in the MLA program.

*Department(s):* School of Environmental Design and Rural Development

**LARC\*6360 Professional Practice Seminar F [0.25]**

A lecture/seminar course focussed on the legal, business, ethical and professional practices of Landscape Architecture professionals. Skills emphasize the development of oral and writing skills.

*Restriction(s):* Available only to students registered in the MLA program.

*Department(s):* School of Environmental Design and Rural Development

**LARC\*6380 Research Seminar W [0.25]**

A seminar course focussed on the process and communication of research, influenced by the current research of the participants. Participants organize a conference to present their research results.

*Restriction(s):* Available only to students registered in the MLA program.

*Department(s):* School of Environmental Design and Rural Development

**LARC\*6430 Landscape Resource Analysis F [0.50]**

Integrated field and classroom instruction introduces the student to inventory and analysis of biological, physical, social and cultural elements of the landscape. Projects will incorporate principles of landscape ecology and landscape planning. Field study will require some travel at student's expense.

*Restriction(s):* Available only to students registered in the MLA program.

*Department(s):* School of Environmental Design and Rural Development

**LARC\*6440 Environmental Design F [0.50]**

This course integrates field and classroom study to apply landscape ecology to current landscape problems, including analysis of regional landscapes, restoration of degraded landscapes, and application of aesthetic and ecological principles across scales in site to regional settings. Case studies component will require some travel at students' expense.

*Restriction(s):* Available only to students registered in the MLA program.

*Department(s):* School of Environmental Design and Rural Development

<b>LARC*6470 Integrative Environmental Planning W [0.50]</b>
Landscape planning emphasizing the integration and interrelationships between biophysical and cultural resources, with application at a regional landscape planning scale. This course typically incorporates community-outreach projects. <i>Restriction(s):</i> Available only to students registered in the MLA program. <i>Department(s):</i> School of Environmental Design and Rural Development
<b>LARC*6600 Critical Inquiry &amp; Research Analysis W [0.50]</b>
Students are introduced to critical inquiry as a method of evaluating information, design, and planning. The focus of the course is on the quantification and analysis of research data. Modelling and simulation are introduced and discussed in the context of planning, design, and research. <i>Restriction(s):</i> Available only to students registered in the MLA program. <i>Department(s):</i> School of Environmental Design and Rural Development
<b>LARC*6610 Research Methods F [0.50]</b>
An introduction to a broad array of research methods as they apply to landscape planning and design, with a focus on the connections between research and design. Emphasis is on developing foundations for the creation of appropriate research questions. <i>Restriction(s):</i> Available only to students registered in the MLA program. <i>Department(s):</i> School of Environmental Design and Rural Development
<b>LARC*6710 Special Study S,F,W [0.50]</b>
Independent study. A proposal for the content and product required for this course must be developed in conjunction with the student's Advisory Committee. <i>Restriction(s):</i> Instructor consent required. <i>Department(s):</i> School of Environmental Design and Rural Development

## Latin American and Caribbean Studies

<b>LACS*6000 Research Methods Seminar U [0.50]</b>
This course will introduce students to the field and research methods of various disciplines and of interdisciplinary studies, and it will familiarize them with field-relevant research skills and methodologies. <i>Department(s):</i> School of Languages and Literatures
<b>LACS*6010 Latin American Identity &amp; Culture F [0.50]</b>
This is the first of the two required LACS culture core courses. They will address theoretical issues relevant to Latin American identities and cultures, and will use these as heuristic devices in the study of major and marginalized cultural events, narratives, and visual and musical expressions. In LACS*6010 students will analyze the concept of "hybridity" and study how hybrid culture has been incorporating past with the present, and how it is and has been incorporating local and African forms and themes with European and US derived high culture. <i>Department(s):</i> School of Languages and Literatures
<b>LACS*6020 Re-Imagining Community in Latin America W [0.50]</b>
This graduate seminar examines recent developments in community theory, studying representative works of literature, film, and music that re-imagine the ideas and formations of Latino, Latin American and Caribbean communities. Students going an exchange may replace this course with a similar course taken at the exchange university. <i>Department(s):</i> School of Languages and Literatures
<b>LACS*6030 Globalization &amp; Insecurity in the Americas F [0.50]</b>
An analytical, critical and interdisciplinary introductory overview of Latin America and the Caribbean in the larger context of the Americas, from the point of view of the security and insecurity of its people. It will concentrate on the interplay of environmental, economic, social, political, and cultural factors upon such security in an era of globalization. <i>Department(s):</i> School of Languages and Literatures
<b>LACS*6040 Novel &amp; Nation in Spanish America W [0.50]</b>
This course will study the constitution of Spanish American nation in the novel since 1900 from a variety of theoretical perspectives. Particular attention will be paid to the novel's appropriation of foreign artistic and cultural influences to articulate Spanish American history. Offered in conjunction with SPAN*4100 or SPAN*4410. Extra work is required of graduate students. <i>Restriction(s):</i> Credit may be obtained for only one of LACS*6040 or SPAN*4100/SPAN*4410. <i>Department(s):</i> School of Languages and Literatures
<b>LACS*6070 Civil Society and Activism in Latin America U [0.50]</b>
This graduate seminar will provide an analytical, critical and interdisciplinary overview of relevant sociopolitical topics in contemporary Latin America, with a focus on the role of civil society and collective action in reshaping the social and political landscape of the region. <i>Department(s):</i> School of Languages and Literatures

<b>LACS*6100 Research Project U [1.00]</b>
This research project will result in a major paper of about 15,000 words. The student chooses a topic and writes a paper on the topic with the guidance of a faculty member. The topic must be approved by the Graduate Program Committee. <i>Department(s):</i> School of Languages and Literatures
<b>LACS*6200 Topics in Latin American and Caribbean Studies U [0.50]</b>
An independent study course, the nature and content of which is agreed upon between the individual student and the person offering the course. <i>Restriction(s):</i> Instructor and Graduate Program Coordinator signatures required. <i>Department(s):</i> School of Languages and Literatures
<b>Leadership Studies</b>
<b>LEAD*6000 Foundations of Leadership U [0.50]</b>
The course will enhance participants' interpersonal competency, as well as their knowledge and understanding of the theory and research underlying the impact of team management and collaboration on the organization. <i>Restriction(s):</i> CBE Executive Programs students only <i>Department(s):</i> Executive Programs
<b>LEAD*6100 Theories of Leadership U [0.50]</b>
This course traces the development of the concept of leadership. Through the interplay of theory and practical application, participants will gain a deeper appreciation for the requirements, responsibilities, and consequences of effective leadership. <i>Restriction(s):</i> CBE Executive Programs students only <i>Department(s):</i> Executive Programs
<b>LEAD*6200 Leadership of Organizational Change U [0.50]</b>
This course studies the role of leadership in the management of change within an organization and the changes required of management. The course examines the development of trust, the building of organizational loyalty, and motivation and inspiring of high performance teams. <i>Restriction(s):</i> CBE Executive Programs students only <i>Department(s):</i> Executive Programs
<b>LEAD*6220 Strategic Leadership and Management U [0.50]</b>
As a research intensive course in the MA Leadership, this course examines the conceptual and practical dimensions of strategic leadership and management in a variety of organizational, external and individual contexts using a selection of readings, discussions, case analyses and a final paper. <i>Department(s):</i> Executive Programs
<b>LEAD*6300 Role of the Leader in Decision-Making U [0.50]</b>
The role of the leader in decision-making is explored through the study of the rational model for decision-making, human biases, creativity, and risk and uncertainty in decision-making. The course will also examine ethical issues and group decision-making. <i>Restriction(s):</i> CBE Executive Programs students only <i>Department(s):</i> Executive Programs
<b>LEAD*6350 The Role of the Leader as Reflective Practitioner U [0.50]</b>
This course will enhance the leader's ability to navigate the complexity of organizational life and contribute to building a more sustainable society by developing skills in reflective practice. Reflective practice is divided into four areas that stretch over eight modules: Rethinking, Relating, Responding and Reinventing. <i>Restriction(s):</i> CBE Executive Programs students only <i>Department(s):</i> Executive Programs
<b>LEAD*6400 Research Methods for Decision-Making U [0.50]</b>
The course will explore both quantitative and qualitative techniques used in the analysis of research results from a variety of sources (surveys, government statistics, in-depth interview, focus groups and program evaluation results). Case studies will be used to demonstrate the application of multiple research methods. <i>Restriction(s):</i> CBE Executive Programs students only <i>Department(s):</i> Executive Programs
<b>LEAD*6500 Ethics in Leadership U [0.50]</b>
Issues in the use and application of ethical standards by leaders are explored through examples from history, current events, novels, films and television. Relevant theory is applied to leadership examples to help students develop an ethical framework for the exercise of leadership skills. <i>Restriction(s):</i> CBE Executive Programs students only <i>Department(s):</i> Executive Programs

<b>LEAD*6600 Foundations of Leadership for Retirement and Senior Living U [0.50]</b>
Leadership in the senior living sector requires unique skills, competencies and practice. The purpose of this course is to explore leadership theories and concepts in this context. Understanding the rights and choices of seniors, the future of the aging population, care and support services available and legislative requirements is essential to individuals interested in pursuing career growth in senior living. <i>Restriction(s):</i> CBE Executive Programs students only <i>Department(s):</i> Executive Leadership Program
<b>LEAD*6720 Politics of Organizations U [0.50]</b>
This course reviews a variety of theories and models that help to explain the behavioural underpinnings that influence and shape management and leadership processes within organizations. Examples from history and current events are explored to illustrate theory. <i>Restriction(s):</i> CBE Executive Programs students only <i>Department(s):</i> Executive Programs
<b>LEAD*6740 Coaching and Developing Others U [0.50]</b>
This course will provide student with an opportunity to design developmental plans for direct reports, assess their coaching skills, and develop their coaching skills to support the development of others. <i>Restriction(s):</i> CBE Executive Programs students only <i>Department(s):</i> Executive Programs
<b>LEAD*6800 Personal Skill Self-Assessment U [0.50]</b>
Using the "Basis of Competence" model, this course examines personal skills in four areas: Managing Self, Communicating, Managing People and Tasks, and Mobilizing Innovation and Change. The skills required to make smooth transitions from one job to another in a dynamic workplace will be explored. <i>Restriction(s):</i> CBE Executive Programs students only <i>Department(s):</i> Executive Programs
<b>LEAD*6900 Major Research Project U [1.00]</b>
This course involves a directed research project leading to a referenced, professional report on a leadership problem or issue. <i>Restriction(s):</i> CBE Executive Programs students only <i>Department(s):</i> Executive Programs

## Literature and Theatre Studies

<b>LTS*7770 Language Requirement U [0.00]</b>
A written demonstration of a student's reading knowledge of one language other than English, as approved by the Graduate Studies Committee. <i>Department(s):</i> School of English and Theatre Studies
<b>LTS*7900 Directed Studies U [0.50]</b>
The study of a special topic under the guidance of a member of the graduate faculty. <i>Department(s):</i> School of English and Theatre Studies

## Management

<b>MGMT*6000 Management Seminar Series F,W [0.00]</b>
This seminar provides students with exposure to current and emerging research topics in the field of management. Academic speakers (faculty and students) present their work in weekly meetings. Students are encouraged to be engaged and participate actively during the presentations. <i>Restriction(s):</i> Students in MA.MGMT <i>Department(s):</i> Department of Management
<b>MGMT*6100 Evidence Based Management Research U [0.50]</b>
This course provides a conceptual overview of the management research and its functions for academic and practitioner audiences. Students will explore the purpose of research, its relationship to theory, the benefits of various epistemological approaches and the notion of research impact. Topics include research problem definition and objectives, hypothesis development, research design, ethics approval, measurement, sampling methods, analysis, interpretation of results, and report writing. <i>Restriction(s):</i> Students in MA.MGMT <i>Department(s):</i> Department of Management

<b>MGMT*6120 Quantitative Methods for Evidence Based Management U [0.50]</b>
This course provides a practical overview of statistical methods for evidence-based management applications. Students will work with quantitative data to conduct a variety of statistical analysis, including descriptive statistics, visualization of data, null hypothesis significance testing, univariate and multivariate analysis of variance and covariance, correlation, linear and logistic regression and exploratory factor analysis. The course puts an emphasis on the interpretation of results in terms of their practical managerial implications. <i>Prerequisite(s):</i> MGMT*6100 <i>Restriction(s):</i> Students in MA.MGMT <i>Department(s):</i> Department of Management
<b>MGMT*6130 Creative Process of Innovation U [0.50]</b>
This course is focused on the creative process of innovation required to effectively engage in problem solving and opportunity creation toward organizational and societal flourishing. Students will develop both a theoretical understanding and the practical skills to engage in creative experimentation for novel idea generation. <i>Department(s):</i> Department of Management
<b>MGMT*6200 Leadership Assessment and Development U [0.50]</b>
This course provides a conceptual overview of the leadership competencies that lead to leadership performance. Students will explore and learn a method for assessing their own leadership competencies. They will learn a process for developing in themselves those knowledge and skills relevant to effective leadership. Topics include managerial competencies models, assessment models, learning styles, intentional change process, and personal development plan. This course emphasizes those techniques most frequently used in personal development and coaching individuals and teams. <i>Restriction(s):</i> Students in the MA in Management program only. <i>Department(s):</i> Department of Management
<b>MGMT*6300 Business Consulting U [0.50]</b>
This course provides students with an understanding of the concepts, principles, and practices for management consulting. Students will be exposed to the various components of the consulting process, consulting approaches and styles, client- consultant relationships, issue and problem diagnosis, reporting of results, and professional codes of conduct and ethics. The emphasis is on techniques most frequently used in the context of both internal and external organizational roles and as a career choice. <i>Restriction(s):</i> Students in the MA in Management program only. <i>Department(s):</i> Department of Management
<b>MGMT*6400 Project Management U [0.50]</b>
This course provides students with an understanding of the concepts, principles, and practices for project management. It introduces an understanding and appreciation of the importance of managing projects, project teams, the project management systems and tools, the various components of the project management process, and professional codes of conduct and ethics. The emphasis is on the techniques most frequently used in the context of, both internal and external organizational roles of a project manager. <i>Restriction(s):</i> Students in the MA in Management program only. <i>Department(s):</i> Department of Management
<b>MGMT*6500 Major Research Project U [1.00]</b>
This course is available to individuals or groups of graduate students. Students will complete a set of readings and an associated paper as approved by designated faculty. Specific learning objectives consistent with the University's will be developed each time the course is offered. <i>Prerequisite(s):</i> MGMT*6100 and MGMT*6200 <i>Restriction(s):</i> Students in the MA in Management program. <i>Department(s):</i> Department of Management
<b>MGMT*6800 Philosophy of Social Science Research S [0.50]</b>
This course introduces students to the underlying philosophical assumptions that support empirical research methods within social science disciplines. The aim of this course is to examine the philosophy of knowledge generation and claims, particularly in the context of management phenomena. <i>Department(s):</i> Department of Marketing and Consumer Studies
<b>MGMT*6820 Theory of Management F [0.50]</b>
This course examines the evolution of management thought and the overarching theories that have been successfully applied to multiple functional areas of the organization. Examples of theories that apply to such disparate areas as operations, marketing, and organizational behaviour include agency theory, transaction cost analysis, and contingency theory. <i>Department(s):</i> Department of Management



**MGMT\*6830 Applied Univariate Statistical Analysis for Management F [0.50]**

This course focuses on the use of univariate statistics as applied to social and behavioural research within the fields of organizational, management, and consumer studies. Emphasis will be place on providing a solid understanding of descriptive statistics, mean difference testing, analysis of variance and covariance, linear and logistic regression, and power and effect size. Laboratory sessions will focus on analysis application using statistical packages such as SPSS, R, SAS, Stata, and Mplus.

*Department(s):* Department of Management

**MGMT\*6840 Quantitative Research Methods: Multivariate Techniques W [0.50]**

This course provides a review of selected multivariate analysis techniques with applications to management. Students will learn to determine which multivariate technique is appropriate for a specific research problem and how to apply multivariate quantitative techniques to research questions. Topics include regression analysis, anova, principal components, factor and discriminant analysis, nonmetric scaling and trade-off analysis. The course uses a hands-on approach and requires computer-program analysis.

*Department(s):* Department of Management

**MGMT\*6850 Qualitative Research Methods W [0.50]**

This doctoral seminar provides students with the historical roots, underlying theoretical frameworks, and methods of qualitative research for consumer and management studies. Students will develop their capacity to conduct qualitative research through the development of an original qualitative research project.

*Department(s):* Department of Management

**MGMT\*6900 PhD Research Seminar Project S [0.00]**

The summer project seminar has the objective to start familiarizing students with the research process. Students will prepare and submit a research piece drawing on techniques acquired in the research methods courses.

*Department(s):* Department of Management

**MGMT\*6950 Doctoral Research Seminar F,W [0.00]**

This is a seminar course attended by graduate students and faculty. Academic guest speakers present their work in weekly meetings. Students are encouraged to be engaged and participate actively during the presentations.

*Restriction(s):* Must be registered in the PhD Management program

*Department(s):* Department of Management

## Marketing and Consumer Studies

**MCS\*6000 Consumption Behaviour Theory I F [0.50]**

A review of the nature and scope of consumption behaviour and the approaches to studying the role of human consumption using the major theoretical perspectives.

*Department(s):* Department of Marketing and Consumer Studies

**MCS\*6010 Consumption Behaviour Theory II W [0.50]**

Consumption behaviour is an interdisciplinary field of study which applies theories from multiple disciplines to the activities and processes people engage in when choosing, using and disposing of goods and services. The purpose of this course is to provide a basic review of the theoretical foundations of aspects of consumption and consumer behaviour and to demonstrate their applicability to marketing management. The course is designed to allow participants to bring their own background and interests to bear on the review and application of the theories underlying consumer behaviour.

*Prerequisite(s):* MCS\*6000 or consent of instructor

*Department(s):* Department of Marketing and Consumer Studies

**MCS\*6050 Research Methods in Marketing and Consumer Studies F [0.50]**

A comprehensive review of measurement theory, including issues such as construct definition, scale development, validity and reliability. Applicants of measurement principles will be demonstrated, particularly as they relate to experimental and survey research design.

*Department(s):* Department of Marketing and Consumer Studies

**MCS\*6060 Multivariate Research Methods W [0.50]**

A review of selected multivariate analysis techniques as applied to marketing and consumer research. Topics include regression, anova, principal components, factor and discriminant analysis, nonmetric scaling and trade-off analysis. The course uses a hands-on approach with small sample databases available for required computer-program analysis.

*Prerequisite(s):* MCS\*6050 or consent of instructor

*Department(s):* Department of Marketing and Consumer Studies

**MCS\*6070 Introduction to Structural Equation Modeling W [0.50]**

This course introduces students to the theory, concepts and application of structural equation modeling. Topics covered include path analysis, confirmatory factor analysis and measurement models, latent variable modeling, multi-group modeling, and measurement invariance testing. Emphasis is placed on applying the principles of SEM to the creation and testing of theoretically driven models using both categorical and continuous data.

