

University of Windsor

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University of Windsor Graduate Calendars

University of Windsor Calendars

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Fall 2004

## University of Windsor Graduate Calendar 2004 Fall Electronic Edition

University of Windsor

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### Recommended Citation

University of Windsor, "University of Windsor Graduate Calendar 2004 Fall Electronic Edition" (2004).  
*University of Windsor Graduate Calendars*. 29.

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# Graduate Calendar

## Fall 2004



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### **Preface**

The University of Windsor publishes graduate web calendars on a semester basis (Fall, Winter, and Spring). These contain up-to-date information on academic regulations, programs and courses specific to that semester.

### **How to...**

Visitors to the site may search for program and course information via:

- the Programs of Study link,
- the Departmental Listings, or
- the Search Engine

all of which are located in the Table of Contents on left-hand column of the website.

Academic regulations, application procedures, and other information are also accessible via the links provided in the Table of Contents.

### **Calendar Revisions**

The following lists the changes made to the web calendar over the past semester. These changes will be effective as of the Fall 2004 semester, unless otherwise specified.

Change: MFA program requirements revised.

• Communciation Studies:  
Courses

Computer Science: Graduate  
Faculty

- Computer Science:  
Programs
- Computer Science: Courses

Earth Sciences: Graduate  
Faculty

- Earth Sciences: Programs
- Earth Sciences: Courses

Economics: Graduate Faculty

- Economics: Programs
- Economics: Courses

Faculty of Education:  
Graduate Faculty

- Education: Programs
- Education: Courses

Faculty of Engineering:  
Programs of Study Overview

- General Courses,  
Engineering

Civil and Environmental  
Engineering (CEE): Graduate  
Faculty

- CEE: Areas of Specialization
- CEE: Courses

Electrical Engineering:  
Graduate Faculty

- Electrical Engineering:  
Areas Of Specialization
- Electrical Engineering:  
Courses

Engineering Materials:  
Graduate Faculty

- Engineering Materials:  
Areas of Specialization
- Engineering Materials:  
Courses

Industrial and Manufacturing  
Systems Engineering (IMSE):  
Graduate Faculty

- IMSE: Areas of  
Specialization
- IMSE: Courses

Mechanical, Automotive, and  
Materials Engineering  
(MAME): Graduate Faculty

- MAME: Areas of  
Specialization

- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
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Sociology: Graduate Faculty

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- Sociology: Courses

Visual Arts: Graduate Faculty

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### **Preface**

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Faculty of Education:  
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Faculty of Engineering:  
Programs of Study Overview

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Civil and Environmental  
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Faculty

- CEE: Areas of Specialization
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Electrical Engineering:  
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Areas Of Specialization
- Electrical Engineering:  
Courses

Engineering Materials:  
Graduate Faculty

- Engineering Materials:  
Areas of Specialization
- Engineering Materials:  
Courses

Industrial and Manufacturing  
Systems Engineering (IMSE):  
Graduate Faculty

- IMSE: Areas of  
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- IMSE: Courses

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(MAME): Graduate Faculty

- MAME: Areas of  
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- MAME: Courses

English: Graduate Faculty

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History: Graduate Faculty

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- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

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- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

- Sociology: Programs
- Sociology: Courses

Visual Arts: Graduate Faculty

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[• Chemistry and Biochemistry: Programs](#)

[• Chemistry and Biochemistry: Courses](#)

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**Programs of Study - Alphabetical Listing**

[A](#) | [B](#) | [C](#) | [D](#) | [E](#) | [F](#) | [G](#) | [H](#) | [I](#) | [J](#) | [K](#) | [L](#) | [M](#) | [N](#) | [O](#) | [P](#) | [Q](#) | [R](#) | [S](#) | [T](#) | [U](#) | [V](#) | [W](#) | [X](#) | [Y](#) | [Z](#)

Masters and/or Doctoral and/or Post-Doctoral programs are offered in the following areas of study. A Postdoctoral Certificate is also available in [Adult Clinical Psychology](#).

**B**

[Biological Sciences](#) (MSc), (PhD)

Business Administration:

• [Business Administration](#) (MBA) (Co-operative Education)

• [Business Administration](#) (MBA) (Fast-Track)

[Business Administration](#) (MBA) (For Managers and Professionals)

[Business Administration/Bachelor of Laws](#) (Integrated MBA/LLB)

**C**

[Chemistry and Biochemistry](#) (MSc), (PhD)

[Civil Engineering](#) (MAsc), (MEng), (PhD)

[Communication and Social Justice](#) (MA)

[Computer Science](#) (MSc), (PhD)

**E**

[Earth Sciences](#) (MSc), (PhD)

[Economics](#) (MA)

[Education](#) (MEd)

[Educational Studies](#) (PhD)

[Electrical Engineering](#) (MAsc), (MEng), (PhD)

[Engineering Materials](#) (MAsc), (MEng), (PhD)

[English](#) (MA)

[Environmental Engineering](#) (MAsc), (MEng), (PhD)

**H**

[History](#) (MA)

**I**

[Industrial Engineering](#) (MAsc), (MEng)

**K**

[Kinesiology](#) (MHK)

**M**

[Mathematics](#) (MSc)

[Mechanical Engineering](#) (MAsc), (MEng), (PhD)

**N**

[Nursing](#) (MSc), (MN)

**P**

[Philosophy](#) (MA)

[Physics](#) (MSc), (PhD)

[Political Science](#) (MA)

[Psychology](#) (MA), (PhD)

**S**

[Statistics](#) (MSc), (PhD)

[Social Work](#) (MSW)

[Sociology \(Social Justice\)](#) (MA), (PhD)

**V**

[Visual Arts](#) (MFA)

• Communciation Studies:  
Courses

Computer Science: Graduate  
Faculty

- Computer Science:  
Programs
- Computer Science: Courses

Earth Sciences: Graduate  
Faculty

- Earth Sciences: Programs
- Earth Sciences: Courses

Economics: Graduate Faculty

- Economics: Programs
- Economics: Courses

Faculty of Education:  
Graduate Faculty

- Education: Programs
- Education: Courses

Faculty of Engineering:  
Programs of Study Overview

- General Courses,  
Engineering

Civil and Environmental  
Engineering (CEE): Graduate  
Faculty

- CEE: Areas of Specialization
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Graduate Faculty

- Electrical Engineering:  
Areas Of Specialization
- Electrical Engineering:  
Courses

Engineering Materials:  
Graduate Faculty

- Engineering Materials:  
Areas of Specialization
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Courses

Industrial and Manufacturing  
Systems Engineering (IMSE):  
Graduate Faculty

- IMSE: Areas of  
Specialization
- IMSE: Courses

Mechanical, Automotive, and  
Materials Engineering  
(MAME): Graduate Faculty

- MAME: Areas of  
Specialization

- MAME: Courses

English: Graduate Faculty

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- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
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- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

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Physics: Graduate Faculty

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Political Science: Graduate  
Faculty

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Psychology: Graduate Faculty

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Social Work: Graduate  
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Visual Arts: Graduate Faculty

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### Chemistry and Biochemistry: Graduate Faculty

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- Chemistry and Biochemistry: Courses

### Communication Studies: Graduate Faculty

- Communications Studies: Programs

### Notification of Disclosure of Personal Information to Statistics Canada

Statistics Canada is the national statistical agency. As such, Statistics Canada carries out hundreds of surveys each year on a wide range of matters, including education.

It is essential to be able to follow students across time and institutions to understand, for example, the factors affecting enrollment demand at post-secondary institutions. The increased emphasis on accountability for public investment means that it is also important to understand 'outcomes'. In order to carry out such studies, Statistics Canada asks all colleges and universities to provide data on students and graduates. Institutions collect and provide to Statistics Canada student identification information (student's name, student ID number, Social Insurance Number), student contact information (address and telephone number), student demographic characteristics, enrollment information, previous education, and labour force activity.

The Federal Statistics Act provides the legal authority for Statistics Canada to obtain access to personal information held by educational institutions. The information may be used only for statistical purposes, and the confidentiality provisions of the Statistics Act prevent the information from being released in any way that would identify a student.

Students who do not wish to have their information used are able to ask Statistics Canada to remove their identification and contact information from the national database.

Further information on the use of this information can be obtained from Statistics' Canada's web site: <http://www.statcan.ca> or by writing to the Postsecondary Section, Centre for Education Statistics, 17th Floor, R.H. Coats Building, Tunney's Pasture, Ottawa, K1A 0T6.

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Faculty

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### • Business: Programs • Business: Courses

### Chemistry and Biochemistry: Graduate Faculty

### • Chemistry and Biochemistry: Programs • Chemistry and Biochemistry: Courses

### Communication Studies: Graduate Faculty

### • Communications Studies: Programs

## CALENDAR OF THE ACADEMIC YEAR 2004-2006

### 2004

April 8	Last day of classes for Winter term, Field work ends in Social Work.
April 9	Good Friday (statutory holiday) (no examinations)
April 11	Easter Sunday
April 12	Winter term final examinations begin.
May 3	Intersession, 12-week session, Summer Session and Summer Co-op fees are due.
May 14	Last day for oral defense of dissertations, theses and major papers for Spring Convocation
May 17	Intersession, 12-week session and Summer Co-op terms begin. Consolidation begins for the Faculty of Nursing.
May 21	Last day to deposit dissertations, theses and major papers for Spring Convocation.
May 21	Last day for late registration and change of course for Intersession. Last day for full tuition refund for Intersession courses.
May 24	Victoria Day (statutory holiday) (no classes).
May 26-28, 31, June 1	May Headstart
May 28	Last day for registration and change of course, 12-week session and Summer Co-op. Last day for full tuition refund for 12-week session and Summer Co-op courses. Last day for reversal of incidental fees for 6-week Intersession courses.
June 4	Last day for completion of all requirements for graduate degrees under Phase I (100% tuition refund).
June 4-6	Spring Convocation.
June 11	Last day to withdraw voluntarily from Intersession courses. After this date students remain registered in courses and receive final grades as appropriate. Last day for partial tuition refund for Intersession courses.
June 25	Intersession classes end.

• Communciation Studies: Courses	June 28	Intersession examinations begin. Mid-term break for 12-week and Summer Co-op.
Computer Science: Graduate Faculty	June 30	Last day to file application for Fall graduation.
• Computer Science: Programs	July 1	Observance of Canada Day. University offices closed.
• Computer Science: Courses	July 2	Last day for completion of all requirements for graduate degrees under Phase II (50% tuition refund).
Earth Sciences: Graduate Faculty	July 5	Summer Session classes begin.
• Earth Sciences: Programs	July 5-9	July Headstart
• Earth Sciences: Courses	July 9	Last day for Summer Session late registration and course changes. Last day for full tuition refund for Summer Session courses.
Economics: Graduate Faculty	July 23	Last day to withdraw voluntarily from 12-week session and Summer Co-op term courses. Last day to receive partial refund for 12-week session and Summer Co-op term courses. Last date for reversal of incidentals for 6-week Summer courses.
• Economics: Programs	July 30	Last day to withdraw voluntarily from Summer Session courses. After this date students remain registered in courses and receive final grades as appropriate. Last day for partial tuition refund for Summer Session courses.
• Economics: Courses	August 2	Civic Holiday (statutory holiday) (no classes)
Faculty of Education: Graduate Faculty	August 6	Deadline for recommending an external examiner for an oral defense on the last day for Fall Convocation.
• Education: Programs	August 13	Last day of classes for Summer Session, 12-week session, and Summer Co-op term.
• Education: Courses	August 16	Fall term fees are due and payable. Summer Session and 12-week Session and Summer Co-op examinations begin.
Faculty of Engineering: Programs of Study Overview	September 6	Labour Day (statutory holiday).
• General Courses, Engineering	September 5-10	Windsor Welcome Week
Civil and Environmental Engineering (CEE): Graduate Faculty	September 7	Registration for First Year Law students. Classes begin in Second and Third Year Law.
• CEE: Areas of Specialization	September 8-10	Orientation for First Year Law
• CEE: Courses	September 9	All classes begin, day and evening, except Law. Field work begins in Social Work
Electrical Engineering: Graduate Faculty	September 13	Classes begin in First Year Law.
• Electrical Engineering: Areas Of Specialization	September 20	Last day for course changes in Law.
• Electrical Engineering: Courses	Septmber 22	Last day for late registration and change of course for Fall term day and evening, except Law. Last day for full tuition refund.
Engineering Materials: Graduate Faculty	September 24	Last day for the oral defense of dissertations, theses and major papers for Fall Convocation.
• Engineering Materials: Areas of Specialization		
• Engineering Materials: Courses		
Industrial and Manufacturing Systems Engineering (IMSE): Graduate Faculty		
• IMSE: Areas of Specialization		
• IMSE: Courses		
Mechanical, Automotive, and Materials Engineering (MAME): Graduate Faculty		
• MAME: Areas of Specialization		

• MAME: Courses

English: Graduate Faculty • English: Programs • English: Courses	October 1	Last day to deposit dissertations, theses and major papers for Fall Convocation.
History: Graduate Faculty • History: Programs • History: Courses	October 1	Last day for completion of all requirements for graduate degrees under Phase I (100% tuition refund).
Faculty of Human Kinetics: Graduate Faculty • Kinesiology: Programs • Kinesiology: Courses	October 6	Last day for reversal of incidental fees for course withdrawal.
	October 11	Thanksgiving Day (statutory holiday) (no classes).
	October 16	Fall Convocation
Mathematics and Statistics: Graduate Faculty • Mathematics and Statistics: Programs • Mathematics and Statistics: Courses	October 22	Last day for completion of all requirements for graduate degrees under Phase II (50% tuition refund).
	November 10	Last day to withdraw voluntarily from courses. After this date students remain registered in courses and receive final grades as appropriate. Last day for partial tuition refund.
Faculty of Nursing: Graduate Faculty • Nursing: Programs • Nursing: Courses	December 6	Last day of classes, Law.
	December 8	Last day classes, day and evening, except Law. Fall term field work ends in Social Work.
Philosophy: Graduate Faculty • Philosophy: Programs • Philosophy: Courses	December 9	Examinations begin in Law.
	December 11	Fall term examinations begin except Law and Education.
	December 15	Winter term fees are due and payable.
Physics: Graduate Faculty • Physics: Programs • Physics: Courses	December 23 to December 31	University offices closed for Christmas recess.
Political Science: Graduate Faculty • Political Science: Programs • Political Science: Courses	<b>2005</b>	
	January 3	University offices reopen. Classes begin in Law.
Psychology: Graduate Faculty • Psychology: Programs • Psychology: Courses	January 10	All classes (except Law) begin, day and evening, except Law. Field work begins in Social Work.
	January 14	Last date for course changes in Law for Winter term.
Social Work: Graduate Faculty • Social Work: Programs • Social Work: Courses	January 21	Last day of registration and change of course for Winter term courses, day and evening. Last day for full tuition refund.
	January 28	Last day for completion of all requirements for graduate degrees under Phase I (100% tuition refund).
Sociology: Graduate Faculty • Sociology: Programs • Sociology: Courses	February 1	Final day for application to Level 3 in Social Work.
	February 4	Last day for reversal of incidental fees for course withdrawal.
Visual Arts: Graduate Faculty • Visual Arts: Programs • Visual Arts: Courses	February 15	Last day to file application for Spring graduation.
	February 18	Last day for completion of all requirements for graduate degrees under Phase II (50% tuition refund).
Postgraduate Awards and Financial Aid	February 21-25	Study week for Law.

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February 28 to March 4	Study week for all faculties except Law and Education. Field work continues in Social Work.
March 4	University offices closed.
March 18	Last day to withdraw voluntarily from courses. After this date students remain registered in courses and receive final grades as appropriate. Last day for partial tuition refund.
March 25	Good Friday (statutory holiday) (no classes)
March 27	Easter Sunday
April 1	Deadline for recommending an external examiner for a Ph.D. oral defense on the last day for Spring Convocation
April 8	Last day of classes in Law.
April 11	Winter term final examinations begin in Law.
April 15	Last day of classes, day and evening, except Law for Winter term. Field work ends in Social Work.
April 18	Winter term final examinations begin, except Law.
May 2	Intersession, 12-week session, Summer Session and Summer Co-op fees are due and payable.
May 16	Intersession, 12-week session and Summer Co-op terms begin. Consolidation begins for the School of Nursing.
May 20	Last day for late registration and change of course for Intersession. Last day for full tuition refund for Intersession courses.
May 20	Last day for oral defense of dissertations, theses and major papers for Spring Convocation.
May 23	Victoria Day (statutory holiday) (no classes).
May 27	Last day to deposit dissertations, theses and major papers for Spring Convocation.
May 27	Last day for registration and change of course, 12-week session and Summer Co-op. Last day for full tuition refund for 12-week session and Summer Co-op courses. Last day for reversal of incidental fees for 6-week Intersession courses.
June 3	Last day for completion of all requirements for graduate degrees under Phase I (100% tuition refund).
June 10-12	Spring Convocation.
June 10	Last day to withdraw voluntarily from Intersession courses. After this date students remain registered in courses and receive final grades as appropriate. Last day for partial tuition refund for Intersession courses. Last day for reversal of incidental fees for 12-week and Summer Co-op courses.
June 24	Intersession classes end.

June 27	Intersession examinations begin. Mid-term break for 12-week session and Summer Co-op.
June 30	Last day for completion of all requirements for graduate degrees under Phase II (50% tuition refund).
June 30	Last day to file application for Fall graduation.
July 1	Observance of Canada Day. University offices closed.
July 4	Summer Session classes begin.
July 8	Last day for Summer Session late registration and change of course. Last day for full tuition refund for Summer Session courses.
July 15	Last date for reversal of incidentals for 6-week Summer courses.
July 22	Last day to withdraw voluntarily from 12-week session and Summer Co-op term courses. After this date students remain registered in courses and receive final grades as appropriate. Last day to receive partial refund for withdrawal from 12-week session and Summer Co-op term courses.
July 29	Last day to withdraw voluntarily from Summer Session courses. After this date students remain registered in courses and receive final grades as appropriate. Last day for partial tuition refund for Summer Session courses.
August 1	Civic Holiday (statutory holiday) (no classes).
August 5	Deadline for recommending an external examiner for a Ph.D. oral defense on the last day for Fall Convocation.
August 12	Last day of classes for Summer Session, 12-week session, and Summer Co-op term.
August 15	Fall fees are due and payable. Summer Session, 12-week session, and Summer Co-op term examinations begin.
September 5	Labour Day (statutory holiday).
September 4-9	Windsor Welcome Week
September 6	Registration for First Year Law students. Classes begin in Second and Third Year Law.
September 7-9	Orientation for First Year Law
September 8	All classes begin, day and evening, except Law. Field work begins in Social Work
September 12	Classes begin in First Year Law.
September 19	Last day for course changes in Law.
September 21	Last day for late registration and change of course for Fall term day and evening. Last day for full tuition refund.
September 23	Last day for the oral defense of dissertations, theses and major papers

for Fall Convocation.

- September 30 Last day to deposit dissertations, theses and major papers for Fall Convocation.
- September 30 Last day for completion of all requirements for graduate degrees under Phase I (100% tuition refund).
- October 5 Last day for reversal of incidental fees for course withdrawal.
- October 10 Thanksgiving Day (statutory holiday) (no classes).
- October 15 Fall Convocation
- October 21 Last day for completion of all requirements for graduate degrees under Phase II (50% tuition refund).
- November 9 Last day to withdraw voluntarily from courses. After this date students remain registered in courses and receive final grades as appropriate. Last day for partial tuition refund.
- December 5 Last day of classes, Law.
- December 7 Last day classes, day and evening, except Law. Fall term field work ends in Social Work.
- December 8 Examinations begin in Law.
- December 10 Fall term examinations begin except Law and Education.
- December 15 Winter term fees are due and payable.
- December 23 to University offices closed for Christmas recess.  
December 31

## **2006**

- January 3 University offices reopen.
- January 3 Classes begin in Law.
- January 9 All classes begin, day and evening, except Law. Field work begins in Social Work.
- January 16 Last day for course changes in Law for Winter term.
- January 20 Last day of registration and change of course for Winter term courses, day and evening, except Law. Last day for full tuition refund.
- January 27 Last day for completion of all requirements for graduate degrees under Phase I (100% tuition refund).
- February 1 Final day for application to Level 3 in Social Work.
- February 3 Last day for reversal of incidental fees for course withdrawal.
- February 15 Last day to file application for Spring graduation
- February 17 Last day for completion of all requirements for graduate degrees under

Phase II (50% tuition refund).

February 20-24 Study week for Law.

February 27 to Study week for all faculties except Education and Law. Field work  
March 3 continues in Social Work.

March 3 University offices closed.

March 17 Last day to withdraw voluntarily from courses. After this date students  
remain registered in courses and receive final grades as appropriate.  
Last day for partial tuition refund.

March 31 Deadline for recommending an external examiner for a Ph.D. oral  
defense on the last day for Spring Convocation

April 7 Last day of classes in Law.

April 10 Winter term final examinations begin in Law.

April 13 Last day of classes, day and evening, except Law for Winter term. Field  
work ends in Social Work

April 14 Good Friday (statutory holiday) (no classes)

April 16 Easter Sunday

April 17 Winter term final examinations begin, except Law.

May 1 Intersession, 12-week session, Summer Session and Summer Co-op  
fees are due and payable.

May 15 Intersession, 12-week session, and Summer Co-op terms begin.  
Consolidation begins for the School of Nursing.

May 19 Last day for late registration and change of course for Intersession. Last  
day for full tuition refund for Intersession courses.

May 19 Last day for oral defense of dissertations, theses and major papers for  
Spring Convocation.

May 22 Victoria Day (statutory holiday) (no classes).

May 25-27, 30- May Headstart  
31

May 26 Last day to deposit dissertations, theses and major papers for Spring  
Convocation.

May 26 Last day for registration and change of course, 12-week session and  
Summer Co-op. Last day for full tuition refund for 12-week session and  
Summer Co-op courses. Last day for reversal of incidental fees for 6-  
week Intersession courses.

June 2 Last day for completion of all requirements for graduate degrees under  
Phase I (100% tuition refund).

June 9-11 Spring Convocation.

June 9 Last day to withdraw voluntarily from Intersession courses. After this



	date students remain registered in courses and receive final grades as appropriate. Last day for partial tuition refund for Intersession courses. Last day for reversal of incidental fees for 12-week and Summer Co-op courses.
June 23	Intersession classes end.
June 26	Intersession examinations begin. Mid-term break for 12-week session and Summer Co-op.
June 30	Last day for completion of all requirements for graduate degrees under Phase II (50% tuition refund).
June 30	Last day to file application for Fall graduation.
June 30	Observance of Canada Day. University offices closed.
July 3	Summer Session classes begin.
July 4-8	July Headstart
July 7	Last day for Summer Session late registration and change of course. Last day for full tuition refund for Summer Session courses.
July 14	Last date for reversal of incidentals for 6-week Summer courses.
July 21	Last day to withdraw voluntarily from 12-week session and Summer Co-op term courses. After this date students remain registered in courses and receive final grades as appropriate. Last day to receive partial refund for withdrawal from 12-week session and Summer Co-op term courses.
July 28	Last day to withdraw voluntarily from 6-week Summer Session courses. After this date students remain registered in courses and receive final grades as appropriate. Last day for partial tuition refund for Summer Session courses.
August 4	Deadline for recommending an external examiner for a Ph.D. oral defense on the last day for Fall Convocation.
August 7	Civic Holiday (statutory holiday) (no classes).
August 11	Last day of classes for Summer Session, 12-week session, and Summer Co-op term.
August 14	Fall fees are due and payable. Summer Session, 12-week session, and Summer Co-op term examinations begin.

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## **FACULTY OF GRADUATE STUDIES AND RESEARCH**

### ***OFFICERS OF ADMINISTRATION***

Dean, Faculty of Graduate Studies and Research, (Ext. 2107), Cameron, W. Sheila; R.S.C.N. (Scotland), Reg.N., B.A. (McMaster), M.A. Nurs. Educ. (Detroit), Ed.D. (Wayne State), F.A.A.M.R.

Associate Dean, Barron, Ronald M.; B.A., M.Sc. (Windsor), M.S. (Stanford), Ph.D. (Carleton)

### ***FLUID DYNAMICS RESEARCH INSTITUTE***

Interim Director: Dr. Gary W. Rankin

### ***GREAT LAKES INSTITUTE FOR ENVIRONMENTAL RESEARCH***

Acting Director: Dr. Brian Fryer

### ***HUMANITIES RESEARCH GROUP***

Director: Dr. Kathleen McCrone

### ***GRADUATE COUNCIL***

One graduate faculty representative from each discipline or group of disciplines offering an OCGS approved program.

Ex-officio Members (with vote): Dean of Graduate Studies and Research; Associate Dean, Graduate Studies and Research; Vice-President, Research; President of the Graduate Student Society; University Librarian; Four (4) decanal representatives, elected by the Faculty Deans; Other members, to a maximum of two invited from the academic and/or administrative support services (non-voting); Nine additional student representatives from the Graduate Student Society

### ***COMMITTEES***

Academic Standing Committee  
Admissions Committee  
Awards Committee  
Executive Committee  
Graduate Support Committee  
New Programs Committee  
Nominating Committee

Membership elected annually from Graduate Council and graduate faculty.

• Communciation Studies:  
Courses

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Graduate Faculty

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Industrial and Manufacturing  
Systems Engineering (IMSE):  
Graduate Faculty

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English: Graduate Faculty

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History: Graduate Faculty

- History: Programs
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Faculty of Human Kinetics:  
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Physics: Graduate Faculty

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Political Science: Graduate  
Faculty

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Psychology: Graduate Faculty

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The Faculty of Graduate Studies and Research offers programs leading to the following degrees:

Master of Arts in Communication and Social Justice, Economics, English, History, Philosophy, Political Science, Psychology, Sociology;

Master of Science in Biological Sciences, Chemistry and Biochemistry, Computer Science, Earth Sciences, Mathematics, Nursing, Physics, Statistics;

Master of Applied Science in Civil Engineering, Electrical Engineering, Engineering Materials, Environmental Engineering, Industrial Engineering, Mechanical Engineering;

Master of Engineering in Civil Engineering, Engineering Materials, Electrical Engineering, Environmental Engineering, Industrial Engineering, Mechanical Engineering;

Master of Business Administration: M.B.A. (Co-operative Education), M.B.A. (Fast-track), M.B.A. for Managers and Professionals, Integrated M.B.A./LL.B.;

Master of Education;

Master of Fine Arts in Visual Arts;

Master of Human Kinetics;

Master of Nursing;

Master of Social Work;

Doctor of Philosophy in Biological Sciences, Chemistry and Biochemistry, Civil Engineering, Computer Science, Earth Sciences, Educational Studies, Electrical Engineering, Engineering Materials, Environmental Engineering, Mechanical Engineering, Physics, Psychology, Sociology, Statistics;

Postdoctoral Certificate in Adult Clinical Psychology.

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## APPLICATION PROCEDURES

An application for admission may be obtained from the Office of the Registrar (Graduate Division), University of Windsor, Windsor, Ontario, Canada N9B 3P4 (gradadmit@uwindsor.ca), or at [www.uwindsor.ca/registrar](http://www.uwindsor.ca/registrar).

Applicants are advised to check departmental listings for deadlines. If an earlier deadline is not specified, applications, official transcripts, confidential reports, and the application fee should be submitted no later than July 1 for September admission, November 1 for January admission, and March 1 for May admission. However, applicants are advised that offers of admission will be made prior to and following these dates to qualified applicants. All positions may be filled before the deadline dates. Early applications are advised.

International applicants are required to obtain a student visa. This is the sole responsibility of the applicant. Applicants are advised that Canadian government processing of visa applications may take several weeks or even months.

All documents received become the property of the University and will not be returned.

Admission to the Faculty of Graduate Studies and Research is by letter of offer from the Dean of Graduate Studies and Research.

A decision to admit or not to admit is made by the Dean on the basis of a recommendation received from an academic unit, together with the documents required for admission.

A decision may be reconsidered upon the request of either the applicant or the academic unit if further information is offered.

Applicants who have not been admitted to the Faculty of Graduate Studies and Research may upgrade their qualifications and reapply. A subsequent decision would be made on the basis of a further recommendation from the academic unit and the updated file.

## DEFERRED APPLICATIONS

Offers of admission are made for a specific term, and, with the approval of the program, acceptance may be deferred for one term only. Students wishing to be considered for admission at a later date will normally be required to complete a new application and to resubmit their documents.

## DOCUMENTATION REQUIRED

All documents received become the property of the University and will not be returned.

Action will be taken on an application for admission when all the documents listed

• **Communciation Studies:  
Courses**

below have been received:

**Computer Science: Graduate  
Faculty**

1) The form "Application for Admission to the Faculty of Graduate Studies and Research" properly completed.

• **Computer Science:  
Programs**

2) Two official transcripts of all undergraduate and graduate work from all colleges or universities attended.

**Earth Sciences: Graduate  
Faculty**

3) Completed Confidential Report forms as provided in the application package.

• **Earth Sciences: Programs**  
• **Earth Sciences: Courses**

4) *Graduate Record Examination (GREE)*: Applicants whose academic credentials are difficult to assess may be required to write the Graduate Record Examination administered by the Educational Testing Service, Princeton, New Jersey, U.S.A. 08540. Information on the GREE may be obtained from the Office of the Registrar (Graduate Division).

**Economics: Graduate Faculty**

5) *Graduate Management Admission Test (GMAT)*: M.B.A. applicants are required to take the Graduate Management Admission Test prior to admission. Information on the GMAT may be obtained from the Office of the Registrar (Graduate Division).

• **Economics: Programs**  
• **Economics: Courses**

6) For applicants whose native language is not English, a satisfactory score on an English proficiency test administered by one of the following institutions:

**Faculty of Education:  
Graduate Faculty**

• **Education: Programs**  
• **Education: Courses**

**Faculty of Engineering:  
Programs of Study Overview**

• **General Courses,  
Engineering**

(a) The Educational Testing Service, Test of English as a Foreign Language (TOEFL). For information on arranging for this test the applicant should contact the Educational Testing Service ([www.ets.org](http://www.ets.org)) or the Office of the Registrar.

(b) The English Language Institute of the University of Michigan, Michigan English Language Assessment Battery (MELAB). Contact [www.lsa.umich.edu/eli/melab.htm](http://www.lsa.umich.edu/eli/melab.htm).

(c) Canadian Academic English Language (CAEL) Assessment. Contact the CAEL Assessment Testing Office at [www.cael.ca](http://www.cael.ca).

(d) International English Language Testing System (IELTS). Contact [www.ielts.org](http://www.ielts.org).

**Civil and Environmental  
Engineering (CEE): Graduate  
Faculty**

• **CEE: Areas of Specialization**  
• **CEE: Courses**

An applicant who is unable to take one of these tests must present satisfactory alternative evidence of English proficiency. Consideration of alternative evidence may be requested on an exceptional basis by writing to the Dean of Graduate Studies and Research and presenting supporting documentation of English proficiency.

**ADMISSION LEVELS**

**Electrical Engineering:  
Graduate Faculty**

• **Electrical Engineering:  
Areas Of Specialization**  
• **Electrical Engineering:  
Courses**

*Master's Qualifying Admission (M1)*: An applicant who holds a three-year degree in the discipline to which s/he is applying, or a four-year degree in another discipline, may be admitted as a qualifying student, with a recommendation for advancement to the M2 level contingent upon completion of a prescribed set of qualifying courses, with a minimum grade as specified by the program. Since qualifying students are not candidates for a degree, a qualifying student is not considered a graduate student.

**Engineering Materials:  
Graduate Faculty**

• **Engineering Materials:  
Areas of Specialization**  
• **Engineering Materials:  
Courses**

*Regular Admission (M2)*: Applicants who hold a four-year degree or equivalent in the discipline to which they are seeking admission may be admitted to this level.

**Industrial and Manufacturing  
Systems Engineering (IMSE):  
Graduate Faculty**

• **IMSE: Areas of  
Specialization**  
• **IMSE: Courses**

*Transitional Admission (M2)*: An applicant who holds a four-year degree, but not one in the discipline to which s/he is applying, may be admitted to a Master's program as a transitional student. Transitional students are normally required to complete a program of no more than five specified undergraduate courses in addition to the graduate courses required of regular students. Upon completion of these extra courses, with a minimum grade as specified by the program, the student may continue in the Master's program as a regular student.

**Mechanical, Automotive, and  
Materials Engineering  
(MAME): Graduate Faculty**

• **MAME: Areas of  
Specialization**

*Probationary Admission (M2)*: An applicant who does not meet the minimum

- **MAME: Courses**

**English: Graduate Faculty**

- English: Programs
- English: Courses

**History: Graduate Faculty**

- History: Programs
- History: Courses

**Faculty of Human Kinetics:  
Graduate Faculty**

- Kinesiology: Programs
- Kinesiology: Courses

**Mathematics and Statistics:  
Graduate Faculty**

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

**Faculty of Nursing: Graduate  
Faculty**

- Nursing: Programs
- Nursing: Courses

**Philosophy: Graduate Faculty**

- Philosophy: Programs
- Philosophy: Courses

**Physics: Graduate Faculty**

- Physics: Programs
- Physics: Courses

**Political Science: Graduate  
Faculty**

- Political Science: Programs
- Political Science: Courses

**Psychology: Graduate Faculty**

- Psychology: Programs
- Psychology: Courses

**Social Work: Graduate  
Faculty**

- Social Work: Programs
- Social Work: Courses

**Sociology: Graduate Faculty**

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**Visual Arts: Graduate Faculty**

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departmental program admission requirements, but who can present evidence of leadership, and/or substantial related work experience, may be considered for probationary admission upon the recommendation of the program. Students who are accepted on probation will be required to satisfactorily complete a minimum of two specified graduate courses, in addition to any other admission requirements, before conditions are waived. During the probationary period, no other graduate courses may be taken. A student will not normally continue on probationary admission for more than two terms. Graduate credit will be given for the graduate courses after the conditions are waived. The final decision on probationary admission rests with the Faculty of Graduate Studies and Research.

*Ph.D.*: Applicants who hold a Master's degree or, in exceptional cases, a four-year Bachelor's degree, may be admitted to this level.

## **POSTGRADUATE AWARDS**

For information regarding graduate scholarships and other awards, see section 28.

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## FACULTY REGULATIONS

### REGISTRATION

Students whose applications for admission to graduate study have been approved for full- or part-time study should present themselves to their program advisors prior to registration on the dates recorded in the Calendar of the Academic Year (see section 28).

#### Categories of Registration

The University designates graduate students as full- or part-time:

1) *Full-Time Student*: A student who is admitted to a program on a full-time basis and who meets the following criteria will be registered as a full-time student:

(a) is geographically available and visits the campus regularly. It is understood that a graduate student may be absent from the University while still under supervision, e.g., visiting libraries, attending a graduate course at another institution, doing field work, etc. If such period of absence exceeds four weeks in any term, written evidence must be made available to the Office of Graduate Studies and Research to the effect that the absence has the approval of the program coordinator;

(b) is regularly employed by the University for not more than an average of ten hours a week. If a student is employed as a teaching assistant or a sessional instructor, the ten hours a week should represent the total time spent by the student in connection with the appointment, including time spent on preparation, reading, setting assignments, marking examinations, etc.

2) *Part-Time Student*: Some graduate programs are available on a part-time basis. Students interested in part-time studies should first consult the program coordinator. If a student has not been accepted on a part-time basis at first registration, he or she must petition the Faculty of Graduate Studies and Research for permission to transfer to part-time status for cause. Such petitions will not normally be granted to students meeting criteria (a) and (b) above for full-time students, or students completing thesis or dissertation work. However, petitions based on domestic responsibilities which demand more than ten hours a week will be considered.

*Note*: Part-time students may not take more than two courses in any term. Registration in any given term for a major paper, thesis, or dissertation is counted as the equivalent of one course.

#### Graduate Registration Regulations

1) Graduate students must register before the proper deadline or they will not receive credit for academic work they may be doing during the term. Note: Registration is not complete until the appropriate fees have been paid.

• **Communciation Studies:**  
Courses

Students completing all requirements for the degree within the first few weeks of a term may be eligible for a tuition refund for that term.

• **Computer Science: Graduate Faculty**

- Computer Science: Programs
- Computer Science: Courses

2) Full-time students are required to maintain continuous registration through all terms of their graduate program. Failure to do so will require application for readmission to their program and payment may be required for terms missed, up to a maximum of three terms.

• **Earth Sciences: Graduate Faculty**

- Earth Sciences: Programs
- Earth Sciences: Courses

3) In accordance with the circumstances listed below, a full-time student may apply to the Dean of Graduate Studies and Research for, and may be granted, a leave of absence.

• **Economics: Graduate Faculty**

- Economics: Programs
- Economics: Courses

*Maternity Leave:* Graduate students may request a maternity leave for no more than three consecutive terms without prejudice to their academic standing.

*Paternity Leave:* In recognition of a father's role, a graduate student may request paternity leave for no more than one term without prejudice to academic standing.

• **Faculty of Education: Graduate Faculty**

- Education: Programs
- Education: Courses

*Parental Leave:* Parental leave is intended to recognize the need for a pause in studies in order to provide full-time care in the first stages of parenting a child. Either or both parents may request one term of leave without prejudice to academic standing. The request for leave must be completed within twelve months of the date of birth or custody.

• **Faculty of Engineering: Programs of Study Overview**

- General Courses, Engineering

*Financial Leave:* In the case of financial necessity, primarily as evidenced by the support awarded through the University, a student shall be granted a leave of no more than one term out of three upon application.

• **Civil and Environmental Engineering (CEE): Graduate Faculty**

- CEE: Areas of Specialization
- CEE: Courses

*Medical Leave:* Graduate students may apply for a leave of absence on medical grounds for up to three terms without prejudice to their academic standing. Students are required to provide documentation to support a medical leave of absence.

• **Electrical Engineering: Graduate Faculty**

- Electrical Engineering: Areas Of Specialization
- Electrical Engineering: Courses

*Personal Leave:* Graduate students may apply for a leave of absence on grounds of serious personal circumstances for up to three terms without prejudice to their academic standing. Examples, though not wholly inclusive, are death in the immediate family, psychological difficulties, and educational opportunities (e.g., B.Ed., LL.B.).

A term is defined as a four-month period coinciding with the academic calendar (January to April; May to August; and September to December).

• **Engineering Materials: Graduate Faculty**

- Engineering Materials: Areas of Specialization
- Engineering Materials: Courses

While on leave, a student will not have access to any university resources, including office space, computer access, library facilities, continuation of laboratory experiments, computer research applications, and guidance by faculty members.

Apart from the combination of maternity or paternity and parental leave, sequentially combining two leave of absence classifications is allowable only in special and extenuating circumstances.

• **Industrial and Manufacturing Systems Engineering (IMSE): Graduate Faculty**

- IMSE: Areas of Specialization
- IMSE: Courses

Applications may be filed at any time and shall be processed within three weeks of receipt by the Faculty of Graduate Studies and Research. A student on leave of absence will be assessed a fee of fifty dollars (\$50.00) per term. Appeals against any decisions shall be heard promptly by the Graduate Appeals Committee.

• **Mechanical, Automotive, and Materials Engineering (MAME): Graduate Faculty**

- MAME: Areas of Specialization

4) Part-time students must register in every session in which the facilities of the University are to be utilized, whether in residence or off-campus. This includes those who are consulting with faculty members while working on a major paper, thesis, or dissertation. Part-time students who have not registered in two consecutive terms will

- MAME: Courses

be required to apply for readmission, and their applications will be considered on their merits in the light of the then prevailing conditions and circumstances.

English: Graduate Faculty

- English: Programs
- English: Courses

5) Students are reminded that they will not receive credit for courses for which they are not properly registered or for courses completed during terms in which the student has not paid fees.

History: Graduate Faculty

- History: Programs
- History: Courses

Once a student has registered, course changes or withdrawal after the published deadlines require permission from the Dean of Graduate Studies and Research. Subjects dropped without permission from the Dean will be regarded as failures.

Faculty of Human Kinetics: Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

*Non-Degree Registration:* A student who is not interested in admission as a degree student may be allowed to register for individual courses on a non-degree basis. The maximum of courses taken overall on this basis is two. Only students who have been admitted to a graduate program may receive graduate credit at the University of Windsor for courses taken.

Mathematics and Statistics: Graduate Faculty

- Mathematics and Statistics: Programs
- Mathematics and Statistics: Courses

*Audit Student:* An audit student in any course is one who attends the course without credit toward a degree or program. Such a student will not be allowed to write examinations and cannot be graded in any way. The student will pay the regular fees for the course(s).

### **POLICY ON AUTHORSHIP AND PLAGIARISM**

Faculty of Nursing: Graduate Faculty

- Nursing: Programs
- Nursing: Courses

The University expects that all researchers will adhere to the proper standards of intellectual honesty in the written or spoken presentation of their work and will at all times acknowledge in a suitable manner the contribution made by other researchers to their work, as outlined in the Senate Policy on Authorship (available from the Clerk of the Senate) and the Policy Statement on Research Personnel (available from the Office of Research Services).

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Plagiarism is defined as: "The act of appropriating the literary composition of another, or parts of passages of his/her writing, or the ideas or language of the same, and passing them off as the products of one's own mind." (Black's Law Dictionary)

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

It is expected that all graduate students will be evaluated and graded on their individual merit, and all work submitted for evaluation should clearly indicate that it is the student's own contribution.