*Department(s):* Department of Marketing and Consumer Studies

**MCS\*6080 Qualitative Research Methods W [0.50]**

A review of the nature, importance and validity issues associated with qualitative research. Topics include theory and tactics in design, interpersonal dynamics, analysis of interaction and transcripts.

*Prerequisite(s):* MCS\*6050 or consent of instructor

*Department(s):* Department of Marketing and Consumer Studies

**MCS\*6090 Special Topics in Consumer Research and Analysis U [0.50]**

*Department(s):* Department of Marketing and Consumer Studies

**MCS\*6100 Marketing Theory F [0.50]**

A theoretical understanding of marketing, including philosophy of science and marketing, a history of marketing thought, market orientation, marketing strategy theory, modeling, social marketing, and ethical issues in marketing.

*Restriction(s):* Signature required for non-MCS students.

*Department(s):* Department of Marketing and Consumer Studies

**MCS\*6120 Marketing Management U [0.50]**

This course is designed to increase depth of knowledge of marketing by helping the student understand how marketing theory can directly affect marketing practice and firm performance. As this is an MSc course and NOT an MBA course, there is an expectation that the level of critical thinking and knowledge growth falls within the realm of the science of marketing and/or the empirical nature of marketing research and is not simply about marketing practice.

*Prerequisite(s):* MCS\*6100

*Department(s):* Department of Marketing and Consumer Studies

**MCS\*6200 Marketing Analytics F [0.50]**

Course will cover major marketing decisions and the analytical tools to make decisions for business solutions. Topics and tools include market segmentation, targeting and positioning, new product design and forecasting, marketing mix and resource allocation and customer life time value.

*Restriction(s):* Restricted to MSc.MCS, MSc.TRMH, MA.MGMT, PhD.MGMT students

*Department(s):* Department of Marketing and Consumer Studies

**MCS\*6260 Special Topics in Food Marketing U [0.50]**

*Department(s):* Department of Marketing and Consumer Studies

**MCS\*6710 Special Topics in Marketing U [0.50]**

*Department(s):* Department of Marketing and Consumer Studies

**MCS\*6720 Special Topics in Housing and Real Estate U [0.50]**

*Department(s):* Department of Marketing and Consumer Studies

**MCS\*6800 Best Worst Scaling and Discrete Choice Analysis U [0.50]**

This course is designed to cover an array of related topics in the recent developments of Best-Worst Scaling (BWS) and Discrete Choice Experiments (DCEs) data collection. Students will develop an understanding of different preference elicitation methods and response formats and the ability to design experiments for best-worst and choice experiments. Multiple software will be used to analyze data, interpret results and write research reports.

*Prerequisite(s):* Graduate level course in Statistics or equivalent

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Marketing and Consumer Studies

**MCS\*6810 Experimental Design and Analysis for Behavioural Research in Management Studies F [0.50]**

This course focuses on experimental methods within the fields of organizational, management and consumer studies. Specifically students will learn how to design and analyze experiments. Emphasis will be placed on hypothesis testing with factorial and mixed designs, issues related to design, power, continuous and categorical data and scientific communication. Laboratory sessions will focus on analysis application using statistical packages that may include SPSS, R, SAS and Mplus.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Marketing and Consumer Studies

**MCS\*6950 Marketing & Consumer Studies Seminar F,W [0.00]**

*Department(s):* Department of Marketing and Consumer Studies

## Mathematics

### MATH\*6010 Analysis U [0.50]

Half the course covers metric spaces, normed linear spaces, and inner product spaces, including Banach's and Schauder's fixed point theorems,  $L_p$  spaces, Hilbert spaces and the projection theorem. The remaining content may include topics like operator theory, inverse problems, measure theory and spectral analysis.

*Department(s):* Department of Mathematics and Statistics

### MATH\*6011 Dynamical Systems I U [0.50]

Basic theorems on existence, uniqueness and differentiability; phase space, flows, dynamical systems; review of linear systems, Floquet theory; Hopf bifurcation; perturbation theory and structural stability; differential equations on manifolds. Applications drawn from the biological, physical, and social sciences.

*Department(s):* Department of Mathematics and Statistics

### MATH\*6012 Dynamical Systems II U [0.50]

The quantitative theory of dynamical systems defined by differential equations and discrete maps, including: generic properties; bifurcation theory; the center manifold theorem; nonlinear oscillations, phase locking and period doubling; the Birkhoff-Smale homoclinic theorem; strange attractors and deterministic chaos.

*Department(s):* Department of Mathematics and Statistics

### MATH\*6020 Scientific Computing U [0.50]

This course covers the fundamentals of algorithms and computer programming. This may include computer arithmetic, complexity, error analysis, linear and nonlinear equations, least squares, interpolation, numerical differentiation and integration, optimization, random number generators, Monte Carlo simulation; case studies will be undertaken using modern software.

*Department(s):* Department of Mathematics and Statistics

### MATH\*6021 Optimization I U [0.50]

A study of the basic concepts in: linear programming, convex programming, non-convex programming, geometric programming and related numerical methods.

*Department(s):* Department of Mathematics and Statistics

### MATH\*6022 Optimization II U [0.50]

A study of the basic concepts in: calculus of variations, optimal control theory, dynamic programming and related numerical methods.

*Department(s):* Department of Mathematics and Statistics

### MATH\*6031 Functional Analysis U [0.50]

Hilbert, Banach and metric spaces are covered including applications. The Baire Category theorem is covered along with its consequences such as the open mapping theorem, the principle of uniform boundedness and the closed graph theorem. The theory of linear functionals is discussed including the Hahn-Banach theorem, dual spaces, and if time permits, weak topologies or generalized functions. Basic operator theory is covered including topics such as adjoints, compact operators, the Frechet derivative and spectral theory. A brief introduction to the concepts of measure and integration required for some of the aforementioned topics is also included. Offered in conjunction with MATH\*4220. Extra work is required of graduate students.

*Restriction(s):* Credit may be obtained for only one of MATH\*4220 or MATH\*6031

*Department(s):* Department of Mathematics and Statistics

### MATH\*6041 Partial Differential Equations I U [0.50]

Classification of partial differential equations. The Hyperbolic type, the Cauchy problem, range of influence, well- and ill-posed problems, successive approximation, the Riemann function. The elliptic type: fundamental solutions, Dirichlet and Neumann problems. The parabolic type: boundary conditions, Green's functions and separation of variables. Introduction to certain non-linear equations and transformations methods. Offered in conjunction with MATH\*4270. Extra work is required for graduate students.

*Restriction(s):* Credit may be obtained for only one of MATH\*4270 or MATH\*6041

*Department(s):* Department of Mathematics and Statistics

### MATH\*6042 Partial Differential Equations II U [0.50]

A continuation of some of the topics of Partial Differential Equations I. Also, systems of partial differential equations, equations of mixed type and non-linear equations.

*Department(s):* Department of Mathematics and Statistics

### MATH\*6051 Mathematical Modelling U [0.50]

The process of phenomena and systems model development, techniques of model analysis, model verification, and interpretation of results are presented. The examples of continuous or discrete, deterministic or probabilistic models may include differential equations, difference equations, cellular automata, agent based models, network models, stochastic processes.

*Department(s):* Department of Mathematics and Statistics

### MATH\*6071 Biomathematics U [0.50]

The application of mathematics to model and analyze biological systems. Specific models to illustrate the different mathematical approaches employed when considering different levels of biological function.

*Department(s):* Department of Mathematics and Statistics

### MATH\*6091 Topics in Analysis U [0.50]

Selected topics from topology, real analysis, complex analysis, and functional analysis.

*Department(s):* Department of Mathematics and Statistics

### MATH\*6181 Topics in Applied Mathematics I U [0.50]

This course provides graduate students, either individually or in groups, with the opportunity to pursue topics in applied mathematics under the guidance of graduate faculty. Course topics will normally be advertised by faculty in the semester prior to their offering. Courses may be offered in any of lecture, reading/seminar, or individual project formats.

*Department(s):* Department of Mathematics and Statistics

### MATH\*6182 Topics in Applied Mathematics II U [0.50]

This course provides graduate students, either individually or in groups, with the opportunity to pursue topics in applied mathematics under the guidance of graduate faculty. Course topics will normally be advertised by faculty in the semester prior to their offering. Courses may be offered in any of lecture, reading/seminar, or individual project formats.

*Department(s):* Department of Mathematics and Statistics

### MATH\*6400 Numerical Analysis I U [0.50]

Topics selected from numerical problems in: matrix operations, interpolation, approximation theory, quadrature, ordinary differential equations, partial differential equations, integral equations, nonlinear algebraic and transcendental equations.

*Department(s):* Department of Mathematics and Statistics

### MATH\*6410 Numerical Analysis II U [0.50]

One or more topics selected from those discussed in Numerical Analysis I, but in greater depth.

*Department(s):* Department of Mathematics and Statistics

### MATH\*6990 Mathematics Seminar U [0.00]

Students will review mathematical literature and present a published paper.

*Department(s):* Department of Mathematics and Statistics

### MATH\*6998 MSc Project in Mathematics U [1.00]

This course is intended for students in the course-based MSc program in Mathematics. The MSc project will be written under the supervision of a faculty member and will normally be completed within one or two semesters. Once completed, students will submit a final copy of their project to the Department and give an oral presentation of their work.

*Restriction(s):* Restricted to MSC.MAST:L-MATH students in Mathematics

*Department(s):* Department of Mathematics and Statistics

## Molecular and Cellular Biology

### MCB\*6310 Advanced Topics in Molecular and Cellular Biology F [0.50]

This course will consider fundamental cellular processes from multiple perspectives: biochemistry, cell biology, microbiology, molecular biology and genetics, and plant biology. Topics will vary from semester to semester but a multi-disciplinary approach to advanced concepts and experimental strategies will be a common theme.

*Department(s):* Department of Molecular and Cellular Biology

### MCB\*6370 Protein Structural Biology and Bioinformatics U [0.50]

This course explores structural biology from three perspectives: 1) the fundamental concepts in structural biology; 2) the methods used to determine structures (including x-ray crystallography, NMR, electron microscopy, and computational modeling); 3) the bioinformatic concepts and tools used to compare, contrast and assign biochemical function to protein structures and sequences. The course emphasizes building a conceptual and practical skill set that will be applicable to any structure related problem.

*Department(s):* Department of Molecular and Cellular Biology

### MCB\*6500 MSc Research Topics in Molecular and Cellular Biology U [1.00]

This mandatory two semester course emphasizes the development and refinement of the skills of scientific communication. Students submit a written thesis proposal and present a public seminar on a contemporary subject in the molecular biosciences. MCB MSc students normally complete this course within the first two semesters of their program. Students will register in each semester and receive a grade of INP (in progress) at the end of the first semester and a grade at the end of the second semester.

*Department(s):* Department of Molecular and Cellular Biology

**MCB\*7500 PhD Research Topics in Molecular and Cellular Biology U [1.00]**

This mandatory two semester course emphasizes the development and refinement of the skills of scientific communication. Students submit a written thesis proposal and present a public seminar on a contemporary subject in the molecular biosciences. MCB PhD students normally complete this course within the first two semesters of their program. Students will register in each semester and receive a grade of INP (in progress) at the end of the first semester and a grade at the end of the second semester.

*Department(s):* Department of Molecular and Cellular Biology

**Neuroscience****NEUR\*6000 Principles of Neuroscience U [0.50]**

This course is designed to ensure that graduate students with diverse neuroscience backgrounds registered in the collaborative specialization in Neuroscience are exposed to the fundamentals in all areas of neuroscience.

*Department(s):* Department of Biomedical Sciences

**NEUR\*6100 Seminar in Neuroscience U [0.00]**

This course will expose graduate students to some of the major theories, issues and methodologies driving research in neuroscience. Students will learn to critically evaluate presentations by researchers in this field as well as to communicate the results of their own research.

*Department(s):* Department of Psychology

**Pathobiology****PABI\*6000 Bacterial Pathogenesis F [0.50]**

An overview of key concepts in bacterial pathogenesis with emphasis on veterinary and zoonotic pathogens.

*Department(s):* Department of Pathobiology

**PABI\*6030 Applied Clinical Pathology I F,W,S [0.50]**

Introduction to laboratory procedures and interpretation of data arising from hematology, cytology, clinical chemistry, urinalysis and hemostatis analysis of clinical material (Intended for students training in clinical pathology.)

*Restriction(s):* Veterinarians licensed by CVO.

*Department(s):* Department of Pathobiology

**PABI\*6040 Applied Clinical Pathology II U [0.50]**

A continuation of PABI\*6030 with greater depth in the interpretation of data and increased understanding of ancillary diagnostic methods applied in clinical case material. (Intended for students in training in clinical pathology).

*Prerequisite(s):* PABI\*6030

*Restriction(s):* Veterinarians licensed by CVO.

*Department(s):* Department of Pathobiology

**PABI\*6041 Applied Clinical Pathology III U [0.50]**

A continuation of PABI\*6040 with independent and comprehensive interpretation of diagnostic test results, and analysis of laboratory quality assurance quality control procedures. (Intended for students training in clinical pathology)

*Prerequisite(s):* PABI\*6030 and PABI\*6040

*Restriction(s):* Veterinarians licensed by CVO.

*Department(s):* Department of Pathobiology

**PABI\*6050 Applied Avian Pathology I F [0.50]**

Examination and interpretation of gross and microscopic lesions of domestic poultry.

*Restriction(s):* Instructor consent required. Veterinarians licensed by CVO. Students who are not DVM students and/or do not have a protective rabies titre need instructors permission.

*Department(s):* Department of Pathobiology

**PABI\*6060 Applied Avian Pathology II W [0.50]**

A continuation of PABI\*6050, emphasizing seasonal differences in diseases as well as diseases more commonly associated with winter conditions.

*Prerequisite(s):* PABI\*6050

*Restriction(s):* Instructor consent required. Veterinarians licensed by CVO. Students who are not DVM students and/or do not have a protective rabies titre need instructors permission.

*Department(s):* Department of Pathobiology

**PABI\*6070 Applied Avian Pathology III S [0.50]**

A continuation of PABI\*6060, emphasizing seasonal differences in diseases as well as diseases more commonly associated with summer conditions.

*Prerequisite(s):* PABI\*6050 and PABI\*6060

*Restriction(s):* Instructor consent required. Veterinarians licensed by CVO. Students who are not DVM students and/or do not have a protective rabies titre need instructors permission.

*Department(s):* Department of Pathobiology

**PABI\*6080 Diagnostic Pathology I S,F,W [0.50]**

An introductory course of diagnostic pathology, including all body systems but emphasizing diseases affecting the whole body and respiratory, urinary and digestive (including liver and pancreas) systems. (Intended for students in training in anatomic pathology.)

*Restriction(s):* Instructor consent required. Veterinarians licensed by CVO, engaged in applied anatomic pathology training

*Department(s):* Department of Pathobiology

**PABI\*6090 Diagnostic Pathology II S,F,W [0.50]**

An intermediate course that builds on the skills acquired in PABI\*6080 and further enhances diagnostic veterinary pathology skills to include diseases of the nervous, endocrine and musculoskeletal systems. (Intended for students training in anatomic pathology.)

*Prerequisite(s):* PABI\*6080

*Restriction(s):* Veterinarians licensed by CVO, engaged in applied anatomic pathology training

*Department(s):* Department of Pathobiology

**PABI\*6091 Diagnostic Pathology III S,F,W [0.50]**

An advanced course that builds on the skills acquired in PABI\*6090 and further enhances diagnostic veterinary pathology skills to include diseases of all organ systems. (Intended for students training in anatomic pathology.)

*Prerequisite(s):* PABI\*6080 and PABI\*6090

*Restriction(s):* Veterinarians licensed by CVO, engaged in applied anatomic pathology training

*Department(s):* Department of Pathobiology

**PABI\*6100 Immunobiology F [0.50]**

Major areas of immunology, including initiation, regulation, receptors, genetics, immune system development and function.

*Department(s):* Department of Pathobiology

**PABI\*6104 Mechanisms of Disease W [0.50]**

Molecular, cellular and tissue processes involved in the pathogenesis of adaptive, degenerative, inflammatory, infectious, proliferative and neoplastic diseases.

*Department(s):* Department of Pathobiology

**PABI\*6190 Topics in Immunology W [0.50]**

Aspects of immune and non-specific host resistance, diagnostic immunology and immune-mediated disease.

*Department(s):* Department of Pathobiology

**PABI\*6221 Comparative Veterinary Pathology I U [0.50]**

Pathological changes associated with diseases of amphibia, reptiles, wild and captive non-domestic birds, and wild mammals including fur-bearers.

*Offering(s):* Offered in even-numbered years.

*Restriction(s):* Instructor consent required. Students who are not DVM students and/or do not have a protective rabies titre need instructors permission.

*Department(s):* Department of Pathobiology

**PABI\*6222 Comparative Veterinary Pathology II U [0.50]**

Pathological changes associated with diseases of poultry and pet birds, fish and various laboratory animals.

*Offering(s):* Offered in even-numbered years.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Pathobiology

**PABI\*6300 Clinical Pathology I U [0.50]**

Principles and applications of veterinary hematology and cytology, with emphasis on the hematopoietic systems.

*Restriction(s):* Veterinarians licensed by CVO.