Political Science: Graduate Faculty

- Political Science: Programs
- Political Science: Courses

Graduate students often have to use the ideas of others as expressed in written or published work in preparing essays, papers, reports, theses and publications. It is imperative that both the data and ideas obtained from any and all published or unpublished material be properly acknowledged and their sources disclosed. Failure to follow this practice constitutes plagiarism and is considered to be a serious offence by the University. Thus, anyone who knowingly or recklessly uses the work of another person and creates an impression that it is his or her own is guilty of plagiarism.

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

It is not permissible for an essay or other paper to be submitted twice. It is expected that a thesis, essay, paper or report has not been, and is not concurrently being, submitted to any other Faculty or University for credit toward any degree, or to this University for any other course. In exceptional circumstances and with the prior agreement of the instructor, a student may use research completed for one course as part of his or her written work for a second course.

Social Work: Graduate Faculty

- Social Work: Programs
- Social Work: Courses

Where plagiarized work has been submitted or where a student has submitted a paper for double credit, an F grade shall be assigned by the instructor both to that assignment and to the course. The student has the right to appeal this grade to the Dean of Graduate Studies and Research, in accordance with the Graduate Appeals Policy as stated in Senate Bylaw 51.B. In more serious cases, e.g., breach of the above

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- Sociology: Programs
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regulation on more than one occasion, and upon recommendation by the Dean of Graduate Studies and Research that disciplinary action be taken, the matter will be submitted to the Judicial Panel of the University of Windsor for appropriate sanctions, which include admonition, censure, disciplinary probation, restitution, suspension or expulsion, as set out in Senate Bylaw 31.

In case of any doubt, students are strongly urged to consult with the instructor or thesis supervisor. In cases where students feel that their intellectual property or copyrighted material has been plagiarized, complaints should be made to the Dean of Graduate Studies and Research.

### **GRADING AND DROPPING COURSES**

For the standards which are required in specific degree programs, see 1.5 (Ph.D.) and 1.6 (Master's).

#### *Letter Grades for Graduate Courses:*

A+, A, A-, B+, B, B-, C+, C, C-, F, F-, NR (Failure, No Record)  
 INC (Incomplete - course work only)

IP (In Progress - major paper, project, thesis, or dissertation)

P or NP (Pass or Non-Pass)

S or U (Satisfactory or Unsatisfactory)

#### **Grade Conversion Scale**

<b>Grade Point</b>	<b>Letter Grade</b>	<b>Range</b>
13	A+	93-100
12	A	86-92.9
11	A-	80-85.9
10	B+	77-79.9
9	B	73-76.9
8	B-	70-72.9
7	C+	67-69.9
6	C	63-66.9
5	C-	60-62.9
---	---	---
1	F	35-59.9
0	F-	0-34.9

The final deadline for dropping one-term (i.e., twelve- or thirteen-week) graduate courses in Fall, Winter, or Summer term without a grade being assigned is nine weeks from the start of the term; for six-week courses in Intersession and Summer Session, three weeks are allowed. Prior to the deadline, courses dropped will be recorded as "Voluntary Withdrawal".

The granting of an Incomplete grade must follow discussion between the student and the course instructor concerning the nature of the work to be completed and the time period for completion. Courses recorded as Incomplete must be completed and a grade reported within twelve months of the original due date unless an earlier deadline has been established. If such courses are not completed within twelve months, they will be permanently designated as Incomplete on the student's transcript. Normally, a student may carry only one Incomplete grade at a time. Graduate students carrying more than one Incomplete grade at the end of a term will have their progress reviewed by their

program chair, and a recommendation will be forwarded in each case to the Office of Graduate Studies and Research. Incomplete grades are not granted for major papers, theses or dissertations.

The Faculty of Graduate Studies and Research requires that students maintain at least an 8.0 cumulative G.P.A. at all times.

Courses in which a grade of B- or higher is received will be accepted for graduate credit. In addition, upon the positive recommendation of the program concerned, the Faculty of Graduate Studies and Research may grant credit for not more than two term courses in which a grade of C+, C or C- has been obtained. The regulations of individual departments should be consulted for their particular policies on Incomplete and C grades.

If a student fails to obtain credit in a course, the course may be repeated once only, at the discretion of the program concerned and the Dean of Graduate Studies and Research. No student may repeat, or replace with another course, more than two term courses in which credit was not obtained.

Letter grades or Satisfactory/Unsatisfactory may be assigned for theses and major papers, depending on program policy.

Theses and major papers, for which a letter grade is assigned, must be graded B- or better to receive credit.

## **EXAMINATIONS AND APPEALS**

A program may require either oral or written examinations in graduate courses. Each instructor must inform his or her students, by the end of the second week of each course, concerning the following:

- (a) the basis for determining the final grade in the course;
- (b) the approximate dates for tests, essays, etc.

Alterations in the announced procedure may be made by the instructor with the consent of the majority of the registered class.

A student who wishes to receive consideration on account of a serious illness or a bereavement prior to or during the examination period should communicate with the Head of the Department or program coordinator concerned as soon as possible, and must submit supporting documents (e.g., a medical certificate) within one week of the scheduled examination. In such cases, the Dean of Graduate Studies and Research, on recommendation of the program and the Academic Standing Committee, may grant aegrotat standing in the subject or subjects concerned on the basis of the term mark, or approve an Incomplete grade or grant permission for a supplemental examination.

Graduate appeals must be made in writing to the Dean of Graduate Studies and Research, in accordance with the Graduate Appeals Policy as stated in Senate Bylaw 51 B. and C. Appeals must be received no later than three weeks after the final mark has been released by the Registrar.

## **GRADUATION**

In order to allow the necessary time for the printing of the diploma and the Convocation program, the candidate's completed work must be approved by the Faculty of Graduate Studies and Research and the major paper, project, thesis or dissertation, if one is presented, must be received by the Office of Graduate Studies and Research for transmission to the Leddy Library at least two weeks before Convocation.

Registration in any program does not constitute an application for a degree or diploma. An "Application to Graduate" must be completed and filed with the Registrar's Office by the specified date prior to the Convocation at which the applicant expects to graduate.

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## The Degree of Doctor of Philosophy

### ADMISSION REQUIREMENTS

Graduates of recognized universities may apply for admission. In general, admission to graduate study is granted only to those students who have good academic records and who are adequately prepared to undertake graduate work in their field of specialization. In particular, an applicant for admission to a graduate program leading to the degree of Doctor of Philosophy must have either a Master's degree or, in exceptional cases, an honours Bachelor's degree, or the equivalent; his or her academic standing should be unquestionably superior.

Possession of the minimum requirements does not ensure acceptance.

Applications will be received from students in their final undergraduate or Master's year, but acceptance will be conditional until a satisfactorily completed record is submitted.

*Candidacy:* Admission to graduate study does not imply admission to candidacy for a degree. Admission to candidacy for the degree of Doctor of Philosophy is granted by the Dean of Graduate Studies and Research, upon recommendation of the program concerned, when a student has satisfied the requirements for candidacy of the Faculty of Graduate Studies and Research and of the program, as these may be specified in program listings in the calendar. Admission to candidacy is normally to be regarded as recognition that a student has given adequate evidence of superior capability and achievement in graduate study. A student may not be admitted to candidacy for the degree of Doctor of Philosophy before passing a comprehensive examination in the field of specialization.

### PROGRAM REQUIREMENTS

*Residence:* Residence requirements are intended to provide for each student an adequate contact with the University, with the faculty in the field of specialization, and with the library, laboratories, and other facilities for graduate study and research. Every student in a program leading to the degree of Doctor of Philosophy must be registered in a full-time program of study for a minimum of three calendar years, normally in succession. Credit for one of these years may be given for the time spent in proceeding to a Master's degree.

Credit for no more than one-half of the required courses for a program, taken at another university, may be given at the discretion of the Faculty of Graduate Studies and Research, upon recommendation of the program coordinator.

A full-time residence year indicates that a student is in full-time work under the direction of a faculty member at the University of Windsor. Persons who teach more than three hours a week or who demonstrate in laboratories to such an extent that the total time spent in preparation, demonstration and working exceeds ten hours a week cannot qualify for residence credit.

• **Communciation Studies:**  
Courses

*Time Limit:* A student admitted to a Ph.D. program requiring full-time attendance for three years must complete all requirements for the Ph.D. within seven consecutive years.

• **Computer Science: Graduate Faculty**

- Computer Science: Programs
- Computer Science: Courses

A student admitted with one year's advanced standing (*e.g.*, holders of Master's degrees) must complete all requirements within six consecutive years.

• **Earth Sciences: Graduate Faculty**

- Earth Sciences: Programs
- Earth Sciences: Courses

If an extension of the time limit becomes necessary, the student should address a petition to the Dean of Graduate Studies and Research giving reasons for the request and plans for the completion of the work. A student who exceeds the time limit may be required to take additional qualifying examinations or additional course work, or both.

• **Economics: Graduate Faculty**

- Economics: Programs
- Economics: Courses

*Course of Study:* Course requirements are specified in the program listings. Planning and direction of the student's course of study are the responsibility of the program coordinator or a designated departmental advisor. A specific program of study should be worked out at the time of the student's first registration, in consultation with the program coordinator or an advisor. Training in methodology may be required, at the discretion of the program.

• **Faculty of Education: Graduate Faculty**

- Education: Programs
- Education: Courses

Since in several programs only a few courses listed will be offered each year, students are advised to ascertain from the program coordinator or an academic advisor which courses will be offered in any given year.

• **Faculty of Engineering: Programs of Study Overview**

- General Courses, Engineering

In consultation with their advisor or the program coordinator, all students must complete an annual report which is to be submitted to the Office of Graduate Studies and Research by May 31 of each year.

• **Civil and Environmental Engineering (CEE): Graduate Faculty**

- CEE: Areas of Specialization
- CEE: Courses

It is expected that students working toward the degree of Doctor of Philosophy will maintain a superior average in all course work. Normally, graduate credit will be given only for A or B standing in a course. Concerning credit for C grades, see 1.4.3.

• **Electrical Engineering: Graduate Faculty**

- Electrical Engineering: Areas Of Specialization
- Electrical Engineering: Courses

After consultation between student and professor and authorization by the program coordinator, a graduate course may be recorded INC (Incomplete) when:

1) the student has completed the class work but is unable to take the end of course examination because of illness or other acceptable reason, or

2)

(a) the student is unable to complete the work for the course because of illness or other acceptable reason, and

(b) the student has done satisfactory work in the course, and

(c) in the opinion of the professor, the student can complete the normally required work of the course without repeating the course in class.

• **Engineering Materials: Graduate Faculty**

- Engineering Materials: Areas of Specialization
- Engineering Materials: Courses

*Committees:* Research undertaken as part of a doctoral program is normally directed and supervised by a doctoral committee. The program coordinator will recommend the appointment of members of the doctoral committee, whose appointments must be approved by the Executive Committee of the Graduate Council of Graduate Studies and Research.

• **Industrial and Manufacturing Systems Engineering (IMSE): Graduate Faculty**

- IMSE: Areas of Specialization
- IMSE: Courses

Within the first term of registration at doctoral level, each student will be assigned a committee consisting of a research advisor from the program, who is a member of graduate faculty, two other faculty members in the program, and one from another program at the University of Windsor. Additional members may be added with the approval of the program coordinator and the Executive Committee of the Graduate Council of Graduate Studies and Research. This committee will, from time to time, review the student's progress.

• **Mechanical, Automotive, and Materials Engineering (MAME): Graduate Faculty**

- MAME: Areas of Specialization

- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
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- Mathematics and Statistics:  
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Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
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Sociology: Graduate Faculty

- Sociology: Programs
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Visual Arts: Graduate Faculty

- Visual Arts: Programs
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The doctoral committee is also charged with conduct of the final examination of the doctoral candidate (see below).

For the defense of the dissertation (final oral examination), the committee will be supplemented by an independent, external examiner who, as an expert in the field in which the candidate's research is carried out, will appraise the dissertation and ordinarily will also be present at the final oral examination.

The external examiner will be recommended by the doctoral committee, subject to the approval of the program coordinator and the Dean of Graduate Studies and Research. The external examiner must not be involved in the preparation of the dissertation before it is submitted to him or her for final evaluation.

If the research involves human ethics, the faculty supervisor is responsible for the conduct of the study, the ethical performance of the project, and the protection of the rights and welfare of human participants. With the signed approval of the faculty supervisor, the graduate student submits an application to the Research Ethics Board. Research involving human subjects, including secondary use of data, cannot begin until ethics clearance has been obtained. (Consult the office of Research Services.)

If the research involves animal care or biohazards, the supervisor of the dissertation is responsible for obtaining prior approval from the respective committees governing the above topics. (Consult the Office of Research Services.)

## THE DISSERTATION

A dissertation embodying the results of an original investigation in the field of specialization is required of all candidates for the degree of Doctor of Philosophy. Before beginning the dissertation, the candidate should submit a prospectus, outlining the problem proposed. Copies of this prospectus should be filed with the doctoral committee not later than four weeks after the student is admitted to candidacy. At the same time, the candidate will be required to validate a document supplied by the program, a Copyright License, authorizing the University to make a single copy of the prospective dissertation, or substantial parts of it, at any given time at the request of a library user at this University or a library user at another university for actual cost of reproduction only.

The regulations of individual programs should be consulted for details of their dissertation procedures. The general format is prescribed in the *Procedures to Follow in Preparing a Major Paper, Thesis or Dissertation*, which may be obtained from the Administrative Officer in the Office of Graduate Studies and Research or from [www.uwindsor.ca/grad](http://www.uwindsor.ca/grad). Within the dissertation, the student should use formats approved for scholarly publication in the field of specialization and approved by the program coordinator. Final checking of the general format of the dissertation is the responsibility of the Office of Graduate Studies and Research, but the student should consult the doctoral committee for instructions as to the internal form of the dissertation.

Copies of a Ph.D. dissertation are to be provided to all members of the doctoral committee and two copies to the Office of Graduate Studies and Research, including one copy to be transmitted to the external examiner, at least four weeks before the expected date of defense. Before the dissertation is forwarded to the external examiner, it must be approved by the majority of the doctoral committee. No changes may be made to the composition of the doctoral committee between these deadline dates and the defense except under the most extraordinary circumstances and with approval of the Executive Committee of Graduate Studies and Research. The oral presentation should be completed at least three weeks prior to the Convocation for which the candidate has applied to receive the degree. A public notice of defense must be received in the Office of Graduate Studies and Research and posted in the academic unit at least eight days in advance of the oral presentation.

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A doctoral committee shall notify the Office of Graduate Studies and Research whether, in its view, notice of defense is to be posted, but the decision to proceed shall be contingent upon the report of the external examiner to the Dean of Graduate Studies and Research.

The candidate will present the dissertation at a public defense. The Chair of a Ph.D. defense will be the Dean of Graduate Studies and Research or designate, such as the Dean of a Faculty or senior member of graduate faculty from outside the program, to be named by the Dean of Graduate Studies and Research at the time the defense is publicly announced. The chair is non-voting. Questions will be permitted from the general audience at the discretion of the chair. The general audience may remain until the defense is completed and the committee begins its deliberations on the outcome. These deliberations are held in camera.

The minimum basis for acceptance of a Ph.D. dissertation shall be positive unanimity less one vote providing the dissenting vote is not by an external examiner who is present at the defense, and the chair of the defense determines that the examination by the external examiner has been fair to the candidate. Unless an examining committee is unanimously negative, a candidate may resubmit the dissertation once, after a minimum period of three months and before a maximum period of twelve months. The second decision shall be final.

Three copies of the corrected dissertation must be deposited with the Administrative Officer for transmission to the Leddy Library and to the academic unit at least two weeks prior to Convocation.

The title page of the dissertation, or a separate page immediately following the title page, must bear the Universal Copyright Convention symbol ©, the full name of the author, and the year the doctoral degree was granted. Arrangements for binding the dissertation and payment of fees connected with binding and microfilming should be made with the Administrative Officer. The Office of Graduate Studies and Research will transmit the original copy of the dissertation to the National Library, accompanied by Form NL/BN91, supplied by the Office and validated by the candidate, which authorizes the National Library to produce single microform copies for a nominal sum to cover costs, in response to a written request from an individual, a research institute, or a library.

If approved, the physical dissertation becomes the property of the University. Two copies, the original (after return from the National Library) and one other, will be filed in the Leddy Library, and a third copy in the academic unit.

Occasionally, it is necessary to withhold the dissertation from public circulation, especially where the student's interests (e.g., patent rights) would be jeopardized by publication. In such cases, a thesis may be held from the public domain, i.e., the Leddy Library and the National Library of Canada. Such delay in circulation may be requested for six months without cause being given, and an additional period of six months with good cause. Forms for withholding a thesis are available from the Office of Graduate Studies and Research.

**Dissertation Requirements Synopsis:**

- 1) Dissertation format must be as prescribed by *Procedures to Follow in Preparing a Major Paper, Thesis or Dissertation*.
- 2) Copies of the dissertation must be provided to all committee members and two copies to the Office of Graduate Studies and Research at least four weeks before the oral presentation prior to the Convocation at which the candidate has applied to receive

the degree.

3) Public notice of defense must be received in the Office of Graduate Studies and Research and posted in the academic unit at least eight (8) days in advance of the defense date.

4) Following successful defense, the candidate will deposit three copies of the dissertation in the Office of Graduate Studies and Research for binding and distribution (two for the Leddy Library, one for the academic unit).

5) The candidate will validate Form NL/BN91, supplied by the Office of Graduate Studies and Research, authorizing the National Library to produce single microform copies. The title page of the dissertation, or separate page following, must bear the Universal Copyright Convention symbol ©, full name of author, and year doctoral degree was granted.

6) Fees for above are to be paid at time of deposit of the dissertation in the Office of Graduate Studies and Research.

### **EXAMINATIONS**

In addition to the usual examinations on course work, there are three types of special examinations which may be required (see individual program regulations) in the program leading to the degree of Doctor of Philosophy:

1) *Qualifying Examinations*: A qualifying examination is one in which the student is asked to demonstrate a reasonable mastery of the fundamentals in the major subject; it is designed to test the student's preparation for advanced graduate work. If such an examination is required, it must be administered and passed within one year after a student enters a graduate program.

2) *Comprehensive Examinations*: The comprehensive examination is one in which the student is asked to demonstrate a reasonable mastery of the field of specialization; it is designed to test the student's command of knowledge and ability to integrate that knowledge, after completion of all or most of the graduate course work. Normally, this examination is completed at the end of the second year of graduate study and is a prerequisite to admission to candidacy.

3) *Final Examinations*: The final examination of a doctoral candidate is an oral defense of the dissertation.



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## The Master's Degree

### ADMISSION REQUIREMENTS

Graduates of recognized universities may be admitted to programs leading to the Master's degree. A student with a four-year degree or equivalent in the discipline to which s/he is seeking admission, and who has an academic standing at least in the B range overall and in both the final two years of study and the major subject, may be admitted to a Master's program (M2).

An applicant who holds a four-year degree in another discipline, and who has an academic standing at least in the B range overall and in the final year of study and the major subject, may also be admitted to a Master's program as a transitional student. Transitional students are normally required to complete a program of no more than five specified undergraduate courses in addition to the graduate courses required of regular students. Upon completion of these extra courses, with a minimum grade as specified by the program, the student may continue in the Master's program as a regular student.

An applicant who does not meet minimum departmental program admission requirements, but who can present evidence of leadership, and/or substantial related work experience, may be considered for probationary admission upon the recommendation of the program. Students who are accepted on probation will be required to satisfactorily complete a minimum of two specified graduate courses, in addition to any other admission requirements, before conditions are waived. During the probationary period no other graduate courses may be taken. A student will not normally continue on probationary admission for more than two terms. Graduate credit will be given for the graduate courses after the conditions are waived. The final decision on probationary admission rests with the Faculty of Graduate Studies and Research.

An applicant who holds a three-year degree in the discipline to which s/he is applying, or a four-year degree in another discipline, and who has an academic standing at least in the B range overall and in both the final year of study and major subject may be admitted as a qualifying student, with a recommendation for advancement to M2 level contingent upon completion of a prescribed set of qualifying courses, with a minimum grade as specified by the program. Since qualifying students are not candidates for a degree, a qualifying student is not considered a graduate student.

Applicants are urged to apply as early as possible to enable the program and the Faculty of Graduate Studies and Research to evaluate qualifications.

Possession of the minimum requirements does not ensure acceptance.

*Candidacy:* A student in an M2 program is also a candidate for the Master's degree. Students in the two-year M1 program followed by the M2 program are not admitted to candidacy until they have satisfactorily completed the M1 program. A positive recommendation from a program and approval of that recommendation are required for a student to proceed to the M2 program.

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- [IMSE: Areas of](#)  
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• [Mechanical, Automotive, and](#)  
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[\(MAME\): Graduate Faculty](#)

- [MAME: Areas of](#)  
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## PROGRAM REQUIREMENTS

*Residence:* Residence requirements are intended to provide for each student an adequate contact with the University, with the faculty in the field of specialization, and with the library, laboratories, and other facilities for graduate study and research. It is expected, therefore, that every full-time student in a program leading to the Master's degree will undertake a full program of study at the M2 level for a minimum of one calendar year or its equivalent. Application and interpretation of the residence requirement is the responsibility of the Dean of Graduate Studies and Research. If a student does not expect to fulfil the residence requirement in the normal way, reasons for departing from the norm should be submitted in writing to the Dean and approval secured for the plan before beginning the graduate program. See also the section on "Duration of Study" below.

The residency requirement is not intended to apply to students admitted to graduate programs on a part-time basis.

*Duration of Study:* The minimum duration of study for the Master's degree is one calendar year beyond the honours Bachelor's degree, or its equivalent. Credit for no more than one-half of the required courses for program taken at another university may be given at the discretion of the Faculty of Graduate Studies and Research, upon the recommendation of the program coordinator. Residency still applies.

*Time Limit:* Work on a Master's degree must be completed within three consecutive calendar years after the student's first registration, except for certain Master's programs available on a part-time basis. In these latter programs, the time limit will depend on the nature of the program, but will not normally exceed five consecutive years.

If an extension of these time limits becomes necessary, the student should address a petition to the Dean of Graduate Studies and Research giving reasons for the request and plans for the completion of the work. A student who exceeds the time limit may be required to take additional qualifying examinations or additional course work, or both.

*Course of Study:* Course requirements are specified in the program listings. Planning and direction of the student's course of study are the responsibility of the program coordinator or a designated advisor. A specific program of study should be worked out at the time of the student's first registration, in consultation with the program coordinator or an advisor. Students are directed to obtain the approval of the program coordinator or designated advisor for changes in the program of study. Training in methodology may be required, at the discretion of the program.

In consultation with their advisor or the program coordinator, all students must complete an annual report which is to be submitted to the Office of Graduate Studies and Research by May 31 of each year.

Students working toward the Master's degree must maintain at least a B- average in all course work. A candidate for the Master's degree who does not obtain graduate credit in any course may repeat the course once only, and not more than one course may be repeated. Normally, graduate credit will be given only for A or B standing in a course. Concerning credit for C grades, see section 1.4.3. Letter grades or Satisfactory/Unsatisfactory may be assigned for theses, major papers, and projects depending on individual program policy.

After consultation between student and professor and authorization by the program coordinator, a graduate course may be recorded as INC (Incomplete) when:

- 1) the student has completed the class work but is unable to take the end of course examination because of illness or other acceptable reason, or

• MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

- Sociology: Programs
- Sociology: Courses

Visual Arts: Graduate Faculty

- Visual Arts: Programs
- Visual Arts: Courses

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2)

(a) the student is unable to complete the work for the course because of illness or other acceptable reason, and

(b) the student has done satisfactory work in the course, and

(c) in the opinion of the professor, the student can complete the normally required work in the course without repeating the course in class.

*Committees:* Research undertaken as part of a Master's program is normally directed and supervised by a Master's committee. By the end of the first term of registration in the thesis, the program coordinator will recommend the appointment of members of the Master's committee, whose appointments must be approved by the Executive Committee of the Faculty of Graduate Studies and Research.

The Master's committee will include as a minimum the chief advisor from the program, who is a member of graduate faculty, and two other University of Windsor faculty members, one of whom shall belong to a program other than the one in which the student is obtaining the degree. Additional members may be added with the approval of the program coordinator and the Executive Committee of the Faculty of Graduate Studies and Research. The member(s) from outside the program need not participate in the direction of research but shall contribute a judgment on its completion.

The Master's committee is also charged with conduct of the final examination of the Master's candidate (see below).

If the research involves human ethics, the faculty supervisor is responsible for the conduct of the study, the ethical performance of the project, and the protection of the rights and welfare of human participants. With the signed approval of the faculty supervisor, the graduate student submits an application to the Research Ethics Board. Research involving human subjects, including the secondary use of data, cannot begin until ethics clearance has been obtained. (Consult the Office of Research Services.)

If the research involves animal care or biohazards, the supervisor of the thesis is responsible for obtaining prior approval from the respective committees governing the above topics. (Consult the Office of Research Services.)

### THESIS OR MAJOR PAPER

A thesis incorporating the results of an investigation in the field of the major subject may be required of candidates for the Master's degree.

Candidates for some Master's programs may choose, instead of the course of study including a thesis, a program requiring additional course work and/or the submission of a major paper or project on which there will be a final evaluation.

The Major Paper/Project is a scholarly essay/research project that shows evidence of critical analysis and understanding on a topic approved by the student's supervisor and acknowledged by the program coordinator.

The Major Paper/Project committee will include a supervisor, who is a member of graduate faculty, and one other program faculty member. Additional members may be added with the approval of the program coordinator.

Upon completion of the Major Paper/Project each student will deliver a public oral presentation and defense which shall be announced publicly (with a copy sent to the Office of Graduate Studies and Research) at least eight days in advance. Major Paper/Projects are graded by the committee with letter grades or as Satisfactory or Unsatisfactory.

[General Information](#)

The Major Paper/Project is not subject to thesis regulations concerning full library binding, copyright application, and microfilming for the National Library, but is deposited in the library and in the departmental office of the program.

[Fee Regulations and Schedule](#)

The regulations of individual programs should also be consulted for details of their thesis or major paper requirements. Letter grades or Satisfactory/Unsatisfactory may be assigned for theses and major papers, depending on program policy.

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Although in some cases it may be acceptable for more than one candidate to make use of a common set of data or research findings, each candidate is responsible for a single-authored thesis/major paper.

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Not later than one month after registration in the student's final year, the candidate undertaking a thesis will be required to validate a document supplied by the academic unit, a Copyright License, authorizing the University to make a single copy of the prospective thesis, or substantial parts of it, at any given time at the request of a library user at this University or a library user at another university for actual cost of reproduction only.

The regulations of individual programs should be consulted for details of their procedures. The general format is prescribed in *Procedures to Follow in Preparing a Major Paper, Thesis or Dissertation*, which may be obtained from the Administrative Officer or from [www.uwindsor.ca/grad](http://www.uwindsor.ca/grad). Within the thesis, the student should use formats approved for scholarly publication in the field of specialization and approved by the program coordinator. Final checking of the general format of the thesis is the responsibility of the Office of Graduate Studies and Research, but the student should consult the Master's committee for instructions as to the internal form of the thesis.

Copies of the Master's thesis must be provided to all members of the Master's committee and one copy to the chair of the defense, at least two weeks before the expected date of defense. Students are advised to ascertain from the academic unit any prior deadline established by the unit. No changes may be made to the Master's committee between these deadline dates and the defense except under the most extraordinary circumstances and with the approval of the Executive Committee of Graduate Studies and Research. The oral presentation should be completed at least three weeks prior to the Convocation at which the candidate expects to receive the degree.

No later than eight days before a proposed defense a Master's committee shall notify the Office of Graduate Studies and Research that a notice of defense is to be posted. The chair of a Master's defense will be a member of graduate faculty who has not served on the candidate's Master's Committee, and who is appointed by the Department Head at the time the defense is publicly announced. The chair is non-voting. The general audience may remain until the defense is completed and the committee begins its deliberations on the outcome. These deliberations are held in camera.

The minimum basis for acceptance of a Master's thesis is positive unanimity by the examining committee less one vote. Unless an examining committee is unanimously negative, a candidate may resubmit the thesis once, after a minimum period of three months and before a maximum period of twelve months. The second decision shall be final.

Three copies of the corrected thesis must be deposited in the Office of Graduate Studies and Research for transmission to the Leddy Library and to the academic unit at least two weeks prior to Convocation.

The title page of the thesis, or a separate page immediately following the title page, must bear the Universal Copyright Convention symbol ©, the full name of the author,

and the year the Master's degree was granted. Arrangements for binding the thesis and payment of fees connected with binding and microfilming should be made with the Administrative Officer. The Office of Graduate Studies and Research will transmit the original copy of the thesis to the National Library, accompanied by Form NL/BN91, supplied by the Office and validated by the candidate, which authorizes the National Library to produce single microform copies for a nominal sum to cover costs, in response to a written request from an individual, a research institute, or a library.

If approved, the physical thesis becomes the property of the University. Two copies will be filed in the Leddy Library, and a third in the academic unit.

Occasionally, it is necessary to withhold the dissertation from public circulation, especially where the student's interests (e.g., patent rights) would be jeopardized by publication. In such cases, a thesis may be held from the public domain, i.e., the Leddy Library and the National Library of Canada. Such delay in circulation may be requested for six months without cause being given, and an additional period of six months with good cause. Forms for withholding a thesis are available from the Office of Graduate Studies and Research.

### **Thesis/Major Paper Requirements Synopsis**

1) Thesis or Major Paper format must be as prescribed by *Procedures to Follow in Preparing a Major Paper, Thesis or Dissertation*.

2) Copies of the thesis for Master's degree must be provided to all committee members, and one copy to the chair of the defense at least two weeks before the oral presentation prior to the Convocation at which the candidate has applied to receive the degree.

3) Public notice of the defense must be received in the Office of Graduate Studies and Research at least eight days in advance of the defense date.

4) Following successful defense, the candidate will deposit all copies of the thesis in the Office of Graduate Studies and Research for binding and distribution (two for the Leddy Library, and one for the academic unit).

5) The candidate will validate Form NL/BN91, supplied by the Office of Graduate Studies and Research, authorizing the National Library to produce single microform copies. The title page of the thesis, or a separate page following, must bear the Universal Copyright Convention symbol ©, full name of author, and year the Master's degree was granted.

6) Copyright application and microproduction by the National Library do not apply for the major paper. Two copies are required to be deposited in the Office of Graduate Studies and Research (one for the Leddy Library, one for the program). Major papers are available to library users for examination in the Reserve Reading Area of the Leddy Library.

7) Fees for the above are to be paid at the time of deposit of the thesis or major paper in the Office of Graduate Studies and Research.

### **EXAMINATIONS**

In addition to the usual examinations on course work, there are three types of special examinations that may apply in some programs leading to the Master's degree:

1) *Qualifying Examinations*: A qualifying examination is one in which the student is asked to demonstrate a reasonable mastery of the fundamentals in the major subject; it is designed to test the student's preparation for advanced graduate work. If such an examination is required, it must be administered and passed before the student

registers for the final year of Master's work.

2) *Comprehensive Examinations*: The comprehensive examination is one in which the student is asked to demonstrate a reasonable mastery of the field of specialization; it is designed to test the student's command of knowledge and ability to integrate that knowledge, after completion of all or most of the graduate course work. Normally, this examination is written at the end of the student's final year of study for the Master's degree.

3) *Final Examinations*: The final examination of a candidate for a Master's degree is an oral defense of the thesis, major paper, or project.

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- [Communications Studies: Programs](#)

## Research Institutes

### THE GREAT LAKES INSTITUTE

Situated on a major international boundary and trade route, the Great Lakes Institute (GLI) is in the heart of the world's most significant freshwater system. The Institute is a unique hub that hosts five major multi-disciplinary groups that carry out world-class international research on sustaining our natural, economic and social environments. These groups have access to campus-wide facilities, as well as a dedicated building situated on the water that hosts an extensive range of well-equipped laboratories, accredited analytical facilities, meeting rooms and offices.

Established in 1981, GLI is now undergoing a period of explosive development, recruiting additional faculty, and building new research endeavours and new opportunities for graduate education.

GLI exists to foster interdisciplinary research on the human impacts on environments, and the consequences and challenges of those impacts to quality of life. The earth's environments are changing rapidly in a number of ways due to human impacts. These include pollution of soils, water and air, mismanagement of coastlines and natural resources such as fisheries and forests, climate change, reduction and division of natural habitats, biodiversity loss, invasions by new species, and unintended genetic modifications of natural populations.

GLI focuses on how to assess, understand, remedy and above all prevent, these impacts through better scientific understanding of the nature and functioning of natural systems, and how our actions affect them. To do this requires full involvement of the health and social sciences, law, economics, architecture, planning, ethics and the humanities in order to provide coordinated research into practical systems that allow for sustainable development that not only protects the natural environment, but also enhances the social and economic fabric of the communities that inhabit it.

Further details of this Research Institute are at [www.uwindsor.ca/glier](http://www.uwindsor.ca/glier).

### FLUID DYNAMICS RESEARCH INSTITUTE

The Fluid Dynamics Research Institute was founded to foster interdepartmental and inter-College research and postgraduate teaching related to the dynamics of fluids. Members conduct basic and applied research, and are committed to providing a broad training for graduate students in all aspects of fluid mechanics and heat transfer. Members are drawn from Mechanical Engineering, Civil and Environmental Engineering, and Applied Mathematics. Research ranges from theoretical studies on stability and exact solutions to enhancement of flow measurement techniques to implementation of commercial computer codes and development of new codes for industrial problems. Application areas include environmental engineering, the automotive, defence and petroleum industries, biomechanics and aeronautics. Graduate students affiliated with Institute members in their research projects will

• **Communciation Studies: Courses** register in the member's department and complete the degree requirements of that department.

**Computer Science: Graduate Faculty** Further details are available from <http://venus.uwindsor.ca/research/fdri/index.htm>.  
• **Computer Science: Programs**  
• **Computer Science: Courses**

**Earth Sciences: Graduate Faculty**  
• **Earth Sciences: Programs**  
• **Earth Sciences: Courses**

**Economics: Graduate Faculty**  
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• **Economics: Courses**

**Faculty of Education: Graduate Faculty**  
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**Faculty of Engineering: Programs of Study Overview**  
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**Electrical Engineering: Graduate Faculty**  
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**Engineering Materials: Graduate Faculty**  
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**Industrial and Manufacturing Systems Engineering (IMSE): Graduate Faculty**  
• **IMSE: Areas of Specialization**  
• **IMSE: Courses**

**Mechanical, Automotive, and Materials Engineering (MAME): Graduate Faculty**  
• **MAME: Areas of Specialization**



- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

- Sociology: Programs
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Visual Arts: Graduate Faculty

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[Communication Studies: Graduate Faculty](#)

- Communications Studies: Programs

## General Courses, Faculty of Graduate Studies and Research

### **The Theory and Practice of University Teaching**

This is an introductory course designed for graduate students to enable participants to perform more effectively as university teachers, as seminar leaders, as in-service trainers, and as public speakers. Empirical principles of learning and teaching will be introduced that are appropriate to the university classroom. Educational research will guide the approach taken in the course and will be used as the theoretical basis for course content. This course is a non-credit course and, upon successful completion, will appear on the student's transcript.

*The following course is offered through the Humanities Research Group and the Office of the Dean of the Faculty of Graduate Studies and Research.*

### **09-599. Interdisciplinary Master's Seminar**

This course will offer graduate students in English, History, Philosophy, Political Science, Psychology, Sociology, Visual Arts, and any other graduate program with a humanities component, the opportunity, in the course of their intensive, discipline-oriented training, to benefit from an interdisciplinary experience. Topics will vary from year to year (Offered over two terms.)

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Faculty

- Computer Science:  
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- Computer Science: Courses

Earth Sciences: Graduate  
Faculty

- Earth Sciences: Programs
- Earth Sciences: Courses

Economics: Graduate Faculty

- Economics: Programs
- Economics: Courses

Faculty of Education:  
Graduate Faculty

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Faculty of Engineering:  
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Faculty

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Electrical Engineering:  
Graduate Faculty

- Electrical Engineering:  
Areas Of Specialization
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Courses

Engineering Materials:  
Graduate Faculty

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Areas of Specialization
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Industrial and Manufacturing  
Systems Engineering (IMSE):  
Graduate Faculty

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Mechanical, Automotive, and  
Materials Engineering  
(MAME): Graduate Faculty

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English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

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Visual Arts: Graduate Faculty

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## **BIOLOGICAL SCIENCES**

### **GRADUATE FACULTY**

#### **Professor Emeritus**

Warner, Alden H.; B.A. (Maine), M.A., Ph.D. (Southern Illinois)-1965.

#### **Professors**

Cotter, David A.; B.S. (Penn State), M.S., Ph.D. (Wisconsin)-1975.

Ciborowski, Jan J. H.; B.Sc., M.Sc. (Toronto), Ph.D. (Alberta)-1984.

Haffner, G. Douglas; B.Sc. (Queen's), Ph.D. (London, England)-1986. (Head)

Corkum, Lynda D.; B.A., M.A. (Drake), Ph.D. (Toronto)-1987.

Lovett Doust, Jonathan N.; B.Sc. (Queen's), Ph.D. (Wales)-1988.

Zielinski, Barbara; B.Sc., M.Sc. (Waterloo), Ph.D. (Manitoba)-1990.

Lovett Doust, Lesley; B.Sc. (Edinburgh), Ph.D. (Wales)-1991.

Maclsaac, Hugh J.; B.Sc. (Windsor), M.Sc. (Toronto), Ph.D. (Dartmouth)-1992.

Sale, Peter; B.Sc., M.A. (Toronto), Ph.D. (Hawaii)-1994.

Wahlsten, Douglas L; B.Sc. (Alma College), Ph.D. (California)-2004.

#### **Associate Professors**

Crawford, Michael J; B.Sc., M.Sc., Ph.D. (Toronto)-1997.

Hubberstey, Andrew V.; B.Sc. (Waterloo), M.Sc., Ph.D. (Guelph)-1997.

Heath, Daniel; B.Sc., M.Sc. (McGill), Ph.D. (British Columbia)-2000.

#### **Assistant Professors**

Drouillard, Ken G.; B.Sc. (Windsor), M.Sc. (Manitoba), Ph.D. (Trent)-2002.

Higgs, Dennis M.; B.Sc. (Michigan State), M.Sc. (Northern Illinois), Ph.D. (Texas)-2003.

Hudson, John W.; B. Sc., M.Sc. (McMaster), Ph.D. (York)-2003.

• [Communciation Studies:](#)  
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VanLaerhoven, Sherah; B.Sc., M.P.M. (SFU), Ph.D. (Arkansas)-2003.

[Computer Science: Graduate](#)  
[Faculty](#)

**Adjunct Professors**

• [Computer Science:](#)  
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Dufresne, Michael J. P.; B.Sc. (York), Ph.D. (Alberta)-1976.

• [Computer Science: Courses](#)

Henderson, Bryan; B.Sc., M.Sc. (UBC), Ph.D. (Aberdeen, Scotland)-2002.

[Earth Sciences: Graduate](#)  
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**Adjunct Assistant Professors**

• [Earth Sciences: Programs](#)  
• [Earth Sciences: Courses](#)

Johnson, Timothy; B.Sc. (Guelph), M.Sc. (York), Ph.D. (Wisconsin)-1998.

[Economics: Graduate Faculty](#)

Ludsin, Stuart Allen; B.Sc. (Miami), M.Sc. (Auburn), Ph.D. (Ohio)-2003.

• [Economics: Programs](#)  
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Mandrak, Nicholas Edward; B.Sc., M.Sc., Ph.D. (Toronto)-2003.

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Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

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## BIOLOGICAL SCIENCES: PROGRAMS OF STUDY

[Biological Sciences \(MSc\)](#)  
[Biological Sciences \(PhD\)](#)

### THE DOCTOR OF PHILOSOPHY DEGREE

In addition to the general requirements outlined in 1.5, the following requirements must be met by all students proceeding to the Ph.D. degree.

#### Admission Requirements

Applicants with an honours degree in Biological Sciences or related field and who have been judged to be outstanding students may be admitted directly into the Ph.D. program. Applicants holding an M.Sc. degree or equivalent from the University of Windsor or from another recognized university or college may be admitted to the Ph.D. program with advanced standing in course work as described below.

#### Program Requirements

*Course Work:* Students proceeding toward the Ph.D. degree will follow one of the programs given below:

1) Students proceeding directly to the Ph.D. from an Honours B.Sc. degree will be expected to:

- comply with the general regulations outlined in 1.5;
- attend all departmental seminars in Biological Sciences (formal presentations of visiting speakers; graduate student seminars, thesis defense presentations and dissertation defense presentations) each year of full-time registration;
- present a departmental seminar in each year of enrollment (the dissertation defense may count as one of these);
- successfully complete a minimum of five graduate courses. With the approval of the Doctoral Committee, courses may be in a cognate area. Statistics [65-453](#) (Statistics for Life/Social Sciences) may be allowed for graduate credit;
- complete a dissertation embodying the results of an original investigation;
- defend the dissertation at a public lecture or seminar.