*Department(s):* Department of Pathobiology

<b>PABI*6320 Clinical Pathology II W [0.50]</b>
In depth study of principles and applications of biochemical tests to evaluate the function of selected organ systems, including the renal, hepatic, pancreatic and endocrine systems. <i>Restriction(s):</i> Veterinarians licensed by CVO. <i>Department(s):</i> Department of Pathobiology
<b>PABI*6330 Viral Diseases F [0.50]</b>
A study of important viral diseases of animals, with emphasis on etiology, host responses, diagnosis and control. <i>Offering(s):</i> Offered in odd-numbered years. <i>Department(s):</i> Department of Pathobiology
<b>PABI*6350 Molecular Epidemiology of Bacterial Diseases F [0.50]</b>
This is a basic introduction to molecular epidemiology of bacterial diseases. It provides an understanding of molecular epidemiology methodologies and of their use for improving our understanding of infectious diseases epidemiology and control. <i>Prerequisite(s):</i> STAT*2040 Statistics I <i>Restriction(s):</i> Lab component: limited number of participants and WHIMIS certificate compulsory. <i>Department(s):</i> Department of Pathobiology
<b>PABI*6430 Academic and Professional Skills in Pathobiology S,F [0.00]</b>
Students will be introduced to fundamental elements of scientific research and communication and to various academic skills through lectures, seminars, and completion of in class activities. Throughout the course, relevant ethical, and regulatory issues will be discussed. <i>Department(s):</i> Department of Pathobiology
<b>PABI*6440 MSc Seminar in Pathobiology S,F,W [0.50]</b>
Students registered in the MSc program will develop a written critical review of the literature and plan for their thesis research. This material will also be presented in the form of a public seminar. Students are also required to provide oral and written critical reviews of thesis plan presentations. <i>Prerequisite(s):</i> PABI*6430 <i>Department(s):</i> Department of Pathobiology
<b>PABI*6450 Doctoral Seminar in Pathobiology S,F,W [0.50]</b>
Students registered in the PhD or DVSc programs will develop a written critical review of the literature and plan for their thesis research. This material will also be presented in the form of a public seminar. Students are also required to provide oral and written critical reviews of the thesis plan presentations of other students. <i>Prerequisite(s):</i> PABI*6430 <i>Department(s):</i> Department of Pathobiology
<b>PABI*6500 Infectious Diseases and Public Health F [0.50]</b>
Prevention and control of infectious diseases is an important aspect of public health. This course will involve detailed discussion of selected infectious diseases of public health concern, excluding zoonotic diseases. Relevant aspects of microbiology, epidemiology, clinical presentation, diagnosis and treatment will be covered, with additional emphasis on prevention and control. <i>Restriction(s):</i> Restricted to students in Public Health programs. <i>Department(s):</i> Department of Pathobiology
<b>PABI*6550 Epidemiology of Zoonoses W [0.50]</b>
Characterization and distribution of diseases common to people and animals. <i>Department(s):</i> Department of Pathobiology
<b>PABI*6560 Principles and Practice of Antimicrobial Therapy U [0.50]</b>
This course will cover antimicrobial therapy in veterinary medicine, encompassing microbial, pharmacological and clinical aspects of prudent and effective antimicrobial use. <i>Offering(s):</i> Offered in alternate years. <i>Restriction(s):</i> Instructor consent required. DVM degree or equivalent required. <i>Department(s):</i> Department of Pathobiology
<b>PABI*6630 Applied Comparative Pathology I U [0.50]</b>
Introductory course in the diagnostic pathology of mammals, birds, reptiles, amphibians, and fish. Cases may be restricted by animal taxa or context (e.g., free-ranging Canadian wildlife, zoological collections, aquaculture). The three-semester course in Applied Comparative Pathology builds in expected level of accomplishment. <i>Restriction(s):</i> Veterinarians licensed by CVO. Students who are not DVM students and/or do not have a protective rabies titre need instructors permission. <i>Department(s):</i> Department of Pathobiology

<b>PABI*6640 Applied Comparative Pathology II U [0.50]</b>
Intermediate course in the diagnostic pathology of mammals, birds, reptiles, amphibians, and fish. Cases may be restricted by animal taxa or context (e.g., free-ranging Canadian wildlife, zoological collections, aquaculture). The three-semester course in Applied Comparative Pathology builds in expected level of accomplishment. <i>Prerequisite(s):</i> PABI*6630 <i>Restriction(s):</i> Veterinarians licensed by CVO. Students who are not DVM students and/or do not have a protective rabies titre need instructors permission. <i>Department(s):</i> Department of Pathobiology
<b>PABI*6650 Applied Comparative Pathology III U [0.50]</b>
Advanced course in the diagnostic pathology of mammals, birds, reptiles, amphibians, and fish. Cases may be restricted by animal taxa or context (e.g., free-ranging Canadian wildlife, zoological collections, aquaculture). The three-semester course in Applied Comparative Pathology builds in expected level of accomplishment. <i>Prerequisite(s):</i> PABI*6630 PABI*6640 <i>Restriction(s):</i> Veterinarians licensed by CVO. Students who are not DVM students and/or do not have a protective rabies titre need instructors permission. <i>Department(s):</i> Department of Pathobiology
<b>PABI*6700 Laboratory Animal Science U [0.50]</b>
Basic information on various aspects of laboratory animal science, including IACUC function, regulatory oversight, ethics, historical review of animal research, animal models and alternatives, experimental design and considerations, biology, management and uses of common species in research. <i>Restriction(s):</i> Instructor consent required. <i>Department(s):</i> Department of Pathobiology
<b>PABI*6710 Applied Laboratory Animal Science I U [0.50]</b>
This course will emphasize practical aspects of laboratory animal science including research protocol review, writing and reviewing standard operating procedures, animal monitoring, pathology procedures, and case management. <i>Restriction(s):</i> Instructor consent required. <i>Department(s):</i> Department of Pathobiology
<b>PABI*6720 Applied Laboratory Animal Science II U [0.50]</b>
Continuation of I with emphasis on biohazard and personnel safety, monitoring for disease, quality control and diagnostic procedures. <i>Restriction(s):</i> Instructor consent required. <i>Department(s):</i> Department of Pathobiology
<b>PABI*6730 Applied Laboratory Animal Science III U [0.50]</b>
Continuation of I and II, with emphasis on a comparison of programs and procedures in other facilities in Canada, nonhuman primate medicine, and surgical, clinical and necropsy procedures. <i>Restriction(s):</i> Instructor consent required. <i>Department(s):</i> Department of Pathobiology
<b>PABI*6740 Avian Diseases U [0.50]</b>
Detailed study of recent concepts of preventive medicine, diagnosis and therapeutics as applied to clinical recognition and control of avian diseases. <i>Restriction(s):</i> Instructor consent required. <i>Department(s):</i> Department of Pathobiology
<b>PABI*6960 Special Topics in Pathobiology F,W,S [0.50]</b>
In-depth independent study of subjects related to student's principal area of interest. Major paper(s), laboratory studies, and/or written and oral examination, with or without seminar preparation. <i>Restriction(s):</i> Instructor consent required. <i>Department(s):</i> Department of Pathobiology

## Philosophy

<b>PHIL*6000 Value Theory U [0.50]</b>
A critical examination of some selected contemporary works in value theory or aesthetics. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6060 Logic U [0.50]</b>
A course designed to bring the individual student to the level of competence in logical techniques and theory required for graduate studies. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6110 Philosophy of Religion U [0.50]</b>
A critical examination of some selected major works or central problems in the philosophy of religion. <i>Department(s):</i> Department of Philosophy

<b>PHIL*6120 Philosophy of Mind U [0.50]</b>
A study of contemporary theories of mind and philosophies of psychology. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6140 Contemporary European Philosophy I U [0.50]</b>
A study of the historical and contemporary origins of existentialism, phenomenology and post-modernism, concentrating on one or several of the classic texts. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6150 Contemporary European Philosophy II U [0.50]</b>
A study of the historical and contemporary origins of existentialism, phenomenology and post-modernism, concentrating on texts not covered in PHIL*6140 in the same year. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6200 Problems of Contemporary Philosophy U [0.50]</b>
A study of a particular set of problems in contemporary philosophy. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6210 Metaphysics U [0.50]</b>
A critical examination of some selected major works or central problems in metaphysics. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6220 Epistemology U [0.50]</b>
A critical examination of some selected major works or central problems in epistemology. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6230 Ethics U [0.50]</b>
A critical examination of some selected contemporary works or problems in ethical theory. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6240 Biomedical Ethics U [0.50]</b>
A critical examination of some selected contemporary works or of problems in biomedical ethics. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6310 Plato U [0.50]</b>
A study of some of the major works of Plato. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6311 Aristotle U [0.50]</b>
A study of some of the major works of Aristotle. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6320 Medieval Philosophy U [0.50]</b>
A close examination of particular problems and texts of the medieval period <i>Department(s):</i> Department of Philosophy
<b>PHIL*6340 Modern Philosophy U [0.50]</b>
An examination of major texts, from Descartes to Mill. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6500 John Locke U [0.50]</b>
A critical examination of the works of John Locke. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6530 Kant U [0.50]</b>
A critical examination of the works of Immanuel Kant. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6600 Social and Political Philosophy U [0.50]</b>
A critical examination of some selected contemporary works or central problems in the field of social philosophy. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6700 Survey of Ancient Philosophy U [0.50]</b>
A survey of ancient philosophy. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6710 Survey of Early Modern Philosophy U [0.50]</b>
A survey of modern philosophy from Hobbes to Hume. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6720 History of the Philosophy of Science U [0.50]</b>
A survey of the history of the philosophy of science from the Presocratics to the Positivists. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6730 Contemporary Philosophy of Science U [0.50]</b>
An examination of the contemporary discipline of the philosophy of science. <i>Department(s):</i> Department of Philosophy

<b>PHIL*6740 Philosophy of Biology U [0.50]</b>
A general introduction to the history and philosophy of biology. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6760 Science and Ethics U [0.50]</b>
A consideration of the problems which arise in the conjunction of science and ethics. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6810 Survey of Late Modern Philosophy U [0.50]</b>
A survey of modern philosophy from Kant to the late 19th century. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6900 Reading Course U [0.50]</b>
<i>Department(s):</i> Department of Philosophy
<b>PHIL*6930 Selected Topics I U [0.50]</b>
Topics in this course will vary from offering to offering. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6940 Selected Topics II U [0.50]</b>
Topics in this course will vary from offering to offering. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6950 MA Seminar U [0.50]</b>
A seminar course in which students work on developing a range of academic skills for doing professional philosophy. This course is pass/fail and is mandatory for all incoming MA students. Please refer to the Philosophy Department website for a comprehensive description of this course. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6960 PhD Graduate Seminar F,W [0.50]</b>
A seminar course in which students work on developing a range of academic skills for doing professional philosophy. This course is pass/fail and is mandatory for all first year PhD students. Please refer to the Philosophy Department website for a comprehensive description of this course. <i>Department(s):</i> Department of Philosophy
<b>PHIL*6990 Major Research Project U [1.00]</b>
A major research project undertaken by students doing an MA by course work, under the supervision of a faculty member. <i>Department(s):</i> Department of Philosophy

## Physics

<b>PHYS*6010 PSI Quantum Field Theory I U [0.50]</b>
Canonical quantization of fields, perturbation theory, derivation of Feynman diagrams, applications in particle and condensed matter theory, renormalization in $\phi^4$ . <i>Department(s):</i> Department of Physics
<b>PHYS*6020 PSI Statistical Physics U [0.50]</b>
A brief review of ensembles and quantum gases, Ising model, Landau theory of phase transitions, order parameters, topology, classical solutions. <i>Department(s):</i> Department of Physics
<b>PHYS*6030 PSI Quantum Field Theory II U [0.50]</b>
Feynman Path Integral, abelian and nonabelian gauge theories and their quantization, spontaneous symmetry breaking, nonperturbative techniques: lattice field theory, Wilsonian renormalization. <i>Department(s):</i> Department of Physics
<b>PHYS*6040 PSI Relativity U [0.50]</b>
Special relativity, foundations of general relativity, Riemannian geometry, Einstein's equations, FRW and Schwarzschild geometries and their properties. <i>Department(s):</i> Department of Physics
<b>PHYS*6050 PSI Quantum Theory U [0.50]</b>
Schrodinger equation: free particle, harmonic oscillator, simple time-dependent problems, Heisenberg picture and connection with classical physics. Entanglement and non-locality. Pure and mixed states, quantum correlators, measurement theory and interpretation. <i>Department(s):</i> Department of Physics
<b>PHYS*6060 PSI Information and Data Analysis U [0.50]</b>
Probability, entropy, Bayesian inference and information theory. Maximum likelihood methods, common probability distributions, applications to real data including Monte Carlo methods. <i>Department(s):</i> Department of Physics

<b>PHYS*6070 PSI Dynamical Systems U [0.50]</b>
Maps, flows, stability, fixed points, attractors, chaos, bifurcations, ergodicity, approach to chaos. Hamiltonian systems, Liouville, measure, Poincare theorem, integrable systems with examples.
<i>Department(s):</i> Department of Physics
<b>PHYS*6080 PSI Computation U [0.50]</b>
Common algorithms for ode and pde solving, with numerical analysis. Common tasks in linear algebra. Focus on how to write a good code, test it, and obtain a reliable result. Parallel programing.
<i>Department(s):</i> Department of Physics
<b>PHYS*6210 PSI Cosmology U [0.25]</b>
FRW metic, Hubble expansion, dark energy, dark matter, CMB, Thermodynamic history of early universe. Growth of perturbations, CDM model of structure formation and comparison to observations, cosmic microwave background anisotropies, inflation and observational tests.
<i>Department(s):</i> Department of Physics
<b>PHYS*6220 PSI Standard Model U [0.25]</b>
Application of Yan-Mills theory to particle physics, QCD and its tests in the perturbative regime, theory of weak interactions, precisions tests of electroweak theory, CKM matrix and flavour physics, open questions.
<i>Department(s):</i> Department of Physics
<b>PHYS*6230 PSI String Theory U [0.25]</b>
Superstring spectrum in 10d Minkowski, as well as simple toroidal and orbifold compactifications. T-duality, D-branes, tree amplitudes. Construct some simple unified models of particle physics. Motivate the 10- 11-dimensional supergravities. Simple supergravity solutions and use these to explore some aspects of adS/CFT duality.
<i>Department(s):</i> Department of Physics
<b>PHYS*6240 PSI Mathematical Physics Topics U [0.25]</b>
Differential forms, de Rham cohomology, differential topology and characteristic classes, monopoles and instantons, Kahler manifolds, Dirac equations, zero modes and index theorems.
<i>Department(s):</i> Department of Physics
<b>PHYS*6350 PSI Quantum Information Review U [0.25]</b>
Review of selected topics in Quantum Information.
<i>Department(s):</i> Department of Physics
<b>PHYS*6360 PSI Gravitational Physics Review U [0.25]</b>
Review of selected topics in Gravitational Physics.
<i>Department(s):</i> Department of Physics
<b>PHYS*6370 PSI Condensed Matter Theory U [0.25]</b>
Review of selected topics in Condensed Matter Theory.
<i>Department(s):</i> Department of Physics
<b>PHYS*6380 PSI Quantum Gravity U [0.25]</b>
Review of selected topics in Quantum Grativity.
<i>Department(s):</i> Department of Physics
<b>PHYS*6390 PSI Foundations of Quantum Theory U [0.25]</b>
Review of selected topics in Foundations of Quantum Theory.
<i>Department(s):</i> Department of Physics
<b>PHYS*6410 PSI Explorations in Quantum Information U [0.25]</b>
Review of selected topics in Quantum Information.
<i>Department(s):</i> Department of Physics
<b>PHYS*6420 PSI Explorations in Gravitational Physics U [0.25]</b>
Review of selected topics in Gravitational Physics.
<i>Department(s):</i> Department of Physics
<b>PHYS*6430 PSI Exploration in Condensed Matter Theory U [0.25]</b>
Review of selected topics in Condensed Matter Theory.
<i>Department(s):</i> Department of Physics
<b>PHYS*6440 PSI Exploration in Quantum Gravity U [0.25]</b>
Review of selected topics in Quantum Gravity.
<i>Department(s):</i> Department of Physics
<b>PHYS*6450 PSI Explorations in Foundations of Quantum Theory U [0.25]</b>
Review of selected topics in Foundations of Quantum Theory.
<i>Department(s):</i> Department of Physics

<b>PHYS*6460 PSI Explorations in Particle Physics U [0.25]</b>
Review of selected topics in Particle Physics.
<i>Department(s):</i> Department of Physics
<b>PHYS*6470 PSI Explorations in String Theory U [0.25]</b>
Review of selected topics in String Theory.
<i>Department(s):</i> Department of Physics
<b>PHYS*6480 PSI Explorations in Complex Systems U [0.25]</b>
Review of selected topics in Complex Systems.
<i>Department(s):</i> Department of Physics
<b>PHYS*6490 PSI Explorations in Cosmology U [0.25]</b>
Review of selected topics in Cosmology.
<i>Department(s):</i> Department of Physics
<b>PHYS*7010 Quantum Mechanics I * U [0.50]</b>
Review of formalism of nonrelativistic quantum mechanics including symmetries and invariance. Approximation methods and scattering theory. Elementary quantum theory of radiation. Introduction to one-particle relativistic wave equations.
<i>Department(s):</i> Department of Physics
<b>PHYS*7020 Quantum Mechanics II U [0.50]</b>
Concepts of relativistic quantum mechanics, elementary quantum field theory, and Feynman diagrams. Application to many-particle systems.
<i>Prerequisite(s):</i> PHYS*7010 or equivalent
<i>Department(s):</i> Department of Physics
<b>PHYS*7030 Quantum Field Theory U [0.50]</b>
Review of relativistic quantum mechanics and classical field theory. Quantization of free quantum fields (the particle interpretation of field quants). Canonical quantization of interacting fields (Feynman rules). Application of the formalism of interacting quantum fields to lowest-order quantum electrodynamic processes. Radiative corrections and renormalization.
<i>Prerequisite(s):</i> PHYS*7010 or equivalent.
<i>Department(s):</i> Department of Physics
<b>PHYS*7040 Statistical Physics I* U [0.50]</b>
Statistical basis of thermodynamics; microcanonical, canonical and grand canonical ensembles; quantum statistical mechanics, theory of the density matrix; fluctuations, noise, irreversible thermodynamics; transport theory; application to gases, liquids, solids.
<i>Department(s):</i> Department of Physics
<b>PHYS*7050 Statistical Physics II U [0.50]</b>
Phase transitions. Fluctuation phenomena. Kubo's theory of time correlation functions for transport and spectral properties; applications selected from a variety of topics including linearized hydrodynamics of normal and superfluids, molecular liquids, liquid crystals, surface phenomena, theory of the dielectric constant, etc.
<i>Prerequisite(s):</i> PHYS*7040 or equivalent.
<i>Department(s):</i> Department of Physics
<b>PHYS*7060 Electromagnetic Theory * U [0.50]</b>
Solutions to Maxwell's equations; radiation theory, normal modes; multipole expansion; Kirchhoff's diffraction theory; radiating point charge; optical theorem. Special relativity; transformation laws for the electromagnetic field; line broadening. Dispersion; Kramers-Kronig relations. Magnetohydrodynamics and plasmas.
<i>Department(s):</i> Department of Physics
<b>PHYS*7080 Applications of Group Theory U [0.50]</b>
Introduction to group theory; symmetry, the group concept, representation theory, character theory. Applications to molecular vibrations, the solid state, quantum mechanics and crystal field theory.
<i>Department(s):</i> Department of Physics
<b>PHYS*7090 Green's Function Method U [0.50]</b>
Review of essential quantum field theory. Zero and finite temperature. Green's functions. Applications.
<i>Department(s):</i> Department of Physics
<b>PHYS*7100 Atomic Physics U [0.50]</b>
Emphasis on atomic structure and spectroscopy. Review of angular momentum, rotations, Wigner-Eckart theorem, n-j symbols. Energy levels in complex atoms, Hartree-Fock theory, radiative-transitions and inner-shell processes. Further topics selected with class interest in mind, at least one of which is to be taken from current literature.
<i>Department(s):</i> Department of Physics
<b>PHYS*7120 Special Topics in Theoretical Physics U [0.50]</b>
<i>Department(s):</i> Department of Physics

**PHYS\*7130 Molecular Physics U [0.50]**

Angular momentum and the rotation of molecules; introduction to group theory with application to molecular vibrations; principles of molecular spectroscopy; spectra of isolated molecules; intermolecular interactions and their effects on molecular spectra; selected additional topics (e.g., electronic structure of molecules, experimental spectroscopic techniques, neutron scattering, correlation functions, collision induced absorption, extension of group theory to molecular crystals, normal co-ordinate analysis, etc.).

*Department(s):* Department of Physics

**PHYS\*7140 Nonlinear Optics U [0.50]**

Classical and Quantum Mechanical descriptions of nonlinear susceptibility, nonlinear wave propagation, nonlinear effects such as Peckel's and Kerr effects, harmonic generation, phase conjugation and stimulated scattering processes.