Students recommended and approved for transfer into the Ph.D. program after having completed one year of an M.Sc. degree in Biological Sciences at the University of Windsor will normally receive credit for graduate course work completed during the M.Sc. program.

2) Students entering into a Ph.D. program with an M.Sc. degree will be expected to:

- comply with the general requirements outlined in 1.5;

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• [Engineering Materials: Graduate Faculty](#)

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- [Engineering Materials: Courses](#)

• [Industrial and Manufacturing Systems Engineering \(IMSE\): Graduate Faculty](#)

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• [Mechanical, Automotive, and Materials Engineering \(MAME\): Graduate Faculty](#)

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- (b) attend all departmental seminars in Biological Sciences (formal presentations of visiting speakers, graduate student seminars, thesis defense presentations and dissertation defense presentations) each year of full-time registration;
- (c) present a departmental seminar in each year of enrollment (the dissertation defense may count as one of these);
- (d) successfully complete a minimum of two graduate courses for a minimum total of five (5) courses for the M.Sc. and Ph.D. combined. With the approval of the Doctoral Committee, courses may be in a cognate area. Statistics 65-453 (Statistics for Life/Social Sciences) may be allowed for graduate credit;
- (e) complete a dissertation embodying the results of an original investigation;
- (f) defend the dissertation at a public lecture or seminar.

*Grading:* A student must maintain at least B- standing in each course in Biological Sciences and at least a B- average in any non-Biological Sciences courses. Any student whose performance is deemed unsatisfactory in course work or research will be asked to withdraw.

*Doctoral Committee:* Within the first term of the student's registration, the doctoral committee will be formed except for the external examiner, who is to be appointed during the student's final year of study/research. The full committee will consist of at least five members; one must be from outside the University, one from the University faculty but outside Biological Sciences, and three must be within Biological Sciences. The research advisor will act as chairperson of this committee. The student should meet with individual committee members on an informal basis at least twice a year.

The doctoral committee must meet for the following:

- (a) to review and approve course work and the research proposal no later than six months into the program;
- (b) to prepare and administer the qualifying examination within the first twelve months of the student's registration in the program;
- (c) to discuss the student's progress within two months after the qualifying examination. (The extramural committee member need not participate.);
- (d) to review and approve the research progress no less than six months before the candidacy examination is administered;
- (e) to set the candidacy examination which must be given at least six months before the student's final oral examination. (The extramural committee member need not participate.);
- (f) to discuss the student's research and dissertation at least two months before the anticipated time of the final oral examination;
- (g) the final oral examination.

*Research Progress:* Each year from the date of initial registration, the student must submit a Research Progress Report to and meet with his or her doctoral committee. In addition, the student must review his or her research in a meeting with the doctoral committee at least six months before the anticipated date of the final oral examination.

*Dissertation:* At least six months prior to the candidacy examination, a candidate must submit a Research Progress Report to the doctoral committee and at least two months before the anticipated date of the final oral examination the student must review the research and dissertation in a meeting with the committee.

A dissertation embodying the results of an original investigation in the student's major field is required of all candidates. The dissertation is expected to be of a quality suitable for publication in a refereed biological journal.

*Examinations:*

- (a) *Qualifying Examination:* The primary purpose of the Qualifying Examination is to

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- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
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Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

- Sociology: Programs
- Sociology: Courses

Visual Arts: Graduate Faculty

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ensure that the student has the appropriate background to successfully undertake the planned program of dissertation research. This examination must be completed within twelve months of the student's registration in the program. Prior to the examination, the student will have provided the doctoral committee with a written proposal outlining the background, approach and general expectations of the intended research project. The Qualifying Examination will normally be an oral examination administered by the doctoral committee. The results of the examination and any recommendations will be communicated in writing to the student and the Graduate Committee. Following the Qualifying Examination the doctoral committee may assign the student appropriate remedial or supplementary course work. Successful completion of the examination and any remedial studies or course work recommended by the doctoral committee is corequisite to the student's continuation in the doctoral program.

(b) *Candidacy Examination*: The primary purpose of the Candidacy Examination is to ensure that the student has made the appropriate research progress to proceed with the dissertation defense. The Candidacy Examination should normally be completed not less than six months prior to the expected date of the dissertation defense. Prior to the examination, the student will provide the doctoral committee with a detailed written report outlining the scope of the student's research project, the work that was conducted and results of the research. This report may broadly follow the form that the student envisions for the final dissertation. The Candidacy Examination will normally be an oral examination administered by the student's doctoral committee. The student may be asked to summarize the major points of the report in a brief oral presentation. The student's oral summary and written report will typically serve as the focus for most of the questions posed as part of the examination. The results of the Candidacy Examination and any recommendations made by the doctoral committee will be communicated in writing to the student and the departmental Graduate Committee. Successful completion of the examination and any further work recommended by the doctoral committee is corequisite to the student's completion of the doctoral program.

(c) Finally, the student will be requested to defend the dissertation orally at a public lecture or seminar (final oral examination).

## THE MASTER OF SCIENCE DEGREE

### Admission Requirements

- 1) Applicants with an honours degree in Biological Sciences or a related field may be admitted to the Master's Candidacy (M2) program (see Section 1.3.3).
- 2) Applicants with a general B.Sc. degree in Biological Sciences or a related field may be admitted to the Master's Qualifying (M1) program (see Section 1.3.3).

### Program Requirements

- 1) Students admitted to the Master's Candidacy program will be expected to:
  - (a) comply with the general regulations outlined in 1.6;
  - (b) attend all departmental seminars in Biological Sciences (formal presentations of visiting speakers, graduate student seminars, thesis defense presentations and dissertation defense presentations) each year of full-time registration;
  - (c) present a departmental seminar in each year of enrollment (the thesis defense may count as one of these);
  - (d) successfully complete a minimum of three graduate courses with approval of the Master's Committee, courses may be in a cognate area. Statistics 65-453 (Statistics for Life/Social Sciences) may be allowed for graduate credit;
  - (e) complete an original research project and embody it in a thesis;
  - (f) defend the thesis orally at a public lecture or seminar.

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2) Students admitted to the Master's Qualifying program, besides meeting the minimum requirements of the Master's Candidacy program, are expected in the first year of the two-year program to achieve a level of qualification equivalent to an honours degree through research and a minimum of four courses.

3) *Grading:* A student must maintain at least a B- average in each Biological Sciences course and at least a B- average in any non-Biological Sciences courses.

4) *Master's Committee:* Within one term of the student's registration in the program, the research committee will be formed and the names submitted to the Dean of Graduate Studies and Research. The full committee will consist of at least three members - the research supervisor, one other faculty member from within Biological Sciences, and one University faculty member from outside of Biological Sciences.

The student should meet with individual committee members on an informal basis at least twice a year. The committee, in turn, must meet to:

- (a) review and approve course work and the research proposal no later than six months into the program;
- (b) discuss the student's research and thesis at least six months before the anticipated time of the final oral examination;
- (c) participate in the final oral examination.

*Research Progress:* Each year from the date of initial registration, the student must submit a Research Progress Report to and meet with his or her Master's committee. In addition, the student must review his or her research in a meeting with the Master's committee at least six months before the anticipated date of the final oral examination.

*Research Thesis:* A thesis embodying the results of an original investigation in the student's major field is required of all candidates. The student must defend the thesis orally at a public lecture or seminar, which will be the final oral examination.

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## BIOLOGICAL SCIENCES: COURSE DESCRIPTIONS

*All courses listed will not necessarily be offered each year.*

*Biological Sciences provides three types of courses, each with a different primary purpose and format.*

1) *Fundamentals Courses:* Fundamentals courses cover subject matter that is considered central to a comprehensive knowledge of principles and theories in the department's areas of research emphasis. The scope of these courses extends beyond that provided at the undergraduate level. These courses may entail formal lectures, laboratory instruction and/or directed readings and discussion, but the onus is on the course instructor to ensure that students are exposed to balanced and comprehensive coverage of the range of topics considered to represent the field. Because of their central importance to the Biological Sciences, these courses are offered on a regular, recurring basis.

2) *Special Topics Courses:* Special topics courses provide detailed expertise in theory and/or techniques in areas of researchers' expertise that are especially relevant to students' thesis research. Although no less rigorous than fundamentals courses, these courses may provide greater depth of information over a narrower subject range. The scope of these courses extends beyond that provided at the undergraduate level. These courses may involve a combination of lectures, laboratories, discussion, readings and/or student presentations under the guidance of the instructor. A Special Topics course will have an explicit subtitle indicating the theme of a particular offering. Some Special Topics courses will be offered each year. The themes will vary among years to reflect the expertise of the instructors available and the current needs of the graduate students.

3) *Selected Readings Courses:* The primary goal of the Selected Readings courses is to develop students' skill in objective, critical analysis of scholarly work among individuals with broadly similar research interests and backgrounds. An equally important aspect of these courses is to promote interaction among students and faculty and to help participants become aware of new research across a range of subdisciplines. The role of students in selecting and presenting relevant material is central to these courses.

### **55-516. Techniques in Molecular Biology**

A course designed to introduce the student to a variety of biochemical, cellular, and molecular techniques. This course is composed of a series of topics from which students are required to participate in a minimum of four. The topics include: chromatography, electrophoresis, immunocytochemistry, electron microscopy, cell culture, cloning and nucleic acid analysis, computer-based protein and nucleic acid analysis, and radioisotope methods. Students should consult with their research advisors and supervisory committees in choosing the topics for study. (Prerequisite: consent of instructor.) (2 lecture hours, 4 laboratory hours a week for selected experiments during the year, both terms.) (One term course credit.) (Offered in alternative years.)

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**55-518. Experimental Design and Analysis in Biological Research**

Discussion of philosophical and quantitative approaches used to investigate biological systems, with emphasis on design and implementation of efficient and unbiased experiments. Students will use expertise acquired in lectures and readings to constructively evaluate their own and others' research proposals through round table discussions and individual presentation. (Prerequisite/corequisite: [55-320](#), or consent of instructor.) (2 discussion hours a week.)

**55-520. Selected Readings in the Biological Sciences**

Current publications on common themes of potential significance in students' area of study will be chosen for round table oral presentation and discussion. Multiple sections, each with enrollment of 8-12 students will be offered in the fall term of each year as required. This course is intended for graduate students in Biological Sciences only. (2 discussion hours a week.)

**55-521. Selected Readings in the Biological Sciences**

Current publications on common themes of potential significance in students' area of study will be chosen for round table oral presentation and discussion. Multiple sections, each with enrollment of 8-12 students will be offered in the winter term of each year as required. This course is intended for graduate students in Biological Sciences only. (2 discussion hours a week.)

**55-528. Molecular Biology of Growth and Development I**

An analysis at the molecular level of the growth and development of prokaryotes, lower eukaryotes, and their plasmids. (Required: consent of instructor.) (2 discussion hours a week.) (Offered in alternate years.)

**55-529. Molecular Biology of Growth and Development II**

An analysis at the molecular level of the growth and development of plants and animals. (Required: consent of instructor.) (2 discussion hours a week.) (Offered in alternate years.)

**55-570. Fundamental Topics in Population and Evolutionary Biology**

Major topics may include the evolution of mating systems, population structure and demography, population genetics and life history variation, theory of optimal resource use. (Prerequisite/corequisite: [55-324](#), or consent of instructor.) (3 lecture/discussion hours a week.) (Offered in alternate years.)

**55-581. Fundamental Topics in Community Biology**

Major topics include niche and diversity theory, trophic complexity and community stability, assembly of guilds, ecosystem structure and function, biogeography. (Prerequisite/corequisite: [55-325](#), or consent of instructor.) (3 lecture/discussion hours a week.) (Offered in alternate years.)

**55-601. Special Topics in Molecular and Developmental Biology**

This is a regularly offered course covering subjects that reflect current graduate program needs and departmental expertise in specific areas. The course addresses one or more theme subjects in any particular term. Students receive a course credit for each term in which they register for this course provided that a particular theme is not repeated. Where a theme parallels an undergraduate course listing, students may be required to attend some portion of the undergraduate course as a prerequisite or corequisite. Subjects that may be offered as special topics include but are not limited to the following: biology of cell transformation; electron microscopy; genetic engineering and its applications; advanced topics in immunochemistry; advanced topics in microbial physiology and ecology; advanced topics in physiology; plant hormones and development; virology. (Prerequisite: consent of instructor.) (2-3 discussion hours and/or up to 5 laboratory hours a week.)



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History: Graduate Faculty

- History: Programs
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Faculty of Human Kinetics:  
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- Kinesiology: Programs
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Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
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Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
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- Political Science: Programs
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Psychology: Graduate Faculty

- Psychology: Programs
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Social Work: Graduate  
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- Social Work: Programs
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Sociology: Graduate Faculty

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### 55-602. Special Topics in Population and Environmental Biology

This is a regularly offered course covering subjects that reflect current graduate program needs and departmental expertise in specific areas. The course addresses one or more theme subjects in any particular term. Students receive a course credit for each term in which they register for this course provided that a particular theme is not repeated. Where a theme parallels an undergraduate course listing, students may be required to attend some portion of the undergraduate course as a prerequisite or corequisite. Subjects that may be offered as special topics include but are not limited to the following: animal behaviour; advanced topics in aquatic ecology; biogeography, conservation biology, ecotoxicology, quantitative ecology. (Prerequisite: consent of instructor.) (2-3 discussion hours and/or up to 5 laboratory hours a week.)

### 55-603. Special Topics in Biological Sciences I

Special Topics in the Biological Sciences courses may be used to introduce a new graduate offering, typically on a "trial" basis. Approved courses taken at Wayne State University or elsewhere, or courses offered by visiting professors may also fall into the category of Special Topics in the Biological Sciences. A limited number of these courses may be included in the program of graduate student.

### 55-604. Special Topics in Biological Sciences II

Special Topics in the Biological Sciences courses may be used to introduce a new graduate offering, typically on a "trial" basis. Approved courses taken at Wayne State University or elsewhere, or courses offered by visiting professors may also fall into the category of Special Topics in the Biological Sciences. A limited number of these courses may be included in the program of a graduate student.

### 55-797. Thesis Research

An original research project embodied into a concisely written thesis which conforms to the style and format of a recognized journal in the field of specialization. The student should register for this course during each term (including Summer) of residency at the University; however, this course may not be used for credit toward fulfilling the course requirements in the Master's program.

### 55-798. Dissertation Research

An original research investigation the results of which will be embodied in a concisely written dissertation conforming in style and format to a recognized journal in the field of specialization. The final paper should be of the highest quality possible and suitable for publication. The doctoral student should register for this course commencing the summer term of the first year of residency and subsequently for each term during which dissertation research will be carried out. In no case, however, may this course be used for credit toward fulfilling the course requirements in the Ph.D. program.

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## Odette School of Business

### GRADUATE FACULTY

#### Professor Emeritus

Brill, Percy; B.Sc. (Carleton), M.A. (Columbia), Ph.D. (Toronto)-1984.

#### Professors

Faria, Anthony John; B.S., M.B.A. (Wayne State), Ph.D. (Michigan State)-1975.

Dickinson, John R.; B.S.B.A., M.B.A., D.B.A. (Indiana)-1980.

Thacker, James W.; B.A. (Winnipeg), M.A., Ph.D. (Wayne State)-1982.

Kantor, Jeffrey; B.Sc., B.Comm. (Hons.) (Cape Town), C.P.A., C.A. (Ontario), Ph.D. (Bradford, England)-1983.

Aneja, Yash Paul; M.S., B.S. (Indian Statistical Inst.), Ph.D. (Johns Hopkins)-1984.

Templer, Andrew; B.A. (Hons.) (Witwatersrand), M.A. (South Africa), M.Sc. (London), Ph.D. (Witwatersrand)-1984.

Singh, Jang; B.A. (Toronto), M.A. (College of St. Thomas), M.B.A. (Windsor), M.A., Ph.D. (Toronto)-1986.

Withane, Sirinimal; B.Sc. (Sri Jayawarden-pura), M.Sc. (Moratuwa University), M.A. (Carleton), Ph.D. (Rockefeller College, SUNY)-1986.

Armstrong-Stassen, Marjorie; B.S., M.L.H.R., Ph.D. (Ohio State)-1989.

Hussey, Roger D.; M.Sc., Ph.D. (Bath)-2000. (Dean of the Faculty).

Fleisher, Craig; B.S.B.A. (Florida), M.B.A. (Vanderbilt), Ph.D. (Pittsburgh)-2002. (Odette Research Chair)

#### Associate Professors

Cattaneo, R. Julian; Licenciado (Buenos Aires), Ph.D. (Michigan)-1980.

Rieger, Fritz; B.S. (Manhattan), M.B.A. (Columbia), Ph.D. (McGill)-1984.

Forrest, Anne; B.Sc., M.I.R. (Toronto), Ph.D. (Warwick)-1985.

Reavley, Martha; B.Comm., M.B.A. (Windsor), Ph.D. (Wayne State)-1986.

<ul style="list-style-type: none"><li>• <b>Communciation Studies: Courses</b></li></ul>	Lan, George; B.S. (Beloit College), M.A. (Smith College), M.B.A. (Tulane University), Ph.D. (Queens)-1988.
<ul style="list-style-type: none"><li>• <b>Computer Science: Graduate Faculty</b></li></ul>	Ursel, Nancy D.; B.Comm. (McGill), M.B.A. Ph.D. (Concordia)-1989.
<ul style="list-style-type: none"><li>• <b>Computer Science: Programs</b></li><li>• <b>Computer Science: Courses</b></li></ul>	Lin, Howard Xiaohua; B.A. (Central National University), M.Sc. (Chinese Academy of Social Sciences), Ph.D. (Oklahoma State)-2001.
<ul style="list-style-type: none"><li>• <b>Earth Sciences: Graduate Faculty</b></li><li>• <b>Earth Sciences: Programs</b></li><li>• <b>Earth Sciences: Courses</b></li></ul>	<b>Assistant Professors</b> Kao, Diana; LL.B. (National Cheng-Chi), Dipl.Acc. (Wilfrid Laurier), M.B.A. (McMaster), Ph.D. (Western Ontario)-1990.
<ul style="list-style-type: none"><li>• <b>Economics: Graduate Faculty</b></li><li>• <b>Economics: Programs</b></li><li>• <b>Economics: Courses</b></li></ul>	Ong, Audra; B.Sc. (Queen's Belfast), M.B.A. (Wales), Ph.D. (West of England, Bristol)-2000.  Sinha, Rajeeva; B.A. (Patna, India), M.A. (JNU, India), Ph.D. (Warwick)-2000.
<ul style="list-style-type: none"><li>• <b>Faculty of Education: Graduate Faculty</b></li><li>• <b>Education: Programs</b></li><li>• <b>Education: Courses</b></li></ul>	Kerr, Gerald; B.A. (Western Ontario), B.A., B.Admin. (Brock), M.B.A. (McMaster), Ph.D. (York)-2001.
<ul style="list-style-type: none"><li>• <b>Faculty of Engineering: Programs of Study Overview</b></li><li>• <b>General Courses, Engineering</b></li></ul>	Al-Hayale, Talal H. S.; B.Sc. (Mosul, Iraq), M.A., Ph.D. (Wales, UK)-2002.  Assaf, Ata; B.A. (Lebanese U.), D.H.S., M.A. (Western Ontario), Ph.D. (McGill)-2002.
<ul style="list-style-type: none"><li>• <b>Civil and Environmental Engineering (CEE): Graduate Faculty</b></li><li>• <b>CEE: Areas of Specialization</b></li><li>• <b>CEE: Courses</b></li></ul>	Baki, Mohammed; B.Sc. (Bangladesh Inst. Of Technology), M.B.A. (Dhaka), M.B.A. (New Brunswick), Ph.D. (Waterloo)-2002.  Pathak, Jagdish; B.Comm., M.Comm. (Rajasthan), Ph.D. (Goa)-2002.  Cheung, Keith C.K.; B.A., M.A., Ph.D. (York)-2003.
<ul style="list-style-type: none"><li>• <b>Electrical Engineering: Graduate Faculty</b></li><li>• <b>Electrical Engineering: Areas Of Specialization</b></li><li>• <b>Electrical Engineering: Courses</b></li></ul>	Lee, Hua; B.A. (Fu Jen Catholic), M.B.A. Ph.D. (National Taiwan)-2003.  Lee, Jonathan C.; B.A. (Hons.), M.B.A. (Windsor), Ph.D. (South Carolina)-2003.
<ul style="list-style-type: none"><li>• <b>Engineering Materials: Graduate Faculty</b></li><li>• <b>Engineering Materials: Areas of Specialization</b></li><li>• <b>Engineering Materials: Courses</b></li></ul>	Moro, Francisco Baptista Pereira; B. Sc. (PUC-RS, Brazil), M.Eng., Dr.Eng. (UFSC, Brazil), Ph.D. (Wisconsin)-2003.
<ul style="list-style-type: none"><li>• <b>Industrial and Manufacturing Systems Engineering (IMSE): Graduate Faculty</b></li><li>• <b>IMSE: Areas of Specialization</b></li><li>• <b>IMSE: Courses</b></li></ul>	
<ul style="list-style-type: none"><li>• <b>Mechanical, Automotive, and Materials Engineering (MAME): Graduate Faculty</b></li><li>• <b>MAME: Areas of Specialization</b></li></ul>	

- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

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## ODETTE SCHOOL OF BUSINESS: PROGRAMS OF STUDY

[Business Administration \(MBA\) \(Co-operative Education\)](#)  
[Business Administration \(MBA\) \(Fast-Track\)](#)  
[Business Administration \(MBA\) \(For Managers and Professionals\)](#)  
[Business Administration/Bachelor of Laws \(Integrated MBA/LLB\)](#)

### THE MASTER OF BUSINESS ADMINISTRATION DEGREE

The purpose of the Master of Business Administration program is to provide broad graduate study in the general field of business administration. It provides students with three important components to prepare them for management positions; academic knowledge, job skills and work experience.

Graduate students have the opportunity of expanding their accounting, administrative, finance, marketing, management science and strategy expertise. The program emphasizes knowledge that prepares students for careers in private industry and business, for the public service, and for doctoral studies.

### Admission Requirements

1) Applicants who have secured satisfactory standing (at least a B- average) in their undergraduate work may be admitted. Major consideration is given to the performance during the last two years of the undergraduate program. Applicants without an undergraduate degree who hold a professional qualification such as (for example) C.G.A., C.M.A., or C.H.R.P. and a minimum of five years' experience in their profession may be considered for admission to the MBA program. Possession of the minimum requirements for admission does not ensure acceptance.

Students must write the GMAT before applying for admission to the Faculty. Applicants who hold an M.B.A or a Ph.D. from a foreign University (or equivalent degree) in any discipline will not be required to write the GMAT. (Details of the Test may be obtained from The Educational Testing Service, Princeton, New Jersey, 08540.) The order form for the Bulletin of Information for the GMAT is available in the Office of the Registrar and in the M.B.A office.

2) Graduates from a four-year Honours program in Commerce or Business Administration who, in the opinion of the Odette School of Business, have covered an adequate program of studies, may be admitted to the candidate year in the Fast Track M.B.A. program provided they have obtained satisfactory standing (at least a B- average) in their undergraduate degree.

3) Students will be recommended for admission to the candidate year if they have maintained a B- average or better in the first year of the program.

• [Communciation Studies: Courses](#)

4) Students in the candidate year who maintain a B- average or better will qualify for the M.B.A. degree.

[Computer Science: Graduate Faculty](#)

**Prerequisites**

- [Computer Science: Programs](#)
- [Computer Science: Courses](#)

The prerequisites required for admission are: first-year university-level mathematics; micro- and macroeconomics. The mathematics prerequisite may be waived depending on an applicant's quantitative GMAT score. If the prerequisites have not been completed prior to admission, they must be completed during the first year of the program.

[Earth Sciences: Graduate Faculty](#)

**Fee Policy for M.B.A. Students Taking Undergraduate Economic Courses**

- [Earth Sciences: Programs](#)
- [Earth Sciences: Courses](#)

M.B.A. students will pay undergraduate fees for undergraduate courses taken as prerequisites for admission if the courses are taken within the first three terms after admission. The undergraduate courses will not be counted towards the graduate degree.

[Economics: Graduate Faculty](#)

- [Economics: Programs](#)
- [Economics: Courses](#)

**Part-time Status**

[Faculty of Education: Graduate Faculty](#)

Students who are unable to complete the program on a full-time basis for health, family, or other reasons may, upon recommendation from the Odette School of Business, be permitted to continue their studies on a part-time basis.

- [Education: Programs](#)
- [Education: Courses](#)

**Course Requirements**

[Faculty of Engineering: Programs of Study Overview](#)

- [General Courses, Engineering](#)

All two year programs (M.B.A and M.B.A Co-op) require eleven 500-level courses in the first year.

[Civil and Environmental Engineering \(CEE\): Graduate Faculty](#)

- [CEE: Areas of Specialization](#)
- [CEE: Courses](#)

The second year of the two year programs and the one year program (M.B.A Fast Track Co-op) requires ten 600-level courses.

[Electrical Engineering: Graduate Faculty](#)

The major paper is weighted as two courses; the thesis as four. A student writing a major paper or thesis would require eight or six additional courses respectively. Fast Track students who do not complete a co-op work term will be required to complete a major paper in addition to the ten courses.

- [Electrical Engineering: Areas Of Specialization](#)
- [Electrical Engineering: Courses](#)

[75-698](#) is required of all MBA students.

[Engineering Materials: Graduate Faculty](#)

Students will be allowed to pursue a general M.B.A. or choose one specific area of concentration. Areas of concentration include Business Strategy and Entrepreneurship, Finance, International Business, Marketing, Management and Labour Studies, Management Science and Production/Operations Management. To obtain an area of concentration, courses must be completed as follows:

- [Engineering Materials: Areas of Specialization](#)
- [Engineering Materials: Courses](#)

*BUSINESS STRATEGY AND ENTREPRENEURSHIP*

[Industrial and Manufacturing Systems Engineering \(IMSE\): Graduate Faculty](#)

- [75-680](#). Managing the International Enterprise
- [75-682](#). Manufacturing Strategy
- [75-690](#). Entrepreneurship: New Venture Formation and Management

- [IMSE: Areas of Specialization](#)
- [IMSE: Courses](#)

Plus any two of:

[Mechanical, Automotive, and Materials Engineering \(MAME\): Graduate Faculty](#)

- [75-692](#). Topics in Strategic Management
- [74-639](#). Marketing Strategy and Planning
- [71-613](#). Leadership and Organizational Change

- [MAME: Areas of Specialization](#)

*FINANCE*



• MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

- Sociology: Programs
- Sociology: Courses

Visual Arts: Graduate Faculty

- Visual Arts: Programs
- Visual Arts: Courses

Postgraduate Awards and  
Financial Aid

72-672. Cases in Financial Management

70-651. Reporting, Analyzing, and Using Accounting Information

Plus any three of:

72-670. Investment Analysis and Management

72-671. Portfolio Management

72-673. Topics in Finance

72-674. International Financial Management

*INTERNATIONAL BUSINESS*

71-643. International Management

72-674. International Financial Management

74-635. International Marketing Strategy

75-680. Managing the International Enterprise

Plus any one of:

45-566. International Political Economy

41-510. Theory of International Trade

or a Topics course with an international focus offered by any of the Areas

*MARKETING*

74-639. Marketing Strategy and Planning

Plus any three of:

74-631. Consumer Behaviour

74-632. Marketing Research

74-635. International Marketing

74-638. Special Topics in Marketing

Plus any one of:

72-672. Cases in Financial Management

75-680. Managing the International Enterprise

75-682. Manufacturing Strategy

or a Topics course being offered by one of the other Areas whose content is relevant to Marketing.

*MANAGEMENT SCIENCE*

73-603. Management Science Methods

73-605. Operations Management

73-606. Strategic Implementation for Technologies Management

Plus any two of:

73-602. Topics in Management Science

60-537. Database Management Systems

60-538. Information Retrieval Systems

60-539. Emerging Non-traditional Database Systems

91-504. Advanced Operations Research I

91-505. Advanced Operations Research II

91-511. Stochastic Processes

91-502. Manufacturing Systems Simulation

91-500. Optimization

91-503. Production and Inventory Control Systems

91-508. Reliability Engineering

*MANAGEMENT AND LABOUR STUDIES*

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[71-613](#). Leadership and Organizational Change  
[71-643](#). International Management  
[71-646](#). Business Negotiations and Problem Solving  
[71-647](#). Managing Diversity in the Work-place

Plus any one of:  
[71-648](#). Topics in Management and Labour Studies  
[95-500](#). Sport Leadership

***PRODUCTION/OPERATIONS MANAGEMENT***

[73-604](#). Operations Management  
[75-682](#). Manufacturing Strategy

Plus any three of:  
[73-602](#). Topics in Management Science  
[74-631](#). Consumer Behaviour  
[75-680](#). Managing the International Enterprise  
[41-531](#). Industrial Organization  
[91-509](#). Computer-Integrated Manufacturing  
[91-512](#). Flexible Manufacturing Systems

***THE MAJOR PAPER***

Students may choose a major paper option. All students choosing this option must have a detailed major paper proposal approved by at least two faculty members in the Odette School of Business. These two faculty members will have primary responsibility for supervising the student's work. The approved proposal application form must be submitted to the Assistant to the Dean in order to register for the major paper ([76-796](#)). An oral defence will be required.

The major paper will be graded, will receive six credits and will substitute for two 600-level course electives.

***THE THESIS***

Students may choose a thesis option. All students choosing this option must have a detailed thesis proposal approved by at least two faculty members in the Odette School of Business and by one faculty member external to the School but from within the University. An oral defence will be required (see 1.6.2, Committees).

The thesis will be graded, will receive twelve credits and will substitute for four 600-level course electives.

**Professional Accounting Designation**

Students who are interested in pursuing both a professional accounting designation (*i.e.*, C.A., C.M.A., or C.G.A.) and the M.B.A. are advised to complete their accounting course requirements while being registered in the Bachelor of Commerce for University Graduates program and then to apply for admission directly to the candidate year of the M.B.A. program (Fast-Track M.B.A.)

**MASTER OF BUSINESS ADMINISTRATION DEGREE CO-OPERATIVE EDUCATION**

Students have the opportunity to experiment with various areas of interest in a generalist capacity, or to focus on a specific area of interest. Although the Faculty will make every effort to match students with suitable employment, students are not

guaranteed positions, and the availability of positions may vary with the state of the labour market.

Following the completion of each work term, a work report is required. These reports focus on a problem or problems at work as analyzed by the student in a significant academic analysis. These reports serve to develop solid communication skills. Guidelines regarding the content and format of the reports are determined by the Graduate Committee of the Odette School of Business. One report is required for each completed work term.

In addition to the normal admission requirements, students seeking admission to the Co-op program will be required to have an interview with a representative from the Office of Co-op Education and Career Services.

### *CO-OPERATIVE M.B.A. WORK/STUDY SEQUENCE*

#### **Qualifying Year**

##### **Fall Term**

- 76-501. Interpersonal Dynamics
- 76-502. Core Concepts of Accounting Information I
- 76-503. Introduction to Financial Management
- 76-504. Quantitative Techniques in Management
- 76-505. Marketing Management
- 76-506. Managing Employees

##### **Winter Term**

- 76-510. Core Concepts of Accounting Information II
- 76-511. Research Methodology
- 76-512. Financial Management
- 76-513. Human Resources Management
- 76-514. Management Information Systems

##### **Summer Term**

- 76-701. M.B.A. Co-op Work Term I

#### **Candidate Year**

##### **Fall Term**

workshops, plus five 600-level Business courses

##### **Winter Term**

- 76-702. M.B.A. Co-op Work Term II

##### **Summer Term**

75-698. Strategic Management  
workshops, plus four 600-level Business courses

### **REGULAR M.B.A. PROGRAM**

This program is intended for those students not choosing the M.B.A. Co-op program (primarily students in the integrated M.B.A./LL.B. program). The academic portion is identical to the Co-op program and students will take their courses during the study terms for Co-op students.

### **FAST TRACK M.B.A. PROGRAM**

This program is designed for students who have graduated from a four-year honours business program. Fast Track M.B.A. students are exempt from the first (qualifying)

year of the regular program, entering directly into the second (candidate) year. It includes not only traditional academic course work but also a co-operative work placement with selected organizations. The program is purposely designed to provide practical knowledge based experience usually not available at an undergraduate level.

#### *FAST TRACK M.B.A. PROGRAM STUDY SEQUENCE*

##### **Fall Term**

[76-660](#). Management Skills Development  
plus workshops and four 600-level Business courses

##### **Winter Term**

[76-711](#). Work Term

##### **Summer Term**

[75-698](#). Strategic Management  
plus workshops and four 600-level Business courses

Students who are unable to complete the work term ([76-711](#)) will write a major paper ([76-796](#)).

#### **INTEGRATED M.B.A./LL.B. PROGRAM**

This special program provides students interested in a career which combines legal and business management skills with an opportunity to complete both the M.B.A. and the LL.B. degrees in four years. It is administered by the Integrated M.B.A./LL.B. Program Committee composed of representatives from the Odette School of Business, the Faculty of Law and the Faculty of Graduate Studies and Research.

The M.B.A integrated with the LLB program requires seven 600-level courses.

#### **Admission Requirements**

The admission procedure for the integrated program consists of two stages. At the first stage, students applying to the program must meet the admission requirements of both the M.B.A. and LL.B. programs. Therefore separate applications must be submitted to the Faculty of Law and the Faculty of Graduate Studies and Research for admission to the regular degree program in Law and the M.B.A. To facilitate academic and career planning, it is strongly suggested that these applications be made simultaneously. Students who are accepted to both the M.B.A. and LL.B. programs will be accepted to the integrated program, and will proceed to attend first year in either Faculty. Such students will be granted a deferred admission to the other Faculty in the program.

This special deferred admission will be revoked if the applicant's performance in the first program fails to meet the first-year academic standards of the program. In such case the applicant may re-apply for regular admission to the second degree program.

Applications will also be considered for entry to the program from candidates who are attending the first year of either the LL.B. or M.B.A. programs. They must meet the admissions requirements and application deadline for the program for which they are seeking entry.

#### **Application Deadlines**

Faculty of Law - November 1 (LL.B.)

Faculty of Graduate Studies and Research - June 1 (M.B.A.)

For application materials please contact each of the following separately:

*For the LL.B.:*

Ontario Law School Application Service  
P.O. Box 1328  
170 Research Lane  
Guelph, Ontario  
N1G 5E2  
Telephone: (519) 823-5232  
Website: [www.ouac.on.ca/olsas](http://www.ouac.on.ca/olsas)

*For the M.B.A.:*

Odette School of Business  
M.B.A. Admissions  
University of Windsor  
Windsor, Ontario  
N9B 3P4  
mba@uwindsor.ca  
Website: [www.uwindsor.ca/mba](http://www.uwindsor.ca/mba)

*TERM PLANNING*

**First and Second Years**

The first two years of study in the integrated program will consist of the regular first-year programs of each faculty.

**Third and Fourth Years**

The third and fourth years of the integrated program will be devoted to required and elective courses offered in both the Faculty of Law and the Odette School of Business.

In the M.B.A. program students will be required to take five candidate-level courses. These must include [75-698](#) (Strategic Management) and four courses selected from a minimum of two of the following areas: Accounting, Management and Labour Studies, Finance, Management Science, Marketing, and Business Strategy and Entrepreneurship. In addition, the M.B.A. major paper or thesis must have a substantial legal component.

In the Faculty of Law, the student will enrol in courses for a minimum of forty credits. These must include Torts, Civil Procedure, one course from the Legal Perspectives Group, and one course requiring a substantial paper that must account for at least 50 percent of the student's grade in the course. The M.B.A. paper will ordinarily satisfy this requirement, subject to the approval of the Faculty of Law Academic Programs Committee.

In addition to the requirements outlined above, the candidate must choose three additional candidate-level M.B.A. courses or a further three law courses totalling at least nine credit hours or any equivalent combination. The student's elective choices shall be reviewed by the Integrated M.B.A./LL.B. Committee in light of the student's personal and career objectives, and the necessity of scheduling core business and law courses.

**ADVANCEMENT**

Continuation in the program is conditional on students meeting the following requirements:

**First and Second Years:** Standing in the top half of the class; no Faculty of Law course grade lower than C-.

**Third and Fourth Years:** In courses taken in the Odette School of Business, candidates must attain at least one A- or above grade and not receive any grades below B-. In courses taken in the Faculty of Law, candidates must attain in each year at least one grade of B- or above and must not receive any grade lower than C-.

Candidates who fail to meet the above standards may be advanced upon the approval of the Program Committee if such action is warranted. Candidates who either fail to advance from First to Second Year, Second Year to Third Year, Third to Fourth Year, or who choose to leave the program will be free to continue on for both degrees, but within normal degree requirements, and subject to any conditions set out by the two Faculties. Students who fail to advance or who leave the program after Third Year and who have taken the appropriate electives may petition the Odette School of Business to be allowed to complete the regular requirements for the M.B.A. degree.

YEAR	LAW STREAM	BUSINESS STREAM
I	Law I	Qualifying Year-M.B.A.
II	Qualifying Year-M.B.A.	Law I
III*	Candidate Year-M.B.A. Law II & III	Candidate Year-M.B.A. Law II & III
IV*	Candidate Year-M.B.A. Law II & III	Candidate Year-M.B.A. Law II & III

Please consult the Cashier's Office about the tuition structure and the Faculty of Graduate Studies and Research for inquiries about awards.

### **Students with an Honours Bachelor of Commerce Degree**

Students holding an Honours B.Comm. degree may obtain both the LL.B. and M.B.A. degrees without the assistance of a special integrated program. However, by submitting applications simultaneously to both the Faculty of Law and the Faculty of Graduate Studies and Research and indicating an interest in the program, such students may be granted a deferred admission to whichever degree program he or she elects to take second. This special deferred admission will be revoked if the applicant's performance in the first program fails to meet the first-year academic standards of the program. In such case the applicant may re-apply for regular admission to the second degree program.

*Note:* The University reserves the right to make changes in the integrated program and any rules or regulations applying to it.

### **M.B.A FOR MANAGERS AND PROFESSIONALS**

The M.B.A for Managers and Professionals is an accelerated program geared toward students who are employed full-time and have accumulated significant experience in management and business practices.

### **Admission Requirements**

- 1) Four-year (honours) undergraduate degree;

- 2) Three years of work experience in managerial or professional positions;
- 3) Students must write the GMAT before applying for admission to the Faculty. Applicants who hold an M.B.A or a Ph.D. from a foreign University (or equivalent degree) in any discipline will not be required to write the GMAT. (Details of the Test may be obtained from The Educational Testing Service, Princeton, New Jersey, 08540.) The order form for the Bulletin of Information for the GMAT is available in the Office of the Registrar and in the M.B.A office.
- 4) An applicant whose first language is not English and who has not worked in an English-speaking environment for at least three years would have to demonstrate adequate command of English by an appropriate score on the TOEFL, CAEL, or other recognized test;
- 5) Satisfactory performance on a personal interview. Interviews will be conducted for prospective students.

### **Students with an Honours B.Comm.**

Applicants who have a four-year B.Comm. or equivalent business degree could be admitted directly to the second year of the Professional M.B.A if they meet the above criteria and furthermore:

- (a) have completed their degree no more than five years before the cut-off date for applications;
- (b) had an average grade of B or higher in their program.

### **Program Curriculum**

*Total courses: 20*

As with the regular M.B.A. program, all required courses are offered by the Odette School of Business Administration. In this program students will follow a prescribed sequence of courses in cohort fashion, with no electives - an approach that is not uncommon in M.B.A. programs directed at working managers and executives.

### **Program Sequencing**

Courses are scheduled on alternate weekends; contact time is supplemented by Web-based instruction and team assignments. Students complete two courses concurrently before moving to the next two courses.

#### **Year 1**

- [77-521](#). Core Concepts of Accounting I
- [77-522](#). Introduction to Financial Management
- [77-523](#). Quantitative Techniques in Management
- [77-524](#). Managing People in Organizations
- [77-525](#). Business Research Methods
- [77-531](#). Core Concepts of Accounting II
- [77-532](#). Financial Management
- [77-533](#). Management Information Systems
- [77-534](#). Managing Human Resources
- [77-535](#). Marketing Management

#### **Year 2**

- [77-620](#). Reporting, Analyzing, and Using Accounting Information
- [77-621](#). Leadership and Organizational Change
- [77-623](#). Maximizing the Value of the Organization

- [77-624. Managing in the International Arena](#)
- [77-625. Strategic Management](#)
- [77-626. Strategic Implementation for Technologies Management](#)
- [77-627. Business Negotiation and Problem Solving](#)
- [77-628. Entrepreneurship and Intrapreneurship](#)
- [77-629. Current Issues in Business](#)



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- [Business: Programs](#)
- [Business: Courses](#)

[Chemistry and Biochemistry: Graduate Faculty](#)

- [Chemistry and Biochemistry: Programs](#)
- [Chemistry and Biochemistry: Courses](#)

[Communication Studies: Graduate Faculty](#)

- [Communications Studies: Programs](#)

## ODETTE SCHOOL OF BUSINESS: COURSE DESCRIPTIONS

Courses below are listed according to the internal administrative units of the Odette School of Business.

All courses listed will not necessarily be offered in a particular term or year.

Special permission to enter courses without the stated prerequisites must be arranged with the Dean and the instructor involved.