*Department(s):* Department of Physics

**PHYS\*7150 Nuclear Physics U [0.50]**

Static properties of nuclei; alpha, beta, gamma decay; two-body systems; nuclear forces; nuclear reactions; single-particle models for spherical and deformed nuclei; shell, collective, interacting boson models.

*Department(s):* Department of Physics

**PHYS\*7160 Special Topics in Subatomic and Nuclear Physics U [0.50]**

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Physics

**PHYS\*7170 Intermediate and High Energy Physics U [0.50]**

Strong, electromagnetic and weak interactions. Isospin, strangeness, conservation laws and symmetry principles. Leptons, hadrons, quarks and their classification, formation, interactions and decay.

*Department(s):* Department of Physics

**PHYS\*7180 Special Topics in Subatomic and Nuclear Physics U [0.25]**

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Physics

**PHYS\*7310 Solid State Physics I U [0.50]**

Phonons, electron states, electron-electron interaction, electron-ion interaction, static properties of solids.

*Department(s):* Department of Physics

**PHYS\*7320 Solid State Physics II U [0.50]**

Transport properties; optical properties; magnetism; superconductivity; disordered systems.

*Department(s):* Department of Physics

**PHYS\*7330 Special Topics in Theoretical Condensed Matter Physics U [0.50]**

*Department(s):* Department of Physics

**PHYS\*7370 Special Topics in Surface Physics U [0.50]**

*Department(s):* Department of Physics

**PHYS\*7380 Special Topics in Condensed Matter and Materials Physics U [0.25]**

*Department(s):* Department of Physics

**PHYS\*7450 Special Topics in Experimental Physics \* U [0.50]**

A modular course in which each module deals with an established technique of experimental physics. Four modules will be offered during the Winter and Spring semesters, but registration and credit will be in the spring semester. Typical topics are neutron diffraction, light scattering, acoustics, molecular beams, NMR, surface analysis, etc.

*Department(s):* Department of Physics

**PHYS\*7470 Optical Electronics U [0.50]**

Optoelectronic component fabrication, light propagation in linear and nonlinear media, optical fiber properties, electro-optic and acousto-optic modulation, spontaneous and stimulated emission, semiconductor lasers and detectors, noise effects in fiber systems.

*Department(s):* Department of Physics

**PHYS\*7510 Clinical Applications of Physics in Medicine U [0.50]**

This course provides an overview of the application of physics to medicine. The physical concepts underlying the diagnosis and treatment of disease will be explored. Topics will include general imaging principles such as resolution, intensity, and contrast; x-ray imaging and computed tomography; radioisotopes and nuclear medicine, SPECT and PET; magnetic resonance imaging; ultrasound imaging and radiation therapy. Credit may be obtained for only one of PHYS\*4070 or PHYS\*7510.

*Department(s):* Department of Physics

**PHYS\*7520 Molecular Biophysics U [0.50]**

Physical methods of determining macromolecular structure: energetics, intramolecular and intermolecular forces, with application to lamellar structures, information storage, DNA and RNA, recognition and rejection of foreign molecules. Offered in conjunction with PHYS\*4540. Extra work is required of graduate students.

*Restriction(s):* Credit may be obtained for only one of PHYS\*4540 or PHYS\*7520

*Department(s):* Department of Physics

**PHYS\*7540 Special Topics in Biophysics U [0.50]**

Offered on demand

*Department(s):* Department of Physics

**PHYS\*7570 Special Topics in Biophysics U [0.25]**

Offered on demand

*Department(s):* Department of Physics

**PHYS\*7670 Introduction to Quantum Information Processing F [0.50]**

Quantum superposition, interference, and entanglement. Postulates of Quantum Mechanics. Quantum computational complexity. Quantum Algorithms. Quantum communication and cryptography. Quantum error correction. Implementations.

*Department(s):* Department of Physics

**PHYS\*7680 Special Topics in Quantum Information Processing U [0.50]**

*Department(s):* Department of Physics

**PHYS\*7690 Special Topics in Quantum Information Processing U [0.25]**

*Department(s):* Department of Physics

**PHYS\*7710 Special Lecture and Reading Course U [0.50]**

*Department(s):* Department of Physics

**PHYS\*7730 Special Topics in Physics U [0.50]**

*Department(s):* Department of Physics

**PHYS\*7750 Interinstitution Exchange U [0.50]**

At the GWPI director's discretion, a PhD or MSc student may receive credit for a term of specialized studies at another institution. Formal evaluation is required.

*Restriction(s):* GWPI director approval required

*Department(s):* Department of Physics

**PHYS\*7760 Special Topics in Physics U [0.50]**

*Department(s):* Department of Physics

**PHYS\*7770 Special Topics in Physics U [0.25]**

*Department(s):* Department of Physics

**PHYS\*7810 Fundamentals of Astrophysics U [0.50]**

The fundamental astronomical data: techniques to obtain it and the shortcomings present. The classification systems. Wide- and narrow-band photometric systems. The intrinsic properties of stars: colours, luminosities, masses, radii, temperatures. Variable stars. Distance indicators. Interstellar reddening. Related topics.

*Department(s):* Department of Physics

**PHYS\*7840 Advanced General Relativity W [0.50]**

Review of elementary general relativity. Timelike and null geodesic congruences. Hypersurfaces and junction conditions. Lagrangian and Hamiltonian formulations of general relativity. Mass and angular momentum of a gravitating body. The laws of black-hole mechanics.

*Department(s):* Department of Physics

**PHYS\*7850 Quantum Field Theory for Cosmology U [0.50]**

Introduction to scalar field theory and its canonical quantization in flat and curved spacetimes. The flat space effects of Casimir and Unruh. Quantum fluctuations of scalar fields and of the metric on curved space-times and application to inflationary cosmology. Hawking radiation.

*Prerequisite(s):* PHYS\*7010

*Department(s):* Department of Physics

**PHYS\*7860 General Relativity for Cosmology U [0.50]**

Introduction to the differential geometry of Lorentzian manifolds. The principles of general relativity. Causal structure and cosmological singularities. Cosmological space-times with Killing vector fields. Friedmann-Lemaître cosmologies, scalar vector and tensor perturbations in the linear and nonlinear regimes. De Sitter space-times and inflationary models.

*Department(s):* Department of Physics

<b>PHYS*7870 Cosmology U [0.50]</b>
Friedmann-Robertson-Walker metric and dynamics; big bang thermodynamics; nucleosynthesis; recombination; perturbation theory and structure formation; anisotropies in the Cosmic Microwave Background; statistics of cosmological density and velocity fields; galaxy formation; inflation. <i>Department(s):</i> Department of Physics
<b>PHYS*7880 Special Topics in Astronomy U [0.50]</b>
Offered on demand <i>Department(s):</i> Department of Physics
<b>PHYS*7890 Special Topics in Astrophysics U [0.25]</b>
Offered on demand <i>Department(s):</i> Department of Physics
<b>PHYS*7970 MSc Project U [1.00]</b>
Study of a selected topic in physics presented in the form of a written report. For students whose MSc program consists entirely of courses <i>Department(s):</i> Department of Physics
<b>PHYS*7900 Special Topics in Gravitation and Cosmology U [0.50]</b>
<i>Department(s):</i> Department of Physics
<b>PHYS*7910 Special Topics in Gravitation and Cosmology U [0.25]</b>
<i>Department(s):</i> Department of Physics

## Plant Agriculture

<b>PLNT*6010 Physiology of Crop Yield W [0.50]</b>
This course covers factors affecting biomass production and yield, with primary focus on phenomena measured at the whole canopy scale. Yield-limiting abiotic stresses (temperature, water deficit, nutrient deficiency) are considered in detail, as are technical aspects of instrumentation used in crop physiology research. (Offered annually) <i>Prerequisite(s):</i> PBIO*3110 or permission of instructor <i>Department(s):</i> Department of Plant Agriculture
<b>PLNT*6080 Plant Disease Epidemiology and Management F [0.50]</b>
Epidemiology and management of plant diseases caused by fungi, viruses, and bacteria. <i>Offering(s):</i> Offered in even-numbered years. <i>Department(s):</i> Department of Plant Agriculture
<b>PLNT*6100 Advanced Plant Breeding I W [0.50]</b>
The practical consideration of genetic theory and biological limitations to improving plant populations and developing cultivars are discussed. Current and emerging breeding methodologies and sources of variation used to achieve plant breeding goals are examined through lectures, paper discussion, site visits and invited talks. <i>Department(s):</i> Department of Plant Agriculture
<b>PLNT*6110 Fruit and Vegetable Technology F [0.50]</b>
The course is primarily intended to address science and technology aspects of fruits and vegetables, with specific reference to storage, packaging, quality, processing, products and ingredients, health regulatory properties and biotechnology issues. Methods of instruction include lectures and seminars. Students are evaluated during their seminar presentations, term papers and participation in discussions. <i>Offering(s):</i> Offered in even-numbered years. <i>Department(s):</i> Department of Plant Agriculture
<b>PLNT*6140 Biological and Cultural Control of Plant Diseases W [0.50]</b>
This course explores current concepts and approaches to managing pathogens and diseases in detail but other methods (e.g. genetic resistance) will be presented as well. Offered in conjunction with PBIO*4070. Extra work is required of graduate students. <i>Offering(s):</i> Offered Annually <i>Restriction(s):</i> Credit may be obtained for only one of PBIO*4070 or PLNT*6140 <i>Department(s):</i> Department of Plant Agriculture
<b>PLNT*6160 Advanced Plant Breeding II W [0.50]</b>
Fundamentals of quantitative genetics. Topics include gene and genotype frequencies means, variances, covariances and resemblance among relatives. Lecture topics are expanded through discussion of classic and current papers. <i>Offering(s):</i> Offered in odd-numbered years. <i>Department(s):</i> Department of Plant Agriculture
<b>PLNT*6170 Statistics in Plant Agriculture W [0.50]</b>
The application of statistical techniques to research in plant agriculture. SAS is the software used to perform data analysis. Emphasis is placed on statistical principles, the design of experiments, the testing of hypotheses, and communication of findings to other scientists. <i>Department(s):</i> Department of Plant Agriculture

<b>PLNT*6210 Herbicide Activity, Modes-of-Action, Selectivity and Resistance F [0.50]</b>
This course provides a comprehensive study of the major herbicide groups. The various herbicide groups will be discussed under the following topics: herbicide uptake and translocation, herbicide mode of action, herbicide selectivity, weeds controlled and crop injury. <i>Offering(s):</i> Offered in odd-numbered years. <i>Department(s):</i> Department of Plant Agriculture
<b>PLNT*6230 Colloquium in Plant Physiology and Biochemistry U [0.25]</b>
An open discussion course designed to review and critically analyze contemporary issues in plant physiology and biochemistry. <i>Department(s):</i> Department of Plant Agriculture
<b>PLNT*6240 Colloquium in Crop Production and Management U [0.25]</b>
An open discussion course designed to review and critically analyze contemporary issues in crop production and management. <i>Department(s):</i> Department of Plant Agriculture
<b>PLNT*6250 Colloquium in Plant Genetics and Breeding U [0.25]</b>
An open discussion course designed to review and critically analyse contemporary issues in plant genetics and breeding. <i>Department(s):</i> Department of Plant Agriculture
<b>PLNT*6260 Advanced Plant Genetics I F [0.50]</b>
A lecture and discussion course examining the underlying principles of genetics and the recent advances in plant genetics. Topics include: structure of the genome, experiments to measure and experimentally describe phenotypes, population structures, and molecular basis of inheritance of a phenotype. <i>Department(s):</i> Department of Plant Agriculture
<b>PLNT*6270 Agroecosystem Design and Function F [0.50]</b>
This lecture-based course critically analyzes the agroecosystem in field crop, horticulture, turfgrass and greenhouse industries. Agroecosystem design is considered in relation to key components such as crop rotation and management of soil, nutrient and water supply. The significance of plant function, soil properties, and nutrient and water cycles to agroecosystem design are examined. Metrics of productivity and environmental sustainability serve to focus discussion on agroecosystem optimization. <i>Department(s):</i> Department of Plant Agriculture
<b>PLNT*6280 Invasive Plant Ecology in Natural and Agricultural Systems W [0.50]</b>
This course focuses on the ecological principles that are important in understanding the potential for a plant species to become invasive. Students are able to use this knowledge to facilitate management of these species under field conditions. <i>Offering(s):</i> Offered in odd-numbered years. <i>Prerequisite(s):</i> CROP*4240 or BOT*2100 or BOT*3120 <i>Department(s):</i> Department of Plant Agriculture
<b>PLNT*6290 Physiological and Developmental Genetics in Plants F [0.50]</b>
A lecture and discussion course examining classical and molecular genetic investigations to understand the genetic basis and regulation of physiological and developmental processes in plants. <i>Offering(s):</i> Offered in even-numbered years. <i>Department(s):</i> Department of Plant Agriculture
<b>PLNT*6320 Metabolic Processes in Crop Plants F [0.50]</b>
A comprehensive examination of the metabolic mechanisms and versatility whereby autotrophic organisms sustain themselves. Emphasis is placed on our current understanding of the regulation and integration of metabolic processes in plants and their physiological and agricultural significance including available research methodologies. <i>Prerequisite(s):</i> one undergraduate course in biochemistry <i>Restriction(s):</i> No auditing without permission of Instructor. <i>Department(s):</i> Department of Plant Agriculture
<b>PLNT*6330 Metabolism of Natural Products in Plants W [0.50]</b>
A comprehensive analysis of the metabolism and roles of natural products in plants. Emphasis is placed on the distinction between secondary and primary processes, and the composition, detection, and regulation of the biosynthesis, modification and turnover of natural products. Key research methodologies and the roles of natural products in abiotic and biotic stresses and their effects on human health are discussed. <i>Offering(s):</i> Offered in even-numbered years. <i>Department(s):</i> Department of Plant Agriculture



**PLNT\*6340 Plant Breeding F [0.50]**

This course examines principles of plant breeding in self- and cross-pollinated crops. Additional topics include crop domestication, mating systems, heritability, gain from selection, disease resistance, polyploidy, marker assisted selection and government regulations.

*Restriction(s):* MBG\*4160

*Department(s):* Department of Plant Agriculture

**PLNT\*6400 Seminar F,W [0.25]**

All graduate students present a departmental seminar on their research proposal in their second or third semester. Each student is expected to participate in the seminars of colleagues and faculty.

*Restriction(s):* Restricted to thesis-based students

*Department(s):* Department of Plant Agriculture

**PLNT\*6450 Plant Agriculture International Field Tour U [0.25]**

A field course designed to increase student's knowledge of primary field and animal agricultural production systems, to explore the environmental and political issues related to international agriculture, and to understand the role of agri-business in the rural economy.

*Restriction(s):* CROP\*4260 if PLNT\*6450 is field tour to mid-west USA

*Department(s):* Department of Plant Agriculture

**PLNT\*6500 Applied Bioinformatics W [0.50]**

The goal of this course is to provide an introductory understanding of the databases and methods used in computational molecular biology research. Topics include: reviewing major molecular databases and their structures, constructing sequence alignments, constructing phylogenies, and finding motifs and genes in biological sequences. Lab sessions include an introduction to Unix and Perl for the biologist and hands-on use of several molecular data analysis programs.

*Prerequisite(s):* Undergraduate level statistics class (such as STAT\*2040 or STAT\*2100) and undergraduate level molecular biology class (such as MBG\*2020).

*Department(s):* Department of Plant Agriculture

**PLNT\*6800 Special Topics in Plant Science U [0.50]**

A study of selected contemporary topics in plant science. Proposed course descriptions are considered by the Department of Plant Agriculture on an ad hoc basis, and the course is offered according to demand.

*Department(s):* Department of Plant Agriculture

**Political Science****POLS\*6050 The Politics of Identity U [0.50]**

This course engages theoretical approaches of identity and identity politics in the global north and/or south. Topics may include contestation over indigenous, racial, ethnic, cultural, sexual, gender, and women's rights.

*Department(s):* Department of Political Science

**POLS\*6120 Theories of International Relations U [0.50]**

This course examines Western and non-Western theories of international relations, such as realism, liberalism, and constructivism, as well as Marxist, critical, indigenous and gender approaches. It will engage with established and emerging theories, exploring contestation and debates within the discipline.

*Department(s):* Department of Political Science

**POLS\*6130 Rights and Public Policy U [0.50]**

Students will study how individual rights can be restricted, protected or expanded through public policy, and how rights considerations and discourse may shape policy and the policy process.

*Department(s):* Department of Political Science

**POLS\*6150 Constitutionalism and Judicial Politics U [0.50]**

This course investigates how the constitution and the judiciary affect political processes and decision-making, and how politics shape constitutions and judicial process. Canadian or comparative examples will be examined.

*Department(s):* Department of Political Science

**POLS\*6160 Multi-Level Governance in Canada U [0.50]**

This course considers the evolving relationship among levels of government in Canada. The growth of cities, the growth of policy responsibilities of provinces, the influence of international organizations, and the development of First Nations government in Canada all challenge the conventional study of federal-provincial relations in Canada. From year to year, this course examines one or several of these contemporary dynamics. Offered in conjunction with POLS\*4160. Extra work is required for graduate students.

*Restriction(s):* Credit may be obtained for only one of POLS\*4160 or POLS\*6160

*Department(s):* Department of Political Science

**POLS\*6170 Courts and Parliament U [0.50]**

The course critically examines the complex relationship between the judiciary and representative institutions. By comparing the treatment of current political controversies (assisted suicide, prostitution, drug treatment), students will better appreciate the often-subtle exchanges between the two institutions and further enhance their research abilities in regards to both legal and legislative processes. Offered in conjunction with POLS\*4070. Extra work is required for graduate students.

*Restriction(s):* Credit may be obtained for only one of POLS\*4070 or POLS\*6170

*Department(s):* Department of Political Science

**POLS\*6180 Women, Justice and Public Policy U [0.50]**

This course will use gender-based analysis in examining a series of justice and public policy issues affecting the lives of women, including equality rights, pay and employment equity, domestic violence, sexual assault, family policy, health care policy, and pornography. Offered in conjunction with POLS\*4100. Extra work is required for graduate students.

*Restriction(s):* Credit may be obtained for only one of POLS\*4100 or POLS\*6180

*Department(s):* Department of Political Science

**POLS\*6200 Law and Politics U [0.50]**

This course explores advanced topics in law and politics depending on the interests of the instructor. Potential topics include investigating the law and politics of social change or analyzing debates about the political power of courts in Canada or in comparative perspectives. Offered in conjunction with POLS\*4050. Extra work is required for graduate students.

*Restriction(s):* Credit may be obtained for only one of POLS\*4050 or POLS\*6200

*Department(s):* Department of Political Science

**POLS\*6210 Conceptions of Canada U [0.50]**

This course will explore evolving conceptions of Canadian identity and nationalism through consideration of political culture, institutions and constitutional arrangements. Possible topics include: multiculturalism, aboriginal identity and community, Quebec nationalism, social citizenship, rights and representation, as well as Canada's global role and significance.