### FIRST-YEAR M.B.A. COURSES

#### **76-501. Interpersonal Dynamics**

Provides students with the behavioural skills to be effective in organizations. Active listening, conflict resolution, running effective meetings, *etc.*, will be taught with a great deal of emphasis on the practice of these skills. The framework for this module will be the team environment, which many successful companies are moving toward. This module will help students prepare for the teamwork which will be required by all the concurrent modules.

#### **76-502. Core Concepts of Accounting I**

An introduction to the role and importance of accounting information in the decision-making process and how to use and interpret various types of accounting information found in financial statements and annual reports. Core concepts of financial accounting will be examined, including the determination of income and the recognition, measurement and reporting of assets, liabilities, and owners' equity. The impact of ethical, regulatory and environmental aspects on the interpretation and application of accounting information will be considered.

#### **76-503. Introduction to Financial Management**

Concerned with the concepts and principles of financial management of the business enterprise within the global financial environment. After an introduction to domestic and international financial markets and instruments, the module covers the concepts of value, risk, and efficient markets followed by an introduction to capital budgeting, financial analysis and planning, and short-term financial management.

#### **76-504. Quantitative Techniques in Management**

Provides students with a basic but solid background in the quantitative techniques used by successful business organizations. This module will focus on the important aspects of probability and statistics as they relate to the effective presentation of data and to decision-making under uncertainty; and on the use of mathematical modelling as it relates to problem-solving within an organization.

#### **76-505. Marketing Management**

Introduces appropriate marketing management concepts and techniques that can be applied to private sector business as well as to not-for-profit organizations' marketing

• [Communciation Studies: Courses](#)

and communication activities. Emphasis will be on the marketing mix elements of product, price, place, and promotion.

[Computer Science: Graduate Faculty](#)

- [Computer Science: Programs](#)
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**76-506. Managing Employees**

Familiarizes students with the knowledge, roles, responsibilities and skills required of today's managers. Three approaches will be examined: systems, process, and behavioural. The contingency view of management as the process of organizing resources to set and accomplish organizational goals will be emphasized.

[Earth Sciences: Graduate Faculty](#)

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- [Earth Sciences: Courses](#)

**76-510. Core Concepts of Accounting II**

Further examines the use and interpretation of accounting information within the context of business and business decision-making. It will explore some of the ways in which accounting information may be utilized for business planning and to solve common business management problems. Core concepts of financial and managerial accounting such as financial statement analysis, tax considerations, cost-volume-profit analysis, budgeting, cost allocation, job order and process costing will be covered. As with [76-502](#), the impact of ethical, regulatory, and environmental aspects on the interpretation and application of accounting information will be considered. (Prerequisite: [76-502](#).)

[Economics: Graduate Faculty](#)

- [Economics: Programs](#)
- [Economics: Courses](#)

**76-511. Research Methodology**

Provides students with a broad understanding of methodological issues in research with a specific focus on marketing. Students will develop an understanding of research issues and processes from a marketing perspective through classroom lectures as well as a hands-on, practical marketing research project. Both quantitative and qualitative methods of research will be discussed. (Prerequisites: [76-504](#) and [76-505](#).)

[Faculty of Education: Graduate Faculty](#)

- [Education: Programs](#)
- [Education: Courses](#)

[Faculty of Engineering: Programs of Study Overview](#)

- [General Courses, Engineering](#)

**76-512. Financial Management**

Focus is on the firm's long-term financial decisions. The sources and the mechanics of obtaining long-term financing are covered, together with the discussion of strategic decisions involving capital structure and dividends. The module includes a broader study of financial markets and instruments, including options, with applications in financial management. (Prerequisite: [76-503](#).)

[Civil and Environmental Engineering \(CEE\): Graduate Faculty](#)

- [CEE: Areas of Specialization](#)
- [CEE: Courses](#)

**76-513. Human Resources Management**

Concerned with the role of human resources activities in facilitating the achievement of organizational effectiveness. Students will gain an understanding of the principles of human resources management and develop some skills they can apply in solving actual people problems at work. Particular attention is given to the roles of labour relations and trade unionism as they pertain to human resources activities. Students will be provided with exposure to both a management and labour perspectives to H.R. issues.

[Electrical Engineering: Graduate Faculty](#)

- [Electrical Engineering: Areas Of Specialization](#)
- [Electrical Engineering: Courses](#)

**76-514. Management Information Systems**

Learn how to envision, design and evaluate computer-based solutions to typical business problems. Emphasis will be on the contemporary and emerging hardware /software tools, the managing of information, and information technology.

[Engineering Materials: Graduate Faculty](#)

- [Engineering Materials: Areas of Specialization](#)
- [Engineering Materials: Courses](#)

*CANDIDATE YEAR COURSES*

The prerequisite for all candidate year (600-level) courses is candidate-level standing in the M.B.A. program or equivalent preparation.

[Industrial and Manufacturing Systems Engineering \(IMSE\): Graduate Faculty](#)

- [IMSE: Areas of Specialization](#)
- [IMSE: Courses](#)

**ACCOUNTING**

**70-650. Managerial Accounting and Analysis**

Examines approaches to generating, analyzing and using accounting information in performing managerial functions such as planning, controlling, performance evaluation and decision making.

[Mechanical, Automotive, and Materials Engineering \(MAME\): Graduate Faculty](#)

- [MAME: Areas of Specialization](#)

- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

- Sociology: Programs
- Sociology: Courses

Visual Arts: Graduate Faculty

- Visual Arts: Programs
- Visual Arts: Courses

Postgraduate Awards and  
Financial Aid

### **70-651. Reporting, Analyzing, and Using Accounting Information**

Examines alternative approaches to generating, analyzing and using accounting information. It will emphasize the understanding and the application phases of accounting information by users. Topics include: Accounting entity-concepts of control and significant influence; accounting policy choice; internal control; elements in the consolidated financial statements, such as owners' equity, minority (non-controlling) interest and goodwill; profitability, liquidity and solvency analyses; working capital management; and business valuation.

### **70-659. Topics in Accounting**

A reading and research seminar which deals with major concepts and important current problems in Accounting. The precise topic to be covered in a particular term will vary according to current interest and faculty availability, and will be announced in the previous term.

## **MANAGEMENT AND LABOUR STUDIES**

### **71-613. Leadership and Organizational Change**

Provides an analytical framework to understand organizational transformation through (a) leadership and vision building, (b) strategic human resources planning (c) restructuring and redesigning and (d) organization environment interactions. Students will focus on the practical aspects of diagnosing the need for change and supporting, facilitating, or leading the change process.

### **71-643. International Management**

Focuses on the problems and issues that confront managers in the area of international business. Background materials, cases, and exercises will involve the students in the challenges facing the international manager. A major objective is to develop a sensitivity that will enhance the student's ability to operate in the complex environment of multicultural businesses.

### **71-646. Business Negotiation and Problem Solving**

Highlights the role of effective negotiation for resolving conflict and sharing resources and power in complex organizations. Students will be exposed to various styles of negotiating, problem solving and bargaining strategies as well as communication approaches aimed at enhancing organizational performance.

### **71-647. Managing Diversity in Work-place**

Addresses the dynamics of increasing diversity of the work force and the major challenges faced by organizations and their managers such as maintaining fairness and justice, making effective decisions for performance improvement, allowing flexibility and managing diversity in the global environment. The course also analyzes the legal frameworks in place which value and protect employee and employer rights related to gender, race, age, religion, sexual orientation, ability, and other dimensions of diversity.

### **71-648. Topics in Management and Labour Studies**

A reading and research seminar which deals with major concepts and important current problems in the areas covered by Management and Labour Studies. The precise topic to be covered in a particular term will vary according to current interest and faculty availability, and will be announced in the previous term.

## **FINANCE**

### **72-670. Investment Analysis and Management**

Economic background to security analysis; types of corporate securities for investment; theory and mechanics of investment; general analysis and valuation procedures; valuation of fixed income securities and common stocks; procedures in analysis of

[General Information](#)

government, industrial, financial and public utility securities; and portfolio management.

[Fee Regulations and Schedule](#)

**72-671. Portfolio Management**

Objectives of individual and institutional portfolios. Security selection, diversification, marketability, risk and return in portfolio construction. Timing and formula plans, bond portfolio problems, performance measurement, trading problems, tax planning, supervision, quantitative techniques for portfolio management, and regulations.

[Back to List of Calendars](#)

**72-672. Cases in Financial Management**

An advanced case course in financial management. Financial concepts and principles of managing a business enterprise are illustrated. Planning for the acquisition and use of funds so as to maximize the value of the business is examined through the use of case analysis.

[Quick Links](#)

**72-673. Topics in Finance**

An in-depth study of topical issues in finance. A reading and research seminar dealing with major concepts and problems in the area of financial management. Precise topics to be covered during a term will vary according to current trends in the literature.

[Like our new Web site?](#)

**72-674. International Financial Management**

A study of the problems facing the international financial manager. Topics include: international markets, spot and forward currency fluctuations, positioning corporate funds, investment decisions, hedging and exposure management.

**MANAGEMENT SCIENCE**

**73-602. Topics in Management Science**

A reading and research seminar which deals with major concepts and important current problems in the areas of management science, operations management, or management information systems. The precise topic to be covered in a particular term will vary according to current interest and faculty availability, and will be announced in the previous term.

**73-603. Management Science Models**

Study of spreadsheet-based practical quantitative decision-making models relevant to major functional areas of business. Topics include linear and non-linear programming models, network models, and simulation models for problems involving uncertainty.

**73-604. Operations Management**

Study of relevant topics recognized as important factors for successful management of business operations. Topics include: processes and their measurement in manufacturing and services, forecasting, aggregate planning, inventory management, quality control, and supply chain management.

**73-606. Strategic Implementation for Technologies Management**

Strategic management of technology and innovation in established firms. The overall course objectives are to help students gain competence in (1) understanding the basic framework for the relationships among a business strategy, an information systems strategy and an organizational strategy; (2) developing an awareness of the range, scope and complexity of the issues and problems related to the strategic management of technology and innovation; (3) developing a conceptual framework for assessing and auditing the innovative capabilities of a business organization and (4) developing insight concerning the skills necessary to be effective in managing the innovation process. The course will use SAP, an enterprise resource planning software, as a simulation tool to explore the strategic use of information systems in a large organization.

**MARKETING**

**74-631. Consumer Behaviour**

A study of analytical concepts and research techniques derived from the behavioural sciences or developed from consumer behaviour research. A significant objective of the course is the application of such concepts and techniques to the solution of marketing problems.

#### **74-632. Marketing Research**

An advanced course assuming familiarity with the conceptual research process, characteristics of basic data collection modes and measurement, hypothesis testing, regression analysis, and analysis of variance. Utilizing a discussion format, the course offers a review of current marketing research literature concerning: 1) examination of properties of familiar data collection and analysis techniques; 2) examples of their application; and 3) introduction to more advanced data collection and analysis methods.

#### **74635. International Marketing Strategy**

A study of the problems faced by Canadian businesses when exploring and distributing to foreign markets. A significant objective of the course is to explore, through research findings, strategies that would improve Canada's international marketing efforts.

#### **74-638. Topics in Marketing**

This course is of varying content dealing with topical issues in marketing. The course might focus on a specific functional area in marketing or a particular environment for the application of marketing concepts. Administration of the course varies as appropriate with its content and might take on a literature survey, research project, experiential, or other format.

#### **74639. Marketing Strategy and Planning**

An analysis of the formation of marketing strategies and plans. Topics covered will include business definitions, developing marketing objectives, selecting market targets, developing all aspects of the marketing mix, and evaluating marketing performance. Marketing decision models, portfolio techniques, generic strategies, PIMS, and related topics will also be covered.

### **BUSINESS STRATEGY AND ENTREPRENEURSHIP**

#### **75-680. Managing the International Enterprise**

This survey course gives students a basic understanding of the international business environment and of the decisions that managers make in international firms. The course begins by considering the historical development of international business and the current global focus of international firms. It then examines the international global environment, including theories of trade and foreign direct investment, balance of payments and international institutions and models for evaluating the environment in order to select the best international strategy or mode of entry for a particular location. Finally, the course briefly examines the functional decisions made in international firms- financial, marketing, operational, human resources- and issues associated with international structure and control.

#### **75-682. Manufacturing Strategy**

Examines the use of manufacturing and operations as weapons in the firm's competitive arsenal. It addresses strategic questions related to the choice of proper process technology, the determination of plant size and location, the extent of vertical integration and the continuous pursuit of quality and productivity.

#### **75-690. Entrepreneurship: New Venture Formation and Management**

Aiming at opening up the entrepreneurial option for students, this course examines entrepreneurship as an economic and a business phenomenon with special emphasis on the process of new venture creation. Through a mix of seminars, case studies, and field research, students explore the topics of finding new venture ideas, developing business ideas and business concepts, conducting feasibility studies, developing business plans, preparing deal structures and financing strategies, launching new

ventures, and initial entrepreneurial management beyond the start-up phase. Students are expected to undertake a new venture creation project culminating with a detailed business plan.

#### **75-692. Topics in Strategic Management**

This is an investigation and discussion of contemporary issues in strategic management and entrepreneurship. The topics to be covered will vary from term to term according to current developments in the business world.

#### **75-698. Strategic Management**

This is the capstone course of the M.B.A. program. It integrates the knowledge gained in prior courses and focuses it on the functions of top management of an organization. Discussion of concepts and current practice are combined with case studies of strategic leadership and strategy formulation and implementation in a domestic and international environment. (Prerequisites: candidate-year standing and all other required courses.)

### **GENERAL M.B.A COURSES**

#### **76-660. Management Skills Development**

This course is designed to provide students with the management skills required for providing feedback, dealing with problem employees, coaching, and problem-solving. It is a practical course with ample opportunity for students to practice the skills in different settings and receive feedback on their performance. (Required for, and open only to, Fast Track students)

#### **76-661. Directed Study**

Under faculty supervision, students undertake an in-depth, individualized program of study to pursue a topic of relevance to business and to develop, apply, and integrate the knowledge acquired in the program.

#### **76-701. M.B.A. Co-op Work Term I**

#### **76-702. M.B.A. Co-op Work Term II**

#### **76-711. Fast-Track M.B.A Co-op Work Term**

#### **76-796. Major Paper** (weight: 2 courses)

#### **76-797. Thesis** (weight: 4 courses)

### **COURSES IN THE M.B.A FOR MANAGERS AND PROFESSIONALS**

#### **77-521. Core Concepts of Accounting I**

An introduction to the role and importance of accounting information in the decision-making process and how to use and interpret various types of accounting information found in financial statements and annual reports. Core concepts of financial accounting will be examined, including the determination of income and the recognition, measurement and reporting of assets, liabilities, and owners' equity. The impact of ethical, regulatory and environmental aspects on the interpretation and application of accounting information will be considered.

#### **77-522. Introduction to Financial Management**

Concerned with the concepts and principles of financial management of the business enterprise within the global financial environment. After an introduction to domestic and international financial markets and instruments, the module covers the concepts of value, risk, and efficient markets followed by an introduction to capital budgeting, financial analysis and planning, and short-term financial management.

**77-523. Quantitative Techniques in Management**

Provides students with a basic but solid background in the quantitative techniques used by successful business organizations. This module will focus on the important aspects of probability and statistics as they relate to the effective presentation of data and to decision making under uncertainty; and on the use of mathematical modelling as it relates to problem solving within an organization.

**76-524. Managing People in Organizations**

Familiarizes students with the knowledge, roles, responsibilities and skills required of today's managers. Three approaches will be examined: systems, process, and behavioural. The contingency view of management as the process of organizing resources to set and accomplish organizational goals will be emphasized.

**77-525. Business Research Methods**

Provides students with a broad understanding of methodological issues in research. Students will develop an understanding of research issues and processes through classroom lectures as well as a hands-on practical research project. Statistical analysis and both quantitative and qualitative methods of research will be discussed.

**77-531. Core Concepts of Accounting II**

Further examine the use and interpretation of accounting information within the context of business and business decision-making. It will explore some of the ways in which accounting information may be utilized for business planning and to solve common business management problems. Core concepts of financial and managerial accounting such as financial statement analysis, tax considerations, cost-volume-profit analysis, budgeting, cost allocation, job order and process costing will be covered. The impact of ethical, regulatory, and environmental aspects on the interpretation and application of accounting information will be considered.

**77-532. Financial Management**

Focus is on the firm's long-term financial decisions. The sources and the mechanics of obtaining long-term financing are covered, together with the discussion of strategic decisions involving capital structure and dividends. The module includes a broader study of financial markets and instruments, including options, with applications in financial management.

**77-533. Management Information Systems**

Learn how to envision, design and evaluate computer-based solutions to typical business problems. Emphasis will be on the contemporary and emerging hardware/software tools, the managing of information, and information technology.

**77-534. Managing Human Resources**

Concerned with the role of human resources activities in facilitating the achievement of organizational effectiveness. Students will gain an understanding of the principles of human resources management and develop some skills they can apply in solving actual people problems at work. Particular attention is given to the roles of labour relations and trade unionism as they pertain to human resources activities. Students will be provided with exposure to both management and labour perspectives to H.R. issues.

**77-536. Marketing Management**

Introduces appropriate marketing management concepts and techniques that can be applied to private sector business as well as to not-for-profit organizations' marketing and communication activities. Emphasis will be on the marketing mix elements of product, price, place, and promotion.

**77-620. Reporting, Analyzing, and Using Accounting Information**

Examines alternative approaches to generating, analyzing and using accounting information. It will emphasize the understanding and the application phases of accounting information by users. Topics include: Accounting entity concepts of control

and significant influence; accounting policy choice; internal control; elements in the consolidated financial statements, such as owners' equity, minority (non-controlling) interest and goodwill; profitability, liquidity and solvency analyses; working capital management; and business valuation.

**77-621. Leadership and Organizational Change**

Provides an analytical framework to understand organizational transformation through (a) leadership and vision building, (b) strategic human resources planning (c) restructuring and redesigning and (d) organization environment interactions. Students will focus on the practical aspects of diagnosing the need for change and supporting, facilitating, or leading the change process.

**77-622. Maximizing the Value of the Organization**

An advanced case course in financial management. Financial concepts and principles of managing a business enterprise are illustrated. Planning for the acquisition and use of funds so as to maximize the value of the firm is examined through the use of case analysis.

**77-623. Marketing Strategy and Planning**

An analysis of the formation of marketing strategies and plans. Topics covered will include business definitions, developing marketing objectives, selecting market targets, developing all aspects of the marketing mix, and evaluating marketing performance. Marketing decision models, portfolio techniques, generic strategies, PIMS, and related topics will also be covered.

**77-624. Managing in the International Arena**

Focuses on the problems and issues that confront managers in the area of international business. The course examines the international global environment, including theories of trade and foreign direct investment, balance of payments and international institutions and models for evaluating the environment in order to select the best international strategy or mode of entry for a particular location. A major objective is to develop a sensitivity that will enhance the student's ability to operate in the complex environment of international business.

**77-625. Strategic Management**

This is the capstone course of the M.B.A. program. It integrates the knowledge gained in prior courses and focuses it on the functions of top management of an organization. Discussion of concepts and current practice are combined with case studies of strategic leadership and strategy formulation and implementation in a domestic and international environment.

**77-626. Strategic Implementation for Technologies Management**

Strategic management of technology and innovation in established firms. The overall course objectives are to help students gain competence in (1) understanding the basic framework for the relationships among a business strategy, an information systems strategy and an organizational strategy; (2) developing an awareness of the range, scope and complexity of the issues and problems related to the strategic management of technology and innovation; (3) developing a conceptual framework for assessing and auditing the innovative capabilities of a business organization and (4) developing insight concerning the skills necessary to be effective in managing the innovation process.

**77-627. Business Negotiation and Problem Solving**

Highlights the role of effective negotiation for resolving conflict and sharing resources and power in complex organizations. Students will be exposed to various styles of negotiating, problem solving and bargaining strategies as well as communication approaches aimed at enhancing organizational performance

**77-628. Entrepreneurship and Intrapreneurship**

Aiming at developing entrepreneurial thinking in students, this course examines entre-



and intrapreneurship as an economic and a business phenomenon with special emphasis on the process of new venture creation. Students explore the topics of finding new venture ideas, developing business ideas and business concepts, conducting feasibility studies, developing business plans, preparing deal structures and financing strategies, launching new ventures, initial entrepreneurial management beyond the start-up phase and the successful development of such initiatives within a corporate environment.

**77-629. Current issues in Business**

This is an investigation and discussion of contemporary issues and current challenges to businesses. The topics to be covered will vary for each offering according to current developments in the business world and will be announced in the previous term.