*Department(s):* Department of Political Science

**POLS\*6380 State-building and Regime Change U [0.50]**

Students will explore theories of states, regimes, state-building, regime change, and democratization. The course critically engages dominant debates and reviews empirical examples.

*Department(s):* Department of Political Science

**POLS\*6390 Resource Scarcity and Conflict U [0.50]**

This course examines domestic, international and global dimensions of environmental governance and resource conflict, as well as stakeholder perspectives on resource politics. Topics may include climate change; the resource curse; commodity production, trade and consumption; food and human security; political ecology and extractive industries.

*Department(s):* Department of Political Science

**POLS\*6400 Citizenship and Social Policy U [0.50]**

In this course, students will study social policy in comparative perspective. Theoretical models and various policy fields will be examined in order to understand welfare state development and retrenchment. Policy fields may include immigration, health, child care and income.

*Department(s):* Department of Political Science

**POLS\*6500 Qualitative and Quantitative Data Analysis U [0.50]**

This course introduces both qualitative and quantitative methods of data analysis. Students will engage theoretical material on the subject and develop data analysis skills through practice.

*Department(s):* Department of Political Science

**POLS\*6510 Political Participation and Engagement U [0.50]**

Students will study how individual citizens engage in the political process. Informal channels such as social movements or more formal organizations such as interest groups and political parties may be examined.

*Department(s):* Department of Political Science

**POLS\*6520 International Political Economy U [0.50]**

The course relies on theoretical approaches in IPE to examine relationships between politics and economics across national and regional levels. The evolution of the global political economy and its governance structures is explored, as well as contemporary debates about globalization and state and non-state actors' responses. Issue-areas may include: money and power, technology, trade, development and the environment. Offered in conjunction with POLS\*4200. Extra work is required for graduate students.

*Restriction(s):* Credit may be obtained for only one of POLS\*4200 or POLS\*6520

*Department(s):* Department of Political Science

**POLS\*6530 Human Rights, Ethics and Development U [0.50]**

This course will examine the political and ethical consequences of adopting a human rights framework in national and international contexts by both state and non-state actors. This subject will be explored from a range of historical, theoretical and practical perspectives. Offered in conjunction with POLS\*4300. Extra work is required for graduate students.

*Restriction(s):* Credit may be obtained for only one of POLS\*4300 or POLS\*6530

*Department(s):* Department of Political Science

**POLS\*6540 Topics in Comparative Politics U [0.50]**

This course considers theories and problems in comparative politics and government in developing and industrialized countries. The geographical and theoretical focus of the course will reflect the interests of the instructor. Offered in conjunction with POLS\*4710. Extra work is required for graduate students.

*Restriction(s):* Credit may be obtained for only one of POLS\*4710 or POLS\*6540

*Department(s):* Department of Political Science

**POLS\*6550 Topics in Public Management U [0.50]**

This course will examine various topics related to governance, such as public management reform, public sector leadership, third sector organizations or budgeting and human resources. Offered in conjunction with POLS\*4250. Extra work is required for graduate students.

*Restriction(s):* Credit may be obtained for only one of POLS\*4250 or POLS\*6550

*Department(s):* Department of Political Science

**POLS\*6560 Topics in Public Policy U [0.50]**

This course will examine various public policy issues such as social policy or health care policy in a Canadian or comparative context. Offered in conjunction with POLS\*4260. Extra work is required for graduate students.

*Restriction(s):* Credit may be obtained for only one of POLS\*4260 or POLS\*6560

*Department(s):* Department of Political Science

**POLS\*6570 International Relations of the Middle East U [0.50]**

This course is designed as an advanced introduction to the international relations of the Middle East. The course focuses on theories of international relations and their applicability to specific case studies of Middle Eastern politics. The course provides a critical examination of conflicts in the region, and contextualizes those conflicts within both realist and neo-realist theories of international relations. Offered in conjunction with POLS\*4730. Extra work is required for graduate students.

*Restriction(s):* Credit may be obtained for only one of POLS\*4730 or POLS\*6570

*Department(s):* Department of Political Science

**POLS\*6580 Topics in International Relations U [0.50]**

This course considers theories and problems in the field of International Relations. The theoretical and/or geographical focus of the course will reflect the interests of the instructor. Offered in conjunction with POLS\*4720. Extra work is required for graduate students.

*Restriction(s):* Credit may be obtained for only one of POLS\*4720 or POLS\*6580

*Department(s):* Department of Political Science

**POLS\*6590 Advanced Topics in Rights and Liberties U [0.50]**

The course explores rights and liberties from various perspectives depending on the interests of the instructor. Potential topics include exploring the political, social, and legal factors and theories that explain the development of rights and liberties; rights and liberties in a comparative and international context; or the philosophical and policy debates surrounding rights and liberties. Offered in conjunction with POLS\*4740. Extra work is required for graduate students.

*Restriction(s):* Credit may be obtained for only one of POLS\*4740 or POLS\*6590

*Department(s):* Department of Political Science

**POLS\*6630 Approaches to Public Policy U [0.50]**

This course introduces students to the main theoretical approaches utilized in understanding public policy making and outcomes. Throughout the course, particular attention is paid to varying conceptions of institutions, ideas and interest and the role of these conceptions in various explanations of policy change and stasis.

*Department(s):* Department of Political Science

**POLS\*6640 Canadian Public Administration: Public Sector Management U [0.50]**

This course examines the growth of the administrative state in Canada, especially in the post World War II period. It critically reviews issues such as the concept of public sector management, the delegation of authority, personnel management, accountability and the ethics of ministers and officials to Parliament and the public.

*Department(s):* Department of Political Science

**POLS\*6730 Development and Global Justice U [0.50]**

Students will study Western and non-Western theoretical perspectives on the politics of development and global justice. Topics may include human rights and development, global inequality, environmental justice, indigenous politics, humanitarian ethics, intercultural competency, and faith-based development.

*Department(s):* Department of Political Science

**POLS\*6820 PhD Canadian Politics U [0.50]**

Students will help to identify and critically engage with key scholarship in the field of Canadian Politics. The course will provide a breadth of understanding of the field, but a portion of the Canadian reading list can be tailored to the student's particular interests.

*Department(s):* Department of Political Science

**POLS\*6830 PhD Field Course in Comparative Politics U [0.50]**

Students will help to identify and critically engage with key scholarship in the field of Comparative Politics. The course will provide a breadth of understanding of the field, but a portion of the reading list can be tailored to the student's particular interests.

*Department(s):* Department of Political Science

**POLS\*6840 PhD Field Course in Gender, Race, Indigeneity, and Sexuality U [0.50]**

Students will help to identify and critically engage with key scholarship relating to Gender, Race, Indigeneity and Sexuality. The course will provide a breadth of understanding of the field, but a portion of the reading list can be tailored to the student's particular interests.

*Department(s):* Department of Political Science

**POLS\*6850 PhD Field Course in International Relations U [0.50]**

Students will help to identify and critically engage with key scholarship relating to International Relations. The course will provide a breadth of understanding of the field, but a portion of the reading list can be tailored to the student's particular interests.

*Department(s):* Department of Political Science

**POLS\*6860 PhD Field Course in Law and Politics U [0.50]**

Students will help to identify and critically engage with key scholarship relating to Law and Politics. The course will provide a breadth of understanding of the field, but a portion of the reading list can be tailored to the student's particular interests.

*Department(s):* Department of Political Science

**POLS\*6870 PhD Field Course in Public Policy and Governance U [0.50]**

Students will help to identify and critically engage with key scholarship relating to Public Policy and Governance. The course will provide a breadth of understanding of the field, but a portion of the reading list can be tailored to the student's particular interests.

*Department(s):* Department of Political Science

**POLS\*6900 Communications F-W [0.25]**

This course trains students in crucial academic skills, in particular writing and presentation skills. Some course elements may be offered through workshops in conjunction with other units, such as the Learning Commons.

*Department(s):* Department of Political Science

**POLS\*6940 Research Design and Methods U [0.75]**

This course focuses on the elements of designing and writing a research question and proposal. It examines the principles of research design and research ethics, and surveys the strengths and weaknesses of a variety of methods of data collection.

*Department(s):* Department of Political Science

**POLS\*6950 Specialized Topics in Political Studies U [0.50]**

This course is intended to be an elective course for students wishing to pursue an area of investigation not covered in the other courses offered by the department. This course may also be chosen by students who want to further pursue a subject area to which they were introduced in a previous course.

*Department(s):* Department of Political Science

**POLS\*6960 Directed Readings U [0.50]**

This is an elective course for students wishing to pursue an area of investigation not covered in other courses offered by the department. This course may also be chosen by students who want to further pursue a subject area to which they were introduced in a previous course.

*Department(s):* Department of Political Science

**POLS\*6970 Major Paper U [1.00]**

The major paper is an extensive research paper for those who do not elect to complete a thesis. It may be taken over two semesters. The length of the major paper is not to exceed 10,000 words.

*Department(s):* Department of Political Science

## Population Medicine

### POPM\*6100 Seminar F [0.00]

A practical course that utilizes tutorials, workshops, self and peer reviewed assessment to help participants develop skills in public speaking and presentation of scientific data. Each student presents at least one seminar on an approved subject during the departmental seminar series.

*Department(s):* Department of Population Medicine

### POPM\*6200 Epidemiology I F [0.50]

This course covers concepts, principles and methods of basic and applied epidemiology, including the following topics: sampling, measuring disease frequency, clinical epidemiology, descriptive epidemiology, causal reasoning and design, interpretation and critical appraisal of surveys, observational studies, field trials and critical appraisal.

*Restriction(s):* MPH and Population medicine students. Instructor consent required.

*Department(s):* Department of Population Medicine

### POPM\*6210 Epidemiology II W [0.50]

Advanced study design and analytic methods for the analysis of data from observational studies and surveys.

*Department(s):* Department of Population Medicine

### POPM\*6220 Analytical Epidemiology S [0.50]

This course focuses on the advanced analysis of epidemiologic studies. Case control, cohort and survival studies are analysed within the generalized linear-model framework. Links between study objectives, study design and data analysis will be emphasized throughout. Special problems, such as the analysis of correlated data arising from cluster sampling of individuals, are discussed.

*Prerequisite(s):* POPM\*6210 and POPM\*6290

*Department(s):* Department of Population Medicine

### POPM\*6230 Applied Clinical Research F [0.50]

This course is designed to help clinical researchers design, fund, and analyze their clinical research. Emphasis is placed upon planning a well-designed clinical trial and writing a well-organized grant proposal.

*Department(s):* Department of Population Medicine

### POPM\*6250 Project in Epidemiology S [1.00]

Collection and analysis of field data and the preparation of a written report suitable for publication, and oral presentation of the findings to the graduate faculty. This course is part of the MSc program by course work in epidemiology.

*Department(s):* Department of Population Medicine

### POPM\*6290 Epidemiology III F [0.50]

This course gives an overview of advanced methods for the analysis of data of clustered/correlated data as opposed to independent data. Special emphasis is on spatial, longitudinal, survival data and time series data.

*Prerequisite(s):* POPM\*6210 (or equivalent graduate course from another university)

*Department(s):* Department of Population Medicine

### POPM\*6350 Safety of Foods of Animal Origins F [0.50]

The detection, epidemiology, human health risk, and control of hazards in food of animal origin.

*Offering(s):* Offered through Distance Education format only.

*Department(s):* Department of Population Medicine

### POPM\*6400 Dairy Health Management \* S [0.50]

This course stresses a population-based, herd-level approach to dairy herd health management, in which optimizing the efficiency of the dairy enterprise is the overall goal. The biological and economic impacts of disease and management deficiencies on herd performance will be discussed as they relate to design and implementation of herd health programs. The course will emphasize the critical role of record keeping, data analysis and monitoring on program success.

*Department(s):* Department of Population Medicine

### POPM\*6510 Community Health Promotion F [0.50]

The objective of this course is to provide students with an understanding of public health, population health and health promotion. Topics will include perspectives on health and illness, injury prevention, determinants of health, population diversity and the role of evidence in public health decision-making.

*Department(s):* Department of Population Medicine

### POPM\*6520 Introduction to Epidemiological and Statistical Methods F [0.50]

This is a 0.5 credit introductory graduate course for MPH students and students interested in epidemiology. The course will provide an introduction to research design, grant proposal writing, and critical appraisal, as well as survey (questionnaire) design and basic statistical methods for epidemiological studies.

*Co-requisite(s):* POPM\*6200

*Department(s):* Department of Population Medicine

### POPM\*6530 Health Communication W [0.50]

This course introduces communication theory, best practices, and skills related to public health. Students will learn about the written, oral, and visual communication of health information for professional, peer, and lay audiences. Students will apply their knowledge by creating a portfolio of health communication materials.

*Restriction(s):* MPH students. Instructor consent required.

*Department(s):* Department of Population Medicine

### POPM\*6540 Concepts in Environmental Public Health W [0.50]

This course covers the main concepts of environmental public health including basic elements of environmental toxicology, risk analysis, air and water quality, food safety, waste, occupational health and eco health.

*Department(s):* Department of Population Medicine

### POPM\*6550 Public Health Policy and Systems W [0.50]

This course covers concepts and principles of public health policy and systems including: public health systems, their structure, funding and governance and their integration into the healthcare system; evolution of public health policy; models of policy development and analysis; stakeholder analysis; and, public health ethics.

*Department(s):* Department of Population Medicine

### POPM\*6560 Public Health Practicum U [1.00]

In this 1.0 credit course, students will synthesize theoretical concepts, learned via prior coursework, with public health practice. Students will work in a host public health agency for a 12-to 16-week period, focusing on a major project of significance to the host organization.

*Prerequisite(s):* POPM\*6200, POPM\*6510, POPM\*6520, POPM\*6530, POPM\*6540, and POPM\*6550

*Restriction(s):* MPH students only. Instructor consent required.

*Department(s):* Department of Population Medicine

### POPM\*6570 Public Health Capstone F [0.00]

This course serves as a capstone for students in the Master of Public Health program to reflect on, interpret, and present their practicum work in a variety of formats, including public presentation, to enhance their communication skills and abilities.

*Prerequisite(s):* POPM\*6560 or instructor's signature required

*Department(s):* Department of Population Medicine

### POPM\*6580 Public Health Administration F [0.50]

This course will teach students to develop, implement and improve public health programs. Understanding an organization's mission and priorities, and developing business plans is critical for an effective administrator. Furthermore, it introduces theories and effective components of leadership and describes the practical role of the leader.

*Department(s):* Department of Population Medicine

### POPM\*6590 Public Health Practicum II W [1.00]

This course allows students in the Master of Public Health program to undertake an optional second practicum experience. They will work in a host public health organization or agency for a 12- to 16-week period, focusing on a major project of significance to the host organization.

*Prerequisite(s):* POPM\*6560

*Restriction(s):* Public Health program. Instructor consent required.

*Department(s):* Department of Population Medicine

### POPM\*6600 Applied Public Health Research F,W,S [0.50]

Students will undertake a supervised research project on a public health issue or problem. The project will involve analysis and interpretation of public health information and the findings will be presented in a written report.

*Prerequisite(s):* POPM\*6560

*Restriction(s):* Public Health program. Instructor consent required.

*Department(s):* Department of Population Medicine

### POPM\*6610 Theriogenology of Cattle \* U [0.50]

A lecture/seminar course emphasizing the relationship of nutritional, genetic, endocrine, anatomic, and environmental factors with the reproductive health of cattle. Application of reproductive technologies will also be covered.

*Department(s):* Department of Population Medicine

<b>POPM*6630 Theriogenology of Horses * U [0.50]</b>
A lecture/seminar course covering the genetic, endocrine, anatomic and environmental factors that affect reproductive performance and health of horses. Breeding management, including recent technologies, and management of the infertile animal will be included. <i>Department(s):</i> Department of Population Medicine
<b>POPM*6650 Theriogenology of Dogs and Cats * U [0.50]</b>
A seminar/lecture series that includes the theory and management of clinical reproduction for the dog and cat, including use of developing technologies. <i>Department(s):</i> Department of Population Medicine
<b>POPM*6670 Theriogenology of Small Ruminants * U [0.50]</b>
A seminar/laboratory course emphasizing advanced reproductive management of sheep, goats and farmed deer/elk, with the emphasis on a sheep production model. New reproductive technologies will be included. <i>Department(s):</i> Department of Population Medicine
<b>POPM*6700 Swine Health Management * U [0.50]</b>
Diseases of swine are studied with particular emphasis on preventive medicine and herd-health management. <i>Department(s):</i> Department of Population Medicine
<b>POPM*6950 Studies in Population Medicine U [0.50]</b>
Assigned reading and/or special projects selected to provide in-depth study of topics appropriate to the specialized interests of individual students. Courses offered under this title have included Special Topics in Public Health; Ecology and Health; Systems Approaches; and Animal Welfare. Different offerings are assigned different section numbers. <i>Department(s):</i> Department of Population Medicine

## Psychology

<b>PSYC*6000 Developmental Psychopathology: Etiology and Assessment U [0.50]</b>
The interaction of neurobiological, physiological, familial and social factors to an understanding of developmental psychopathology is the focus of this course. Emphasis is given to etiology and clinical assessment issues. <i>Department(s):</i> Department of Psychology
<b>PSYC*6010 Integrated Child and Adolescent Assessment W [0.50]</b>
This course focuses on the cognitive and academic components of comprehensive cognitive assessment. The conceptualization and clinical skills in assessing cognitive processes and their application to the assessment of neurodevelopmental disorders (e.g., Specific Learning Disorders, ADHD, ASD, FASD) will be examined. <i>Prerequisite(s):</i> PSYC*6690 <i>Restriction(s):</i> Open only to graduate students in the Clinical Child and Adolescent Psychology (CCAP) field <i>Department(s):</i> Department of Psychology
<b>PSYC*6020 Clinical and Diagnostic Interviewing Skills S [0.50]</b>
This course provides practical training in clinical and diagnostic interviewing. Through role-play, direct observation, and in-vivo practice, students will learn how to conduct assessment and diagnostic interviews, and clinical dialogues with children and adults. This course is open only to graduate students in the CCAP field. <i>Prerequisite(s):</i> Completion of all MA level course work except for the thesis <i>Restriction(s):</i> Open only to graduate students in the Clinical Child and Adolescent Psychology (CCAP) field <i>Department(s):</i> Department of Psychology
<b>PSYC*6060 Research Design and Statistics U [0.50]</b>
This course covers non-parametric and parametric hypothesis testing and estimation, analysis of variance and covariance, and multiple correlation and multiple regression. Current controversial issues are presented. <i>Department(s):</i> Department of Psychology
<b>PSYC*6190 Research Project U [1.00]</b>
This course is an option for students in the applied streams of MA studies who do not plan on proceeding to a PhD program. Under the supervision of a faculty member, students will design and conduct an empirical investigation in their area of emphasis. <i>Department(s):</i> Department of Psychology
<b>PSYC*6270 Issues in Social Policy U [0.50]</b>
This doctoral course examines historical developments and selected contemporary policy domains in Canada. Topics may include policies affecting children, families, the elderly, First Nations people, the mentally and physically disabled, and one parent families. The course also addresses the interplay between social and psychological research and policy formation, as well as the use of social policy as an instrument of social change. <i>Department(s):</i> Department of Psychology

<b>PSYC*6380 Psychological Applications of Multivariate Analysis U [0.50]</b>
This course emphasizes the use of multivariate techniques in psychological research. Both predictive (e.g., regression, canonical correlation, discriminant analysis, MANOVA) and reduction (e.g., factor analysis, multidimensional scaling, cluster analysis) techniques are considered in addition to the use of both observed and latent variable structural models. <i>Department(s):</i> Department of Psychology
<b>PSYC*6401 Reading Course I U [0.25]</b>
An independent in-depth study of current theoretical and empirical issues in the student's area of specialization. <i>Department(s):</i> Department of Psychology
<b>PSYC*6402 Reading Course II U [0.50]</b>
An independent in-depth study of current theoretical and empirical issues in the student's area of specialization. <i>Department(s):</i> Department of Psychology
<b>PSYC*6411 Special Problems in Psychology I U [0.25]</b>
A critical examination of current problems relating to conceptual and methodological developments in an area of psychology. <i>Department(s):</i> Department of Psychology
<b>PSYC*6412 Special Problems in Psychology II U [0.50]</b>
A critical examination of current problems relating to conceptual and methodological developments in an area of psychology. <i>Department(s):</i> Department of Psychology
<b>PSYC*6471 Practicum I U [0.50]</b>
Students will gain 2-3 days per week of supervised experience in a setting related to their field of specialization. <i>Department(s):</i> Department of Psychology
<b>PSYC*6472 Practicum II U [1.00]</b>
See PSYC*6471 . Students work four to five days a week in the selected setting. <i>Department(s):</i> Department of Psychology
<b>PSYC*6473 Practicum III U [0.25]</b>
See PSYC*6471. This course is intended for students who wish to gain additional practicum experience after completing the requirements for PSYC*6471/PSYC*6472. Students work one day a week in the selected setting. <i>Department(s):</i> Department of Psychology
<b>PSYC*6521 Research Seminar I U [0.25]</b>
An in-depth review of current theoretical and empirical developments in topic areas related to the student's area of specialization. <i>Department(s):</i> Department of Psychology
<b>PSYC*6522 Research Seminar II U [0.50]</b>
An in-depth review of current theoretical and empirical developments in topic areas related to the student's area of specialization. The course requirements may include the completion of an empirical research project. <i>Department(s):</i> Department of Psychology
<b>PSYC*6580 Foundations in Child and Adolescent Psychotherapy F [0.50]</b>
This course introduces foundations of practice in conducting psychotherapy with children and adolescents, highlighting evidence-based practice. Major models of child/adolescent psychotherapy and case conceptualization are introduced. <i>Restriction(s):</i> Open only to graduate students in the Clinical Child and Adolescent Psychology (CCAP) field. <i>Department(s):</i> Department of Psychology
<b>PSYC*6610 Advanced Child and Adolescent Psychotherapy U [0.50]</b>
This course will consider newly emerging developments in child and adolescent psychotherapy, as well as issues of power relationships, cultural sensitivity and empirical support. In preparation, students should endeavor to complete two therapy cases prior to the commencement of the course. <i>Prerequisite(s):</i> PSYC*6580 and PSYC*7993 (may be taken concurrently). <i>Restriction(s):</i> This course is open only to graduate students in the CP:ADE field. <i>Department(s):</i> Department of Psychology
<b>PSYC*6630 Developmental Psychology U [0.50]</b>
This course examines issues in the areas of cognitive, social, and emotional development. Specific research topics and theoretical issues concerning the nature of development are discussed. <i>Department(s):</i> Department of Psychology

**PSYC\*6670 Research Methods U [0.50]**

This course emphasizes those techniques most frequently used in applied and field settings. These include: quasi-experimental designs, survey research, interviewing, questionnaire design, observational techniques, and other more qualitative methods.

*Department(s):* Department of Psychology

**PSYC\*6690 Foundations in Cognitive Assessment of Child and Adolescents F [0.50]**

This course considers standards, ethics, uses and interpretation of selected intelligence and other cognitive tests. Students administer tests, score, interpret and write reports under supervision.

*Restriction(s):* This course is open only to graduate students in the CCAP field.

*Department(s):* Department of Psychology

**PSYC\*6700 Personality and Social Assessment of Children and Adolescents U [0.50]**

This course considers projectives, questionnaires, observations and interviews for assessing children's personality and behaviour. Students administer tests, score, interpret and write reports under supervision.

*Restriction(s):* This course is open only to graduate students in the CCAP field.

*Department(s):* Department of Psychology

**PSYC\*6740 Research Seminar in Neuroscience and Applied Cognitive Science A U [0.50]**

This course will expose graduate students to some of the major theories, issues and methodologies driving research in the broad field of Neuroscience and Applied Cognitive Science. Students will learn to critically evaluate presentations by researchers as well as to communicate the results of their own research, in both a written and oral format. All first year master's students in NACS are required to enroll in this course in both the fall and winter semesters.

*Department(s):* Department of Psychology

**PSYC\*6750 Applications of Cognitive Science U [0.50]**

This course surveys applications of cognitive science to the problem of optimizing human performance. Topics of discussion will include human-system interactions (including Human-Computer and Human-Vehicle), education, and cognitive rehabilitation.

*Department(s):* Department of Psychology

**PSYC\*6760 Research Seminar in Neuroscience and Applied Cognitive Science B U [0.00]**

This course will expose graduate students to some of the major theories, issues and methodologies driving the research broad field of Neuroscience and Applied Cognitive Science. Students will learn to critically evaluate presentations by researchers in this field as well as to communicate the results of their own research, in both a written and oral format. All second year master's and doctoral students in NACS are required to enroll in this course each fall and winter semester of their graduate program until they graduate.

*Department(s):* Department of Psychology

**PSYC\*6780 Foundations of Cognitive Science U [0.50]**

Cognitive Science is an inter-disciplinary field that encompasses cognitive psychology, neuroscience, philosophy, and computer science. The foundational issues and basic methodologies that define cognitive science will be discussed, with specific examples from perception, learning, memory, language, decision-making, and problem solving.

*Restriction(s):* Restricted to Psychology graduate students; all others by permission only

*Department(s):* Department of Psychology

**PSYC\*6790 Memory and Cognition U [0.50]**

This course reviews the major theories, issues and methodologies guiding contemporary research in human memory and related aspects of human cognition. Topics include the encoding and retrieval of information, the nature of representations in memory, classifications of memory, and applications to reading and eyewitness testimony.

*Department(s):* Department of Psychology

**PSYC\*6800 Neurobiology of Learning U [0.50]**

This course reviews the major theories, issues, and methodologies guiding contemporary research in the neurobiology of learning.

*Department(s):* Department of Psychology

**PSYC\*6810 Neuropsychology U [0.50]**

This course focuses on current developments in neuropsychology. Particular emphasis is placed on the aphasias, apraxias, memory disorders, and disorders of movement.

*Department(s):* Department of Psychology

**PSYC\*6840 Program Evaluation U [0.50]**

This course provides an introduction to a variety of methods of social program evaluation and to the process of consultation with program staff.

*Department(s):* Department of Psychology

**PSYC\*6880 Ethical Issues in Psychology U [0.25]**

Relevant issues in the application of professional ethical standards to the practice of psychology, including consultation, field research, intervention, and decision-making models are discussed in this half course. Depending on the particular faculty and students involved, discussion emphasizes specific applications to either I/O or applied developmental/social psychology.

*Department(s):* Department of Psychology

**PSYC\*6890 Legislation and Professional Practice U [0.25]**

This companion course to PSYC\*6880, Ethics in Psychology, provides an introduction to the Provincial and Federal legislation governing the practice of psychology. Students will become familiar with legislation relevant to professional practice with children and adults in hospital, educational, community, and other settings.

*Co-requisite(s):* PSYC\*6880

*Department(s):* Department of Psychology

**PSYC\*6900 Philosophy and History of Psychology as a Science U [0.50]**

This doctoral course examines the philosophical and metatheoretical issues involved in the scientific analysis of human experience. Both the historical context of these issues and the status of current metatheoretical debates are covered.

*Department(s):* Department of Psychology

**PSYC\*6910 Critical Approaches to Applied Social Psychology U [0.50]**

The purpose of this course is to introduce students to critical approaches to applied social psychology. The course will address theoretical traditions and methodologies that take as their starting point a reflexive critique and evaluation of culture, society, and its institutions.

*Department(s):* Department of Psychology

**PSYC\*6920 Applied Social Psychology and intervention U [0.50]**

This course will critically examine theoretical approaches and research in the field of applied social psychology with a particular focus on work aimed at generating intervention strategies intended to ameliorate social and practical problems. The course will also consider implications for social policy.

*Department(s):* Department of Psychology

**PSYC\*6930 Community, Culture & Global Citizenship U [0.50]**

The purpose of this course is to conceptualize community and cultural psychological work in the context of global citizenship. The course will cover theory and methods for addressing such issues as community health, poverty, violence, immigration, diversity and acculturation, in an interconnected, interdependent and globalized world.

*Department(s):* Department of Psychology

**PSYC\*6940 Discrete-variable Statistics U [0.50]**

This course is an in-depth examination of statistical approaches used in psychology, with an emphasis on experimental research designs with discrete independent variables (e.g., t-test, ANOVA, general linear model), and how these approaches address ongoing statistical challenges faced by psychological researchers, such as replication and generalizability.

*Department(s):* Department of Psychology

**PSYC\*6950 Qualitative Methods in Psychology U [0.50]**

The purpose of this course is to provide students with foundational knowledge and skills to conduct qualitative research in psychology. Approaches that will be covered may include discursive psychology, critical discourse analysis, grounded theory, thematic analysis, ethnography, and interpretive phenomenological analysis.

*Department(s):* Department of Psychology

**PSYC\*7010 Recruitment and Selection: Methods and Outcomes U [0.50]**

The course explores organizational issues in the recruitment and selection of new employees. Topics may include: individual differences, human rights, survey-based job analysis, recruitment methods and outcomes, selection methods and outcomes, hiring, decision making and employee placement/classification.

*Department(s):* Department of Psychology

**PSYC\*7020 Employee Performance U [0.50]**

This course focuses on issues that relate to employee performance. Individuals and organizations are interested in maximizing the contributions of employees at work. This course focuses on performance-based job analysis, criterion theory, performance management/appraisal, employee socialization, compensation, benefits, technology, and labour relations.

*Department(s):* Department of Psychology

**PSYC\*7030 Work Attitudes and Behaviour U [0.50]**

This course examines micro-level influences on organizational behaviour. Topics may include: organizational commitment, job satisfaction, emotions, other work attitudes and attitude change, organizational citizenship behaviours, withdrawal behaviours, employee well-being, deviance, and work-life integration.

*Department(s):* Department of Psychology

**PSYC\*7040 Social Processes in the Workplace U [0.50]**

This course examines social processes in the workplace. Topics may include: groups, teams, and intergroup processes; justice; diversity in the workplace; prejudice and discrimination; harassment and unethical behaviour; climate, culture change; and, organizational development.

*Department(s):* Department of Psychology

**PSYC\*7050 Research Seminar in Industrial/Organizational Psychology U [0.00]**

This course will expose graduate students to some of the major theories, issues, and methodologies driving research in the field of Industrial/Organizational psychology. Students will learn to critically evaluate presentations by researchers in this field, as well as to communicate the results of their own research, in both written and an oral format. All students are required to enroll in this course.

*Restriction(s):* Psychology students only.

*Department(s):* Department of Psychology

**PSYC\*7070 Psychological Measurement U [0.50]**

Concepts and applications of classical measurement theory, especially reliability and validity of tests and measurements used in applied psychology. Principles of test construction, standardization, norming, administration, and interpretation are discussed, as well as integration of test information and its use in decision making.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Psychology

**PSYC\*7080 Consulting in Industrial/Organizational Psychology U [0.00]**

The course introduces students to consulting in I/O Psychology through actual consulting projects with local organization. Topics include: marketing consulting services, understanding consulting, client and project management. Specific projects will vary from semester to semester based on work secured with local organizations (e.g. training, surveys, coaching).

*Prerequisite(s):* Registration in the graduate IO psychology program and permission of the Instructor.

*Department(s):* Department of Psychology

**PSYC\*7130 Introduction to Industrial/Organizational Psychology U [0.50]**

This course introduces graduate students to a broad range of topics in Industrial/Organizational psychology. It emphasizes researcher-practitioner issues, consumer behaviour, professionalism, ethics, and theory building. As well, graduate students will learn about contemporary issues in I-O Psychology.

*Department(s):* Department of Psychology

**PSYC\*7140 Industrial/Organizational Psychology Special Topic Doctoral Research Seminar U [0.50]**

Participants investigate a specific area of Industrial/Organizational psychology. They critically review past and current research, including theory development and empirical findings. Participants work together to integrate past theory and findings, to note inconsistencies in the literature, and to identify promising areas for future investigations.

*Prerequisite(s):* PSYC\*7130

*Department(s):* Department of Psychology

**PSYC\*7160 Employee Development: Methods and Outcomes U [0.50]**

This course explores development in an organization context. Employee learning and development is a key focus for employees and organizations. This course covers functional job analysis, career development, succession management, multi-source feedback, training, coaching/mentoring and employee counseling.

*Department(s):* Department of Psychology

**PSYC\*7170 Industrial/Organizational Psychology Doctoral Research Internship I U [0.50]**

Participants work with an Industrial Organizational faculty member to conduct research on a topic of mutual interest (other than their doctoral research). They collect and/or analyze data and write up results with the goal of producing a conference presentation and/or a quality publication manuscript.

*Prerequisite(s):* PSYC\*7130

*Co-requisite(s):* PSYC\*7140

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Psychology

**PSYC\*7180 Industrial/Organizational Psychology Doctoral Research Internship II U [0.50]**

Participants work with an Industrial Organizational faculty member to conduct research on a topic of mutual interest (other than their doctoral research). They collect and/or analyze data and write up results with the goal of producing a conference presentation and/or a quality publication manuscript.

*Prerequisite(s):* PSYC\*7130, PSYC\*7140, PSYC\*7170

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Psychology

**PSYC\*7190 Work Motivation and Leadership U [0.50]**

This course examines theories, research, and application of work motivation and leadership within an organizational context. The course will include a description of classic and contemporary theories of work motivation and leadership, a critical evaluation of the research findings, and a discussion of the application of the research findings to the work environment.

*Restriction(s):* Psychology students only.

*Department(s):* Department of Psychology

**PSYC\*7991 CCAP Clinical Practicum I U [0.25]**

This CCAP practicum is typically undertaken at the Center for Psychological Services, one day a week over a semester, to enhance skills introduced in other clinical courses. Expectations for the course will be based on the student's current level of clinical skill. Students will work with diverse clients, and gain knowledge of ethics and jurisprudence in a clinical setting.

*Restriction(s):* Restricted to students in the CCAP field

*Department(s):* Department of Psychology

**PSYC\*7992 CCAP Clinical Practicum II U [0.50]**

This CCAP practicum is undertaken in a school board, psychological services department for two days a week over one semester. Students will develop clinical assessment skills with a diversity of clients, work with interdisciplinary teams, and apply knowledge of ethics and jurisprudence to educational settings. A passing grade and a satisfactory rating on the practical component must be achieved in PSYC\*6690 and PSYC\*6700 to enroll in this course.

*Prerequisite(s):* PSYC\*6010, PSYC\*6690, and PSYC\*6700

*Restriction(s):* Restricted to students in the CCAP field

*Department(s):* Department of Psychology

**PSYC\*7993 CCAP Clinical Practicum III U [1.00]**

This CCAP practicum is undertaken in a children's mental health setting two days a week over two semesters. Students will develop complex assessment and therapy skills with diverse clients, work with interdisciplinary team, and apply knowledge of ethics and jurisprudence to mental health settings.

*Prerequisite(s):* PSYC\*6471 or PSYC\*7992

*Restriction(s):* Restricted to students in the CCAP field Instructor consent required.

*Department(s):* Department of Psychology

**PSYC\*7994 Cognitive Behaviour Therapy Practicum F,W [1.00]**

The CBT practicum is typically undertaken at the Center for Psychological Training, and is intended to foster clinical psychology graduate student training in cognitive behaviour therapy (CBT). This practicum course will involve didactic and experiential components. Students will gain competency with the basics of CBT, gain capability with treatment manuals and undertake at least one ongoing therapy case.

*Co-requisite(s):* PSYC\*6580

*Restriction(s):* Restricted to PhD students in the CCAP area of Psychology only.  
Instructor consent required.

*Department(s):* Department of Psychology

**PSYC\*7996 Clinical Supervision, Consultation and Professional Development F [0.50]**

This course is designed to introduce students to the theory, research, and practice of supervision and consultation in the field of clinical psychology. Students will become familiar with the professional literature relevant to supervision, gain competency with ethical, culturally-competent clinical supervision, and explore their own development as a professional in the field of psychology.

*Prerequisite(s):* PSYC\*6580, PSYC\*7994

*Restriction(s):* Restricted to PhD students in the CCAP area of Psychology only.  
Instructor consent required.

*Department(s):* Department of Psychology

**PSYC\*8000 Clinical Internship U [0.00]**

A mark of satisfactory (SAT) in this course indicates that a student in the Clinical Child and Adolescent Psychology (CCAP) field has successfully completed a full year (1800-2000 hour) internship in an accredited clinical setting (e.g., CPA or APA) approved by the Director of Clinical Training for CCAP.

*Prerequisite(s):* Completion of all course work in the CCAP field, the PhD qualifying examination, and the PhD Thesis proposal at the time of application, one year in advance of beginning the clinical internship.

*Department(s):* Department of Psychology

## Rural Planning and Development

**RPD\*6030 International Rural Development Planning: Principles and Practices U [0.50]**

This course presents the scope and nature of international development planning and alternative roles for development planners; has a rural emphasis; reviews the evolution of development planning from macroeconomic beginnings to more integrated local planning approaches; examines the development planning process and its organizational and spatial dimensions; compares policy, program, project, sectoral and integrated area planning; and compares rural development planning in market, mixed and state-driven societies.

*Department(s):* School of Environmental Design and Rural Development

**RPD\*6050 Professional Practice Course in Development and Planning U [0.50]**

This course offers a planned but flexible program for developing skills that are relevant to professional practice in the rural planning and development field. It also fills the skill knowledge gaps for students who cannot take full courses. Students, in consultation with his/her Academic Advisor, assess their knowledge and skills need and acquire them through selected 'modules'.

*Department(s):* School of Environmental Design and Rural Development

**RPD\*6070 Project Development: Principles, Procedures, and Selected Methods U [0.50]**

This course introduces students to the principles, procedures and methods in developing a project. It examines the project cycle: identification, preparation, appraisal, implementation/supervision, monitoring and evaluation. It gives an understanding of the major methods involved and teaches selected methods. The focus is on the international, rural context and on small non-farm projects: small industries, small physical infrastructure and social projects.

*Department(s):* School of Environmental Design and Rural Development

**RPD\*6080 Environment and Development: Biophysical Resources and Sustainable Development in Rural Environments U [0.50]**

This course will examine the problems and potential for ecologically sustainable development in the context of rural development planning particularly in the Third World environments. The course critically examines the strategic planning approaches and methods which involve the interaction between social systems and natural ecosystems in the context of planned intervention and change in rural environments.

*Department(s):* School of Environmental Design and Rural Development

**RPD\*6170 Rural Research Methods U [0.50]**

The course provides rural planning and development professionals with a number of theoretical frameworks and practical approaches to problem solving in rural Canadian and international contexts. The course content provides an introduction to hypothesis development, data collection, analytical frameworks, research management, and information synthesis and presentation methodologies that are appropriate to the practicing rural planner and developer. It views the roles of the researcher and research as interventionist and intervention in the rural community. Research methods are discussed as an integral and supporting part of the planning and development process.

*Department(s):* School of Environmental Design and Rural Development

**RPD\*6220 Planning and Development Policy Analysis U [0.50]**

Planning and development policy has experienced a significant evolution. This course examines the history of policy, and the theory, methods and processes of policy development and governance in planning and management of environment and resources.

*Department(s):* School of Environmental Design and Rural Development

**RPD\*6240 Planning and Development Theory U [0.50]**

Examines basic concepts, theories and perspectives in rural planning and development. A conceptual examination of 'rural', 'planning' and 'development' precedes an examination of how rural planning and development is viewed from alternative, often conflicting theories of rural change and planned intervention. The implications for practice are discussed.

*Department(s):* School of Environmental Design and Rural Development

**RPD\*6250 Foundations in Rural Planning Practice F [0.50]**

This course provides an introduction to rural planning practice. This includes: i) Concepts in Public Administration - The structure, responsibility and functions of public sector administration and government. ii) The workings of local government. iii) Rural Planning Practice - An introduction to planning and development in rural regions and small municipalities.

*Department(s):* School of Environmental Design and Rural Development

**RPD\*6260 Land Use Planning Law U [0.50]**

An introduction to the legal tools used to regulate the use of land and other resources. Zoning, subdivision controls, development control, land banking, expropriation, planning appeals, official maps, etc. An intensive study of the Ontario Planning Act and related legislation.

*Department(s):* School of Environmental Design and Rural Development

**RPD\*6280 Advanced Planning Practice W [0.50]**

This course explores current issues, techniques, legislation and processes that are relevant to rural planning practice. A number of specific municipal (local and regional) rural planning examples will be presented. Comparisons between different jurisdictions will be reviewed. Students will be engaged in project-based learning.

*Prerequisite(s):* RPD\*6250

*Department(s):* School of Environmental Design and Rural Development

**RPD\*6290 Special Topics in Rural Planning and Development U [0.50]**

Selected study topics focus on the nature of rural planning and development issues and/or practices in Canadian and/or International small communities and rural environments. Among the topics which may be addressed are: rural land use planning, ecological restoration, gender analysis in development planning, GIS in agricultural development, micro-credit, physical/site planning and design, project management.

*Restriction(s):* Instructor consent required.

*Department(s):* School of Environmental Design and Rural Development

**RPD\*6291 Rural Development Administration U [0.50]**

This course explores the administration of rural development by considering the main organizational types delivering rural programs. The structure and behaviour of these organizations, their interactions, and their respective sectors will be considered. Students will also be introduced to administrative planning tools.

*Department(s):* School of Environmental Design and Rural Development

**RPD\*6310 Environmental Impact Assessment U [0.50]**

This course deals with the role of environmental impact assessments and statements in the planning, development and operation of resource projects. Topics discussed include the philosophical and institutional basis for environmental impact assessments, methods used and the effects of such assessments on resource development projects.

*Department(s):* School of Environmental Design and Rural Development

**RPD\*6320 Water Resource Management U [0.50]**

The course provides an assessment of the processes and principles which underlie comprehensive water resource planning and integrated basin management. It also undertakes to evaluate current practice in the context of integrated planning. There is extensive use of Canadian and international practice.

*Department(s):* School of Environmental Design and Rural Development

**RPD\*6360 Major Research Paper U [1.00]**

Students not pursuing the thesis route must satisfactorily complete a Major Research Paper. The paper will be supervised by a faculty committee. Content of the paper will generally focus on the placement of a problem in rural planning and development practice using appropriate methodological and analytical procedures. Note: This is a one semester course and must be completed in the semester of registration.

*Restriction(s):* For Major Paper option only. Instructor consent required.

*Department(s):* School of Environmental Design and Rural Development

**RPD\*6370 Economic Development Planning and Management for Rural Communities U [0.50]**

Theories and perspectives of local economic development, particularly community-based planning for rural economic development. Economic development within a community development framework, and challenges of sustainable development. Interdisciplinary perspectives and alternative approaches to professional planning practice, strategic planning, management and organizational design/development issues. Alternative economic concepts and perspectives are critically examined. Includes international case studies.

*Department(s):* School of Environmental Design and Rural Development



<b>RPD*6380 Application of Quantitative Techniques in Rural Planning and Development U [0.50]</b>
Analysis and application of standard quantitative, statistical and computer-based techniques utilized in rural planning and development. Problems of data collection, analysis and interpretation.
<i>Department(s):</i> School of Environmental Design and Rural Development
<b>RPD*6390 Rural Social Planning U [0.50]</b>
This course will provide students who have an interest in social development with an avenue for linking that interest to the policy, planning and intervention process.
<i>Department(s):</i> School of Environmental Design and Rural Development
<b>RPD*6410 Readings in Rural Planning U [0.50]</b>
A program of supervised independent study related to the student's area of concentration. Nature and content of the readings course are agreed upon between the student and the instructor, and are subject to the approval of the student's advisory committee and graduate committee.
<i>Restriction(s):</i> Instructor consent required.
<i>Department(s):</i> School of Environmental Design and Rural Development
<b>RPD*6450 Recreation and Tourism Planning and Development U [0.50]</b>
This course is intended to instruct the student in the principles of planning for recreation and tourism development. Emphasis is placed on the economic and social benefits and costs that accrue from tourism and recreation development. Planning principles are applied to this context.
<i>Department(s):</i> School of Environmental Design and Rural Development

## Rural Studies

<b>RST*6000 Sustainable Rural Systems F-W [1.00]</b>
Sustainable development theory in the rural communities and environment context.
<i>Department(s):</i> School of Environmental Design and Rural Development
<b>RST*6100 Integrative Research Methods F-W [1.00]</b>
Research design and evaluation with a focus on measures of sustainability and on interdisciplinary applications.
<i>Department(s):</i> School of Environmental Design and Rural Development
<b>RST*6260 Research Design U [0.50]</b>
<i>Department(s):</i> School of Environmental Design and Rural Development
<b>RST*6300 Research Seminar U [0.25]</b>
<i>Department(s):</i> School of Environmental Design and Rural Development
<b>RST*6500 Special Topics U [0.50]</b>
<i>Department(s):</i> School of Environmental Design and Rural Development

## Sociology

<b>SOC*6070 Sociological Theory F [0.50]</b>
Classical and contemporary theoretical perspectives and their inter-relationships. A central concern will be to develop the student's ability to assess theory critically and to understand how theory and research relate to each other.
<i>Department(s):</i> Department of Sociology and Anthropology
<b>SOC*6130 Quantitative Research Methods W [0.50]</b>
The application of multiple regression to data generated by non-experimental research, e.g., survey data and data from other sources (census, archival). In large part a course in theory construction, a thorough grounding in the mechanics and statistical assumptions of multiple regression is followed by its application to the construction of structural equation (or causal) models representing substantive theories in sociology and related disciplines.
<i>Department(s):</i> Department of Sociology and Anthropology
<b>SOC*6140 Qualitative Research Methods F [0.50]</b>
An examination of the methods of qualitative research, including participant observation and unstructured interviews, as well as the ethical considerations of fieldwork. Other topics, such as comparative and historical methods, may be included.
<i>Department(s):</i> Department of Sociology and Anthropology
<b>SOC*6200 Advanced Issues in Mixed Research Methodologies W [0.50]</b>
This course will examine the foundations and a range of approaches used in mixed methods sociological research. Students will acquire a deeper understanding of how using a mixed methods research approach in sociological research can enhance scholarly rigour in a theoretically informed research project.
<i>Restriction(s):</i> Students in the PhD program in Sociology only
<i>Department(s):</i> Department of Sociology and Anthropology

<b>SOC*6270 Diversity and Social Equality U [0.50]</b>
This course will examine a range of approaches used in the study of intergroup relations, with special emphasis on struggles over influence and power. Students will acquire a deeper understanding of the complex intersection, as well as the overlap among forms of identity and group mobilization based on ethnic, linguistic, regional, class, gender, racial and other forms of social division. The course may also cover native issues and policies related to multiculturalism, equity and local or regional autonomy.
<i>Department(s):</i> Department of Sociology and Anthropology
<b>SOC*6350 Society, Crime and Control U [0.50]</b>
This seminar course surveys classical theoretical perspectives and more recent theoretical developments in the sociology of crime. It will examine the assumptions and logical structure of each perspective and justifications of particular criminal justice/public policy responses. The course will also critically assess recent empirical research relevant to each perspective.
<i>Department(s):</i> Department of Sociology and Anthropology
<b>SOC*6400 Special Topics in Sociology U [0.50]</b>
Special topics in sociology will critically examine and evaluate contemporary issues/debates in sociology by looking at contemporary research and the associated theoretical and methodological frameworks/perspectives. Course content is unique in each offering.
<i>Department(s):</i> Department of Sociology and Anthropology
<b>SOC*6420 Global Agro-Food Systems, Communities and Rural Change U [0.50]</b>
This course will reflect recent sociological interests in food studies and global agro-food systems, resources and the environment, community sustainability, rural-urban linkages, the transnationalization of labour regimes, and social movements in the rural context. The course will encourage students to take a comparative and historical approach, focusing on cross-national and inter-regional studies where possible, and to examine how class, gender, race and ethnicity play out in each particular substantive topic comprising the rural field.
<i>Department(s):</i> Department of Sociology and Anthropology
<b>SOC*6460 Gender and Development F [0.50]</b>
Cross-cultural and historical changes in gender relations and the roles/positions of women brought about by industrialization and the development of the world system. Critical examination of the predominant theories of gender relations, in so far as these inform development research and action in societies with different socio-economic systems. Introduction to the latest theories and research in the area of women and development, as well as with social and political actions undertaken by women themselves. This is one of the two alternative core courses for the collaborative International Development Studies program.
<i>Department(s):</i> Department of Sociology and Anthropology
<b>SOC*6480 Work, Gender and Change in a Global Context U [0.50]</b>
This course will consider some of the theoretical frameworks available for examining work, workers and work places in the context of globalization, economic restructuring, and shifts in public policy. Using case studies of particular work worlds, the course may include topics such as changing patterns of work and employment in comparative contexts, labour regimes, industrial and organizational change, organizations and protest, education for work, and the regulation of work. The course will focus on the dialectical relationship between the configurations of gender, class, race and ethnicity and the transformation of work.
<i>Department(s):</i> Department of Sociology and Anthropology
<b>SOC*6520 Social Movements and Collective Action F [0.50]</b>
Students will critically review the major theoretical perspectives on social movements and collective action, and consider their relevance in understanding the emergence, tactics, composition and impact of movements in a variety of national contexts. The specific movements to be examined via empirical scholarship will vary each year, but readings will represent several main kinds of collective demands ranging from the redress of oppression of particular groups, to struggles to sustain and enhance societal and human welfare.
<i>Restriction(s):</i> Must be enrolled in a graduate program
<i>Department(s):</i> Department of Sociology and Anthropology
<b>SOC*6550 Selected Topics in Theory and Research U [0.50]</b>
This course will be offered with varying content focusing on theory or research.
<i>Department(s):</i> Department of Sociology and Anthropology
<b>SOC*6600 Reading Course U [0.50]</b>
A program of directed reading, complemented with the writing of papers or participation in research. Reading courses are arranged by students through their advisors or advisory committees and must be approved by the chair of the department. This course may be repeated provided different content is involved.
<i>Department(s):</i> Department of Sociology and Anthropology



<b>SOC*6660 Major Paper U [1.00]</b>
The major paper is an extensive research paper for those who do not elect to complete a thesis. It may be taken over two semesters. <i>Department(s):</i> Department of Sociology and Anthropology
<b>SOC*6700 Pro-seminar F-W [0.00]</b>
The pro-seminar concerns matters involved in graduate studies and later work as a professional sociologist, including how to form a graduate advisory committee, assistantship responsibilities, presentation skills, exploration of careers in sociology, writing grant proposals, reports and articles, and teaching. <i>Restriction(s):</i> Students in the MA program in Sociology only <i>Department(s):</i> Department of Sociology and Anthropology
<b>SOC*6750 PhD Professional Seminar F-W [0.50]</b>
This professional seminar provides PhD students in Sociology opportunities to develop professional skills; develop and foster an intellectual culture; facilitate cohort building, mentoring and provide peer support; and contribute to the intergenerational transmission of knowledge. <i>Restriction(s):</i> Students in the PhD program in Sociology only <i>Department(s):</i> Department of Sociology and Anthropology
<b>SOC*6800 Advanced Topics in Sociological Theory F [0.50]</b>
This course focuses on close readings of, and critical engagement with, select classical and contemporary sociological theories. Students will develop advanced understandings of the philosophical underpinnings of different theoretical approaches and of the ontological and epistemological assumptions of sociological inquiry more generally. <i>Prerequisite(s):</i> MA in Sociology <i>Restriction(s):</i> Students in the PhD program in Sociology only <i>Department(s):</i> Department of Sociology and Anthropology
<b>SOC*6810 Reading Course U [0.50]</b>
A program of supervised independent reading, complemented with the writing of papers or participation in research. Reading courses are arranged by students in consultation with their advisor or advisory committee and must be approved by the chair of the department. <i>Restriction(s):</i> Students in the PhD program in Sociology only <i>Department(s):</i> Department of Sociology and Anthropology
<b>SOC*6820 Directed Readings U [0.50]</b>
A program of directed readings related to the student's field of specialization. The nature and content of the course are agreed upon by the student and instructor in consultation with the student's advisor or advisory committee. The course must be approved by the chair of the department. <i>Restriction(s):</i> Students in the PhD program in Sociology only <i>Department(s):</i> Department of Sociology and Anthropology

## Statistics

<b>STAT*6550 Computational Statistics U [0.50]</b>
This course covers the implementation of a variety of computational statistics techniques. These include random number generation, Monte Carlo methods, non-parametric techniques, Markov chain Monte Carlo methods, and the EM algorithm. A significant component of this course is the implementation of techniques. <i>Department(s):</i> Department of Mathematics and Statistics
<b>STAT*6700 Stochastic Processes U [0.50]</b>
The content of this course is to introduce Brownian motion leading to the development of stochastic integrals thus providing a stochastic calculus. The content of this course will be delivered using concepts from measure theory and so familiarity with measures, measurable spaces, etc., will be assumed. <i>Department(s):</i> Department of Mathematics and Statistics
<b>STAT*6721 Stochastic Modelling U [0.50]</b>
Topics include the Poisson process, renewal theory, Markov chains, Martingales, random walks, Brownian motion and other Markov processes. Methods will be applied to a variety of subject matter areas. Offered in conjunction with STAT*4360. Extra work is required for graduate students. <i>Restriction(s):</i> Credit may be obtained for only one of STAT*4360 or STAT*6721 <i>Department(s):</i> Department of Mathematics and Statistics
<b>STAT*6761 Survival Analysis U [0.50]</b>
Kaplan-Meier estimation, life-table methods, the analysis of censored data, survival and hazard functions, a comparison of parametric and semi-parametric methods, longitudinal data analysis. <i>Department(s):</i> Department of Mathematics and Statistics

<b>STAT*6801 Statistical Learning U [0.50]</b>
Topics include: nonparametric and semiparametric regression; kernel methods; regression splines; local polynomial models; generalized additive models; classification and regression trees; neural networks. This course deals with both the methodology and its application with appropriate software. Areas of application include biology, economics, engineering and medicine. <i>Department(s):</i> Department of Mathematics and Statistics
<b>STAT*6802 Generalized Linear Models and Extensions U [0.50]</b>
Topics include: generalized linear models; generalized linear mixed models; joint modelling of mean and dispersion; generalized estimating equations; modelling longitudinal categorical data; modelling clustered data. This course will focus both on theory and implementation using relevant statistical software. Offered in conjunction with STAT*4050/4060. Extra work is required for graduate students. <i>Restriction(s):</i> Credit may be obtained for only one of STAT*4050 or STAT*4060 or STAT*6802 <i>Department(s):</i> Department of Mathematics and Statistics
<b>STAT*6821 Multivariate Analysis U [0.50]</b>
This is an advanced course in multivariate analysis and one of the primary emphases will be on the derivation of some of the fundamental classical results of multivariate analysis. In addition, topics that are more current to the field will also be discussed such as: multivariate adaptive regression splines; projection pursuit regression; and wavelets. Offered in conjunction with STAT*4350. Extra work is required for graduate students. <i>Restriction(s):</i> Credit may be obtained for only one of STAT*4350 or STAT*6821 <i>Department(s):</i> Department of Mathematics and Statistics
<b>STAT*6841 Computational Statistical Inference U [0.50]</b>
This course covers Bayesian and likelihood methods, large sample theory, nuisance parameters, profile, conditional and marginal likelihoods, EM algorithms and other optimization methods, estimating functions, Monte Carlo methods for exploring posterior distributions and likelihoods, data augmentation, importance sampling and MCMC methods. <i>Department(s):</i> Department of Mathematics and Statistics
<b>STAT*6860 Linear Statistical Models U [0.50]</b>
Generalized inverses of matrices; distribution of quadratic and linear forms; regression or full rank model; models not of full rank; hypothesis testing and estimation for full and non-full rank cases; estimability and testability; reduction sums of squares; balanced and unbalanced data; mixed models; components of variance. <i>Department(s):</i> Department of Mathematics and Statistics
<b>STAT*6920 Topics in Statistics U [0.50]</b>
<i>Department(s):</i> Department of Mathematics and Statistics
<b>STAT*6950 Statistical Methods for the Life Sciences F [0.50]</b>
Analysis of variance, completely randomized, randomized complete block and latin square designs; planned and unplanned treatment comparisons; random and fixed effects; factorial treatment arrangements; simple and multiple linear regression; analysis of covariance with emphasis on the life sciences. STAT*6950 and STAT*6960 are intended for graduate students of other departments and may not normally be taken for credit by mathematics and statistics graduate students. <i>Department(s):</i> Department of Mathematics and Statistics
<b>STAT*6998 MSc Project in Statistics U [1.00]</b>
This course is intended for students in the course-based MSc program in Statistics. The MSc project will be written under the supervision of a faculty member and will normally be completed within one or two semesters. Once completed, students will submit a final copy of their project to the Department and give an oral presentation of their work <i>Restriction(s):</i> Restricted to MSC.MAST:L-STAT students in Statistics <i>Department(s):</i> Department of Mathematics and Statistics

## Studio Art

<b>FINA*6510 Introduction to Graduate Studio F [1.50]</b>
A qualifying open-studio course to determine the student's interests and level of performance. The student will come in contact with a variety of faculty and may choose to work in a number of areas during this period. <i>Department(s):</i> School of Fine Art and Music
<b>FINA*6515 MFA Studio I W [1.50]</b>
Sustained work at an independent level under the supervision of the chair of the student's advisory committee. <i>Prerequisite(s):</i> FINA*6510 <i>Department(s):</i> School of Fine Art and Music

<b>FINA*6530 MFA Teaching Practicum I F [0.50]</b>
This course will give the MFA student supervised teaching experience in a studio discipline. In addition, a seminar component will consider theoretical and practical issues relevant to the teaching of studio art. Prerequisite: admission to the MFA program. <i>Department(s):</i> School of Fine Art and Music
<b>FINA*6531 MFA Teaching Practicum II F [0.50]</b>
Continuation of teaching practicum under the guidance of a faculty member. The practicum seminar will consider theoretical and practical issues relevant to the teaching of studio art such as educational goals, course and curriculum planning, academic evaluation, health and safety policies, and appropriate materials and equipment. <i>Prerequisite(s):</i> FINA*6530 <i>Department(s):</i> School of Fine Art and Music
<b>FINA*6540 MFA Seminar I F [0.50]</b>
Examination of critical issues in the visual arts relevant to studio practice <i>Department(s):</i> School of Fine Art and Music
<b>FINA*6545 MFA Seminar II W [0.50]</b>
Continuation of issues examined in FINA*6540 <i>Prerequisite(s):</i> FINA*6540 <i>Department(s):</i> School of Fine Art and Music
<b>FINA*6550 Selected Topics in Fine Art U [0.50]</b>
Seminar in a fine art topic in a subject to be specified by the instructor. <i>Prerequisite(s):</i> Admission to the MFA program. <i>Department(s):</i> School of Fine Art and Music
<b>FINA*6551 Seminar in Art Theory and Criticism I W [0.50]</b>
Selected topics in art theory and criticism with particular relevance to studio practice. <i>Prerequisite(s):</i> Admission to MFA program or permission of instructor. <i>Department(s):</i> School of Fine Art and Music
<b>FINA*6610 MFA Studio II F [1.50]</b>
Continuation of FINA*6515 <i>Prerequisite(s):</i> FINA*6515 <i>Department(s):</i> School of Fine Art and Music
<b>FINA*6615 MFA Studio III W [1.50]</b>
Continuation of FINA*6610 <i>Prerequisite(s):</i> FINA*6610 <i>Department(s):</i> School of Fine Art and Music
<b>FINA*6640 MFA Seminar III F [0.50]</b>
Continuation of FINA*6545 <i>Prerequisite(s):</i> FINA*6545 <i>Department(s):</i> School of Fine Art and Music
<b>FINA*6641 MFA Seminar IV W [0.50]</b>
Continuation of FINA*6640 <i>Department(s):</i> School of Fine Art and Music
<b>FINA*6651 Individual Study in Contemporary Art U [0.50]</b>
Students will pursue special study under the guidance of a faculty member with appropriate expertise <i>Prerequisite(s):</i> Approval of the co-ordinator of the MFA program. <i>Department(s):</i> School of Fine Art and Music
<b>FINA*6652 Individual Study in Art Theory and Criticism W [0.50]</b>
Students will pursue special study under the guidance of a faculty member with appropriate expertise. <i>Prerequisite(s):</i> Approval of the co-ordinator of the MFA program. <i>Department(s):</i> School of Fine Art and Music

## Theatre Studies

<b>THST*6150 Theatre Historiography F [0.50]</b>
This variable content course introduces students to the theory and practice of theatre historical analysis. The course is required of all students in the Theatre Studies MA Program. <i>Department(s):</i> School of English and Theatre Studies
<b>THST*6210 Devising W [0.50]</b>
This variable-content course addresses creative practice in the theatre as a site for the production of knowledge. It examines the theoretical and social issues of contemporary theatre practice. <i>Department(s):</i> School of English and Theatre Studies

<b>THST*6220 Theatre Theory F [0.50]</b>
This variable content course introduces students to a range of theoretical approaches and to advanced issues and methods within the fields of drama, theatre, and performance studies. The course is required for all students in the Theatre Studies MA Program. <i>Department(s):</i> School of English and Theatre Studies
<b>THST*6230 Performance and Difference W [0.50]</b>
This variable-content course introduces students to the most recent theoretical and critical international developments in the field of Theatre Studies and investigates sites of cultural diversity and difference. It provides opportunities for culturally specific studies of dramatic literature and performance. <i>Department(s):</i> School of English and Theatre Studies
<b>THST*6250 Bodies and Space in Performance W [0.50]</b>
This variable-content course introduces students to the social, ethical, phenomenological and environmental dimensions of the interaction of bodies and space in theatre practice and research. It provides a theorized context in which students may address questions of acting, directing, and design as research processes. <i>Department(s):</i> School of English and Theatre Studies
<b>THST*6280 Independent Reading Course U [1.00]</b>
Independent Reading Course <i>Department(s):</i> School of English and Theatre Studies
<b>THST*6500 Research Paper U [1.00]</b>
<i>Department(s):</i> School of English and Theatre Studies
<b>THST*6801 Reading Course I U [0.50]</b>
An independent study course, the nature and content of which is agreed upon between the individual and the person offering the course. Subject to the approval of the student's advisory committee and the graduate program committee. <i>Department(s):</i> School of English and Theatre Studies
<b>THST*6802 Reading Course II U [0.50]</b>
An independent study course, the nature and content of which is agreed upon between the individual and the person offering the course. Subject to the approval of the student's advisory committee and the graduate program committee. <i>Department(s):</i> School of English and Theatre Studies

## Tourism and Hospitality

<b>TRMH*6100 Foundations of Tourism and Hospitality F [0.50]</b>
The course is designed to discuss theoretical concepts and theories which provide an understanding of societal, managerial and strategic aspects of tourism and hospitality. An emphasis will also be placed on key theories and concepts of relevant disciplines which may affect tourism and hospitality research. <i>Department(s):</i> School of Hospitality, Food and Tourism Management
<b>TRMH*6200 Contemporary Issues in Tourism W [0.50]</b>
The course will acquaint students with the tourism industry. An overview of the scale and scope, involved stakeholders, and the organization of the industry will be examined and critiqued. An emphasis will be placed on the sustainable development and management of tourism resources and organizations. <i>Prerequisite(s):</i> TRMH*6100 <i>Department(s):</i> School of Hospitality, Food and Tourism Management
<b>TRMH*6250 Tourism and Sustainable Development F [0.50]</b>
The course introduces students to the issues affecting planning and development of tourism by understanding tourism planning and sustainable development. Core elements include a discussion on tourism impacts (economic, social, cultural and environmental), issues of sustainability, carrying capacity, 'eco-tourism' and other 'alternative forms' of tourism. <i>Department(s):</i> School of Hospitality, Food and Tourism Management
<b>TRMH*6270 Data Mining Practicum W [0.50]</b>
An applied course introducing popular concepts, methods and applications of data mining utilizing data warehoused at the government agencies and user friendly software and cases. This course covers various topics in data mining association rule, clustering, logistic regression, decision tree and artificial neural network. <i>Prerequisite(s):</i> TRMH*6100 and PSYC*6060 <i>Co-requisite(s):</i> Must take one of these courses ANTH*6140, MCS*6080 or SOC*6140 <i>Department(s):</i> School of Hospitality, Food and Tourism Management

**TRMH\*6290 Research Methods for Tourism and Hospitality F [0.50]**

This course looks at selected analytical techniques in tourism and hospitality research, both empirical and subjective, as well the nature of research questions and theory. The course is intended to help students make informed judgements about selected research tools and designs, and draw logical and substantive conclusions.

*Department(s):* School of Hospitality, Food and Tourism Management

**TRMH\*6310 Research Applications in Tourism and Hospitality W [0.50]**

This course is designed to enhance the student's analytical capability, using both basic and advanced analytical techniques and tools of tourism and hospitality research. They learn to critically evaluate, enabling them to make effective judgments, choose proper statistical techniques, and draw logical and substantive conclusions.

*Prerequisite(s):* TRMH\*6100 and one of TRMH\*6290, MCS\*6050, SOC\*6130 or PSYC\*6060

*Co-requisite(s):* Must take one of these courses ANTH\*6140, MCS\*6080, FRAN\*6020 or SOC\*6140

*Department(s):* School of Hospitality, Food and Tourism Management

**TRMH\*6400 Thesis Proposal F,W,S [1.00]**

The students engage in seminars to share experiences and reflections on the research process. This course is a development of the proposal: framing a research question, developing a methodological plan within a challenging interdisciplinary area such as tourism and hospitality, data planning and more.

*Prerequisite(s):* TRMH\*6100, TRMH\*6200, TRMH\*6310, one of TRMH\*6290, MCS\*6050, SOC\*6130 or PSYC\*6060 and one of ANTH\*6140, MCS\*6080, FRAN\*6020 or SOC\*6140

*Department(s):* School of Hospitality, Food and Tourism Management

**Toxicology****TOX\*6000 Advanced Principles of Toxicology S [0.50]**

An intensive course in the principles of modern aspects of toxicology, taught in a lecture/case study format.

*Department(s):* Department of Chemistry

**TOX\*6200 Advanced Topics in Toxicology W [0.50]**

Advanced topics in toxicology will include oral presentations by students, faculty members, and guest lecturers. The emphasis will be on advanced concepts and techniques in toxicology research with particular relevance to mechanistic, molecular and interpretive toxicology.

*Restriction(s):* Credit may be obtained for only one of TOX\*6200 or TOX\*4200

*Department(s):* Department of Chemistry

**TOX\*6590 Biochemical Toxicology F [0.50]**

The molecular mechanisms of action of carcinogens and other toxic compounds. Enzymes of biotransformation, including a detailed study of cytochrome P-450. Interactions of reactive species with DNA and other macromolecules. (Credit may be obtained for only one of TOX\*4590 and TOX\*6590).

*Department(s):* Department of Chemistry

**University Courses****UNIV\*6000 The Structure and Function of Muscle U [0.50]**

An interdisciplinary course covering basic aspects of muscle from a range of viewpoints: structure, metabolism, protein content, energetics, mechanics, biological adaptations, growth and development. The course is designed for graduate students from a wide range of specific disciplines and will provide a broad background to muscle biology as well as more detailed insights into specific aspects of each area covered.

*Department(s):* Office of Graduate Studies

**UNIV\*6010 Regulation in Muscle Metabolism U [0.50]**

An interdisciplinary course emphasizing the regulation of muscle metabolism in vivo. The course focuses on the integration of metabolic fuel utilization to meet cellular energy demands under a variety of conditions in the whole animal. Topics include: sources of energy demand, integration of energy supply to meet energy demands, and regulation of cell growth, maintenance and adaptation.

*Department(s):* Office of Graduate Studies

**UNIV\*6030 Seminars and Analysis in Animal Behaviour and Welfare F-W [0.50]**

This seminar-based course offers an interdisciplinary forum for the discussion of broad topics in animal welfare and human-animal relationships. Students analyze topics presented by visiting guest lecturers using perspectives from various disciplines such as animal science, philosophy, history, psychology, ethics, and biology.

*Department(s):* Office of Graduate Studies

**UNIV\*6040 Selected Topics in Critical Studies in Improvisation S [0.50]**

Intended for students who have an interest in musical improvisation, this interdisciplinary course provides a forum to investigate the possibility of improvised artistic practices to inform community-building models and to shape public debate and policy decisions regarding the role of the arts in society.

*Department(s):* Office of Graduate Studies

**UNIV\*6050 The Integration of Science and Business in Agrifood Systems F-W [1.00]**

Designed specifically for students enrolled in OMAFRA/UoG HQP Scholarship program but open to all students. To provide market-readiness for students as they enter business, government or academia. Teaching modules will cover business developments, intellectual property, patent and licence protection as well as societal issues impacting agriculture.

*Restriction(s):* Limited of 36 students. Priority to HQP Scholarship Program students

*Department(s):* Office of Graduate Studies

**UNIV\*6060 Mechanisms of Tissue and Cellular Mechanotransduction in Health and Disease F [0.50]**

This course explores fundamental mechanisms and signalling pathways that dynamically regulate cell and tissues responses to physical forces in health and disease. It is relevant to a wide range of areas of study, from biomechanics and tissue engineering to gastro-intestinal health, food and nutrition.

*Restriction(s):* Instructor consent required.

*Department(s):* Office of Graduate Studies

**UNIV\*6070 Topics and Analysis in Sustainability F [0.50]**

This course will allow students to examine, analyze and discuss the evolving concept of "sustainability" in a transdisciplinary context and build upon their knowledge and experience in this area. We will examine various current issues (e.g., climate change, natural resource management, environmental governance) at the interface of more than one discipline (or transdisciplinary) and which require some degree of global understanding. Students will be encouraged to share their diverse backgrounds in discussions and assignments.

*Offering(s):* Offered in even-numbered years.

*Restriction(s):* Instructor consent required. Must be enrolled in a graduate program at the University of Guelph.

*Department(s):* Office of Graduate Studies

**UNIV\*6080 Computational Thinking for Artificial Intelligence U [0.25]**

This course will provide students with an overview of the mathematical and computational foundation that is required to undertake artificial intelligence and machine learning research. Students will also gain an understanding of the historical context, breadth, and current state of the field. Students are expected to have already taken undergraduate courses in probability & statistics, calculus, linear algebra, and data structures & algorithms (STAT\*2120, MATH\*1210, ENGG\*1500, and CIS\*2520, or equivalents).

*Department(s):* Office of Graduate Studies

**UNIV\*6090 Artificial Intelligence Applications and Society U [0.50]**

This multidisciplinary, team-taught course provides an in-depth study of how artificial intelligence methodologies can be applied to solve real-world problems in different fields. Students will work in groups to propose solutions whilst considering social and ethical implications of artificial intelligence technologies.

*Prerequisite(s):* UNIV\*6080

*Restriction(s):* Restricted to students in the collaborative specialization in Artificial Intelligence

*Department(s):* Office of Graduate Studies

**UNIV\*6500 International Study Option U [0.00]**

A period of study in another country as part of a graduate program at the University of Guelph. Details may be obtained from the Office of Graduate and Postdoctoral Studies.

*Department(s):* Office of Graduate Studies

**UNIV\*6600 Animal Care Short Course S,F,W [0.00]**

The course includes on-line training modules covering the following topics: Legislation, Regulation & Guidelines, Ethological Considerations in Animal Management, Ethics in Animal Experimentation, Research Issues, The Three Rs of Humane Animal Experimentation, Occupational Health and Safety when Working with Animals, Euthanasia, Recognition and Alleviation of Pain and Distress in Animals. Graduate students using or caring for live animals or assisting in teaching courses involving live vertebrate animals also must attend the Animal Care Services species-specific Workshops as part of the Animal User Training Program.

*Department(s):* Office of Graduate Studies

**UNIV\*6710 Commercialization of Innovation F [0.50]**

This course is designed to help participants better understand the process, the analytical tools that can assist the process and how best to prepare technologies to survive commercialization. The course includes elements of entrepreneurship, relationship building, organizational change, as well as project and personnel management.

*Department(s):* Department of Management

**UNIV\*6800 University Teaching: Theory and Practice F [0.50]**

Participants will critically examine aspects of teaching in higher education and develop teaching skills such as lecturing, demonstrating, leading discussions, and problem solving. Satisfactory (SAT) or unsatisfactory (UNS) will be used to evaluate the student's performance in this course.

*Department(s):* Office of Graduate Studies

**UNIV\*7100 Academic Integrity for Graduate Students S,F,W [0.00]**

Academic integrity is a code of ethics for teachers, students, researchers, and writers. It is fundamental to the University of Guelph's educational mission and to ensuring the value of the scholarly work conducted here. This course provides definitions, examples, and exercises to help graduate students understand the importance of academic integrity and learn how to avoid academic misconduct in their own work. This course required of all graduate students has to be completed within 20 days of commencing their graduate program.

*Department(s):* Office of Graduate Studies

## Revisions

On the basis of information received from the Board of Graduate Studies, colleges or departments, the 2018-2019 Graduate Calendar includes the following revisions:

### Note

Those who may have used the PDFs to download and print off these calendar sections are advised to re-print the revised sections accordingly. Please be aware sectioning, page numbering, table of contents may have changed.

## May 1, 2018

Initial publication of 2018/2019 Graduate Calendar

## August 10, 2018

### Chapter I - Schedule of Dates

Changes to course selection dates

### Chapter IV - Degree Regulations

Changes to criteria for appointment of External Examiner

### Chapter IX - Graduate Programs

Animal Biosciences - change in requirements for MSc Course Work and MRP option

ANSC\*6720 - Changes to course description

Engineering - Addition of new Field in Computer Engineering

ENGG\*6400 - Course addition

ENGG\*6980 - Course addition

ENGG\*6990 - Course addition

FRAN\*6410 - Course deletion

Management - Changes to admission and degree requirements

MGMT\*6000 - Course addition

SOC\*6200 - Change in semester offering

## December 13, 2018

### Chapter I - Schedule of Dates

Addition of Summer 2019 schedule of dates

### Chapter II - General Regulations

Changes to the Program Duration deadlines

### Chapter IV - Degree Regulations

Changes to the Qualifying Examination procedure

Addition of retired faculty component to Master's Examination Committee

### Chapter V - Other Study Options

Addition of Cotutelle Agreement information

### Chapter IX - Graduate Programs

ANSC\*6610 - Changes to course description

ANSC\*6630 - Changes to course description

CLIN\*6970 - Course addition

ENGG\*6260 - Course addition

FARE\*6990 - Course addition

FRAN\*6090 - Change in credit weight

FRAN\*6095 - Change in credit weight

MGMT\*6130 - Course addition

Psychology - Change of field name to Clinical Child and Adolescent Psychology (CCAP)

Psychology - Change to MA and PhD CCAP degree requirements

Psychology - Change to PhD Admission Requirements

PSYC\*6010 - Change to course description

PSYC\*6020 - Change to course description

PSYC\*6580 - Change to course description

PSYC\*6690 - Change to course description

PSYC\*7991 - Change to course description

PSYC\*7992 - Change to course description

PSYC\*7993 - Change to course description

PSYC\*7994 - Change to course description

PSYC\*7996 - Course addition

PSYC\*8000 - change to course description

## February 15, 2019

### Chapter IX - Graduate Programs

Artificial Intelligence - Addition of Collaborative Specialization

Bioinformatics - Addition of Artificial Intelligence Collaborative Specialization

Computer Science - Addition of Artificial Intelligence Collaborative Specialization

Engineering - Addition of Artificial Intelligence Collaborative Specialization

Mathematics and Statistics - Addition of Artificial Intelligence Collaborative Specialization

UNIV\*6080 - Course addition

UNIV\*6090 - Course addition

## March 1, 2019

### Chapter I - Schedule of Dates

Change to the drop deadline date