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- [Business: Programs](#)
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[Chemistry and Biochemistry: Graduate Faculty](#)

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- [Chemistry and Biochemistry: Courses](#)

[Communication Studies: Graduate Faculty](#)

- [Communications Studies: Programs](#)

## CHEMISTRY AND BIOCHEMISTRY

### GRADUATE FACULTY

#### Professors Emeriti

Drake, John E.; B.Sc., Ph.D., D.Sc. (South-ampton), F.C.I.C.-1969.

McGarvey, Bruce R.; B.A. (Carleton Col-lege), M.A., Ph.D. (Illinois), F.C.I.C.-1972.

#### University Professors

Stephan, Douglas W.; B.Sc. (McMaster), Ph.D. (Western Ontario)-1982.

Aroca, Ricardo; B.Sc. (Chile), Ph.D. (Moscow State), D.Sc. (Leningrad)-1985.

Loeb, Stephen J.; B.Sc., Ph.D. (Western Ontario), F.C.I.C.-1990.

#### Professors

Taylor, Keith E.; B.Sc., Ph.D. (Toronto)-1976.

Mutus, Bulent; B.Sc., M.Sc. (Waterloo), Ph.D. (Manitoba)-1982.

#### Associate Professors

Lee, Lana; A.B. (Mount Holyoke), Ph.D. (Alberta)-1986.

Green, James R.; B.Sc. (Windsor), Ph.D. (Waterloo)-1989.

Antonelli, David M.; B.Sc., Ph.D. (Alberta)-1997.

#### Assistant Professors

Letcher, Robert J.; B.Sc. (Toronto), M.Sc., Ph.D. (Carleton)-2000.

Schurko, Robert W.; B.Sc., M.Sc. (Mani-toba), Ph.D. (Dalhousie)-2000.

Ananvoranich, Sirinart; B.Sc., M.Sc. (Chu-lalongkorn), Ph.D. (Concordia)-2000.

Pandey, Siyaram; B.Sc., M.Sc. (Banaras), Ph.D. (Jawaharlal Nehru)-2000.

Gauld, James W.; B.Sc. (Queensland), B.Sc. (Hon) (Northern Territory), Ph.D. (Australian National)-2001.

Eichhorn, S. Holger; Dipl.Chem., Ph.D. (Bremen)-2001.

• **Communciation Studies:**  
Courses

Macdonald, Charles L.B.; B.Sc., Ph.D. (Dalhousie)-2001.

Computer Science: Graduate  
Faculty

Wang, Jichang; B.Sc. (Tsinghua), Ph.D. (Copenhagen)-2002.

• Computer Science:  
Programs

Johnson, Samuel; B.Sc. (Mcmaster), Ph.D. (British Columbia) - 2002.

• Computer Science: Courses

Vacratsis, Panayiotis O.; B.Sc. (Eastern Michigan), Ph.D. (Michigan State)-2003.

Earth Sciences: Graduate  
Faculty

Thadani, Avinash N., B.Sc. (Toronto-Mississauga), Ph.D. (Toronto)-2004.

• Earth Sciences: Programs  
• Earth Sciences: Courses

**Adjunct Professors**

Economics: Graduate Faculty

Adeli, Khosrow; B.Sc. (Tehran), M.Sc., Ph.D. (Ottawa), Dipl. Clin. Chem. (Toronto)-1988.

• Economics: Programs  
• Economics: Courses

Nazri, Gholam-Abbas; B.S., M.S. (Tehran), Ph.D. (Case Western Reserve); Scientist, General Motors Research, Warren-1991.

Faculty of Education:  
Graduate Faculty

Artiss, Joseph D.; B.Sc., Ph.D. (Windsor)-1994.

• Education: Programs  
• Education: Courses

Hutnik, Cindy; B.Sc. (Windsor), Ph.D., M.D. (Ottawa), F.R.C.S.C.-1999.

Faculty of Engineering:  
Programs of Study Overview

Macri, Joseph; B.A., B.Sc., Ph.D., Dipl.Clin.Chem. (Windsor)-2001.

• General Courses,  
Engineering

Civil and Environmental  
Engineering (CEE): Graduate  
Faculty

• CEE: Areas of Specialization  
• CEE: Courses

Electrical Engineering:  
Graduate Faculty

• Electrical Engineering:  
Areas Of Specialization  
• Electrical Engineering:  
Courses

Engineering Materials:  
Graduate Faculty

• Engineering Materials:  
Areas of Specialization  
• Engineering Materials:  
Courses

Industrial and Manufacturing  
Systems Engineering (IMSE):  
Graduate Faculty

• IMSE: Areas of  
Specialization  
• IMSE: Courses

Mechanical, Automotive, and  
Materials Engineering  
(MAME): Graduate Faculty

• MAME: Areas of  
Specialization

- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
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Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
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Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
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Philosophy: Graduate Faculty

- Philosophy: Programs
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Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

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## CHEMISTRY AND BIOCHEMISTRY: PROGRAMS OF STUDY

### [Chemistry and Biochemistry \(MSc\)](#) [Chemistry and Biochemistry \(PhD\)](#)

Facilities are provided for students wishing to proceed to the degrees of Master of Science and Doctor of Philosophy. Students may enrol in graduate studies in Chemistry and Biochemistry. Additional requirements may be found in the Chemistry and Biochemistry Graduate Handbook.

### THE DOCTOR OF PHILOSOPHY DEGREE

In addition to the general requirements outlined in 1.5.2, the following requirements must be met by all students proceeding to the Ph.D. degree:

1) *Course Work*: Candidates must complete successfully at least eight courses, including [59-710](#) (or four courses if the candidate enters the program with an M.Sc. degree) chosen from the available graduate offerings in the student's field or from related and cognate courses, with the approval of the Program Committee. Credit for up to a maximum of two courses may be given for equivalent courses provided that a grade of at least A- was achieved in the courses.

2) *Seminars*: In addition to the above course work, students must attend the regular departmental Seminar ([59-795](#)) throughout their Ph.D. studies and present at least one seminar on their research as a fulfilment of this requirement.

3) *Dissertation*: The principal requirement for the Ph.D. degree is the presentation of a dissertation which embodies the results of an original investigation ([59-798](#)). For general requirements of the dissertation, see 1.5.3.

A student who fails to achieve satisfactory performance in all aspects of the program (e.g., course work, seminars, and dissertation work) may be required to withdraw.

4) *Doctoral Committee*: The Ph.D. committee is chosen in the manner described in 1.5.2. This committee will meet with the student annually to review his or her progress. As part of this review the student will present a short seminar on his or her research progress.

5)

(a) *Transfer to the Ph.D. program*: M.Sc. students with a minimum of an A- average in a minimum of two courses taken as a graduate student may transfer directly to the Ph.D. program following a meeting with the Graduate Advisory Committee (with participation of the Outside Reader optional) at which approval to transfer is recommended. Such

• [Communciation Studies: Courses](#)

transfers will normally take place between the 12th month to the 24th month after admission to the M.Sc. II program.

• [Computer Science: Graduate Faculty](#)

• [Computer Science: Programs](#)

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(b) *Comprehensive Examination:* Students in the Ph.D. program will be required to complete an oral comprehensive examination within the first twelve months following admission into the Ph.D. program. The examination will take the form of a ten to twenty minute presentation of the student's research work to date, followed by a question and answer session in which the student's depth of knowledge of the field of research and the underlying chemical and/or biochemical principles will be examined. The student will be assessed by a committee of three members comprised of the research advisor and two other faculty members from Chemistry and Biochemistry, with additional members optional. As a guide to the student, the committee may provide some directed readings prior to the examination. The student will be expected to understand the subject matter and background of these topics. A grade of Pass or Fail will be given. In the event of a failing grade, the student may be allowed a second examination within one month, or a specific assignment for subsequent evaluation at the discretion of the examining committee. It may be possible that the student will not be allowed to repeat the examination.

• [Earth Sciences: Graduate Faculty](#)

• [Earth Sciences: Programs](#)

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• [Economics: Graduate Faculty](#)

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(c) *Final Examination:* Each candidate will take a final oral examination in defense of the dissertation on the recommendation of the doctoral committee. An external examiner, chosen for acknowledged scholarship in the appropriate field of chemistry or biochemistry, will normally be present during the oral examination. The external examiner will be selected by the doctoral committee, subject to the approval of the Dean of Graduate Studies and Research. The examination will be public and will involve a short seminar presentation by the candidate. The examination will be chaired by the Dean of Graduate Studies and Research or delegate.

• [Faculty of Engineering: Programs of Study Overview](#)

• [General Courses, Engineering](#)

• [General Courses, Engineering](#)

## THE MASTER OF SCIENCE DEGREE

• [Civil and Environmental Engineering \(CEE\): Graduate Faculty](#)

• [CEE: Areas of Specialization](#)

• [CEE: Courses](#)

In addition to the general requirements and stipulations outlined in 1.6.2 for the Master's degree, the following requirements must be met by students proceeding to the M.Sc. degree.

• [Electrical Engineering: Graduate Faculty](#)

• [Electrical Engineering: Areas Of Specialization](#)

• [Electrical Engineering: Courses](#)

• [Electrical Engineering: Courses](#)

• [Electrical Engineering: Courses](#)

1) *Course Work:* Candidates must complete successfully at least four courses chosen from the available graduate offerings in the student's field or from related and cognate courses, with the approval of the Program Committee. Credit for up to a maximum of two courses may be given for equivalent courses provided a grade of at least A- was achieved in the course.

• [Engineering Materials: Graduate Faculty](#)

• [Engineering Materials: Areas of Specialization](#)

• [Engineering Materials: Courses](#)

• [Engineering Materials: Courses](#)

• [Engineering Materials: Courses](#)

2) *Seminars:* In addition to the above course work, students must attend the regular departmental Seminar ([59-795](#)) throughout their M.Sc. studies as a fulfilment of this requirement.

3) *Thesis:* A student must undertake original research and embody the results in a thesis ([59-797](#)). The student will then be examined by a committee.

• [Industrial and Manufacturing Systems Engineering \(IMSE\): Graduate Faculty](#)

• [IMSE: Areas of Specialization](#)

• [IMSE: Courses](#)

• [IMSE: Courses](#)

• [IMSE: Courses](#)

A student who fails to achieve satisfactory performance in all aspects of the program (e.g., course work, seminars, thesis work or major critique) may be required to withdraw.

• [Mechanical, Automotive, and Materials Engineering \(MAME\): Graduate Faculty](#)

• [MAME: Areas of Specialization](#)

• [MAME: Areas of Specialization](#)

• [MAME: Areas of Specialization](#)

• [MAME: Areas of Specialization](#)

4) *Master's Committee and Final Examinations:* The Master's committee is chosen in the manner described in 1.6.2. The final examination will take the form of an open seminar in the presence of the Master's committee (see 1.6.3). The examination will be open to the public.

- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
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- Chemistry and Biochemistry: Programs
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- Communications Studies: Programs

## CHEMISTRY AND BIOCHEMISTRY: COURSE DESCRIPTIONS

All of the courses listed will not necessarily be offered in any one year. Topics courses may be taken several times provided the course content is different. Where prerequisites are not stated, consent of the instructor is required.

**59-521. Special Topics in Analytical Chemistry**  
(Prerequisite: [59-321](#).) (2 lecture hours a week.)

**59-531. Special Topics In Organic Chemistry**

Topics may include polymer chemistry, natural product chemistry, physical organic chemistry, or design and execution of organic syntheses. (Prerequisite: [59-331](#) or consent of instructor.) (2 lecture hours a week.)

**59-535. Advanced Organic Chemistry**

Physical organic chemistry. Includes molecular orbital theory, stereochemistry, thermodynamics, and reaction mechanisms. (Prerequisite: consent of instructor.) (2 lecture hours a week.)

**59-541. Statistical Thermodynamics**

A detailed picture of the current status of advanced experimental and theoretical research in modern reaction dynamics. Subjects to be discussed include transition state spectroscopy, coincidence imaging technique, ion imaging applied to the study of chemical dynamics, nonlinear reaction dynamics in both stirred and reaction-diffusion media, theoretical dynamics treatment of chemical reactions. (2 lecture hours a week.)

**59-542. Nuclear Magnetic Resonance Spectroscopy**

Theory and applications of NMR in chemical problems, including the origin of the NMR phenomenon, Fourier transforms and spectral processing, spectrometer hardware, pulse sequences, NMR interactions, relaxation and chemical exchange, double-resonance experiments and two-dimensional NMR. (2 lecture hours a week.)

**59-545. Special Topics in Physical Chemistry**  
(2 lecture hours a week.)

**59-546. Advanced Topics in Spectroscopy**

Electronic and vibrational spectroscopy of gases, liquids, and solids. Theory and practice of infrared and Raman spectroscopy. Theory and applications of electron spin resonance spectroscopy. (2 lecture hours a week.)

**59-550. Special Topics in Inorganic Chemistry**

A variety of subjects in inorganic chemistry are covered at the discretion of the instructor. The subjects covered may include: main group chemistry, transition metal chemistry, organometallic chemistry, inorganic materials, and group theory. (3 lecture hours a week.)

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- [Earth Sciences: Programs](#)
- [Earth Sciences: Courses](#)

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**59-552. Topics in Inorganic Chemistry and Organometallic Chemistry**

Topics to be arranged by the instructor, based primarily upon new developments in the field as illustrated by the current research interests of the faculty, as well as by a study of the current literature. (2 lecture hours a week.)

**59-553. X-ray Crystallography**

Theoretical and experimental aspects of single crystal X-ray diffraction methods for the determination of molecular structures. (2 lecture hours a week.)

**59-564. Advanced DNA Science**

An advanced lecture and seminar course dealing with DNA science. The lectures cover the biochemistry of DNA and RNA at the molecular levels, the current research topics and their implications for the future research. The course also contains a seminar component in which a number of selected topics will be discussed and presented by and among participants. (Prerequisites: [59-468](#) or equivalent, or consent of instructor.) (2 lecture hours a week.)

**59-565. Membrane Biochemistry**

The structure and function of artificial and natural membranes. Special consideration will be given to the identification and function of membrane proteins. (Prerequisites: [59-360](#) and [59-361](#) or [59-362](#) and [59-363](#), or equivalent.) (2 lecture hours a week.)

**59-570. Advanced Quantum Chemistry**

Perturbation and variation theories. Theories of many electron atoms and general theories of chemical bonds in diatomic and polyatomic molecules. (Prerequisite: [59-341](#) or equivalent.) (3 lecture hours a week.)

**59-581. Analytical Toxicology**

Analysis of drugs and other toxic substances in biological fluids. The metabolism of drugs as well as the symptomology of poisoning of common therapeutic drugs and the more common industrial chemicals will be discussed. (Prerequisites: [59-360](#) and [59-361](#) or [59-362](#) and [59-363](#), or consent of instructor.) (2 lecture hours a week.)

**59-600. Directed Special Studies**

A special course of studies with content and direction approved by the student's research advisor and supervisory committee. Although there may be no formal lecture requirements, the course will be equivalent to three one-hour lectures a week for one term. The student will be required (a) to produce a critical review which will be assessed by his or her supervisory committee; the presentation and standard of the review must be appropriate for publication in a scientific journal; (b) to spend one term working in an agreed industrial setting; the quality of work will be assessed by the supervisory committee. This work may be related to but not part of the research undertaken in [59-797](#) or [59-798](#). (Prerequisite: approval of the Program Committee.)

The course cannot be repeated for credit under (a) above. Under normal circumstances, M.Sc. students may take this course only once; Ph.D. students may register under (b) above for two terms of this industrial experience.

**59-620. Analytical Spectroscopy of Surfaces**

Surface spectroscopic techniques and their application to the analysis of chemisorbed and physisorbed species and monomolecular layers. (Prerequisite: [59-321](#) or equivalent.) (2 lecture hours a week.)

**59-630. Synthetic Methods in Organic Chemistry**

A study of some important organic reactions with emphasis on their practical application in synthesis. (Prerequisites: [59-330](#) and [59-331](#), or consent of instructor.) (2 lecture hours a week.)

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Mathematics and Statistics:  
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Faculty of Nursing: Graduate  
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Philosophy: Graduate Faculty

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- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

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Psychology: Graduate Faculty

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Social Work: Graduate  
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**59-631. Advanced Topics in Organic Syntheses**

The design, execution, and methodology of total syntheses of complex molecules will be discussed. Emphasis will be placed on both retrosynthetic pathways and execution. (Prerequisites: [59-330](#) and [59-331](#), or consent of instructor.) (2 lecture hours a week.)

**59-633. Current Topics in Organic Chemistry**

Topics to be arranged by the instructor, based primarily upon new developments in the field as illustrated by the current research interests of the faculty, as well as by a study of the current literature. (Prerequisites: [59-331](#) or consent of instructor.) (2 lecture hours a week.)

**59-634. Advanced Topics in Organic Chemistry**

Special topics in organic chemistry will be described. Some of these may include natural product chemistry, organometallic chemistry or heterocyclic chemistry. (Prerequisite: consent of instructor.) (2 lecture hours a week.)

**59-636. Advanced Topics in Organic Materials Chemistry**

Synthetic approaches as well as physical properties of organic materials such as conducting structures, liquid crystals, dyes, and light emitters are covered. An in-depth understanding of structure-property relationships is the main goal.

**59-651. Organometallic Chemistry**

A detailed study of selected advanced topics in organometallic chemistry. Typical subjects include (at the discretion of the instructors) main group organometallic chemistry; thermochemical methods in organometallic chemistry; catalysis by organometallics; detailed structural studies. (2 or 3 lecture hours a week.)

**59-653. Advanced Topics in Organometallic Chemistry**

Topics to be arranged by the instructor, based primarily upon new developments in the field as illustrated by the current research interests of the faculty, as well as by a study of the current literature. (2 lecture hours a week.)

**59-655. Selected Topics in Inorganic Chemistry**

The chemistry and properties of inorganic materials. Typical topics include: methods of synthesis, methods of characterization, and applications of inorganic materials. (2 lecture hours a week.)

**59-660. Protein Chemistry I**

Protein chemistry; chemical modification, protein folding, post-translational modification, lipoproteins, and glycoproteins. (Prerequisite: [59-365](#) or equivalent.) (2 lecture hours a week.)

**59-661. Protein Chemistry II**

Biophysical chemistry; advanced kinetic techniques, pre-steady state, perturbation based methods, review of instrumentation, and examples of how these techniques are currently used to solve biochemical problems. (Prerequisite: [59-660](#).) (2 lecture hours a week.)

**59-663. Special Topics in Biochemistry**

(Prerequisites: [59-360](#) and [59-361](#), or [59-362](#) and [59-363](#), or equivalent.) (2 lecture hours a week.)

**59-671. Special Topics in Theoretical Chemistry**

Topics to be selected by registrants but will generally be molecular orbital calculations for organic and inorganic chemists. (2 lecture hours a week.)

**59-684. Cell Death and Diseases**

A detailed biochemical study of physiological (apoptosis) and pathological (necrotic) cell death in mammalian systems. Role of physiological cell death (apoptosis) during

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development and tissue homeostasis, immune system and cancer. Various inducers of cell death and mechanism of apoptotic cell death. Role of cell death in disease development: viral infections, stroke, and neurodegenerative disorders, oxidative stress, cell death and aging, Therapeutic opportunities: identification of new targets for drug development based on the biochemistry of cell death. Developing new therapeutic approaches e.g. combinatorial treatment for systemic diseases, new vaccine approaches and gene therapy. (2 lecture hours per week.)

**59-686. Advanced Bioanalytical Topics**

(Prerequisite: [59-360](#) or [59-362](#), or equivalent.) (2 lecture hours a week.)

**59-710. The Research Proposal**

This course focuses on the development and presentation of a research proposal, as well as the cultivation of a wide base of knowledge of the chemical and biochemical literature. Techniques of research proposal composition, with particular reference to subject area, budgetary considerations, and written and oral presentation techniques will be discussed. The student will be required to develop and defend his or her own research proposal in chemistry and/or biochemistry. The subject of this proposal must not be from the research work undertaken for the Ph.D. thesis. A written proposal will be submitted to the student's advisory committee and will be followed by an oral presentation and defense of the proposal. The advisory committee will evaluate the originality, the significance, the clarity of the written and oral presentation, and the student's knowledge of the area in the defense. (Prerequisite: registration in the Ph.D. program. The oral presentation and proposal defense will take place during the term of registration.)

**59-795. Seminar**

**59-797. Master's Thesis**

**59-798. Doctoral Dissertation**

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## COMMUNICATION STUDIES

### GRADUATE FACULTY

#### Professors

Winter, James P.; B.J., M.J. (Carleton), Ph.D. (Syracuse)-1981.

#### Associate Professors

Ruggles, Myles A.; M.A., Ph.D. (Simon Fraser)-1994.

Machiorlatti, Jennifer; B.A., M.A. (Michigan State), Ph.D. (Wayne State)-1999.

Scatamburlo-D'Annibale, Valerie L.; B.A., M.A. (Windsor), Ph.D. (York)-2000.

Morris, Martin J.; B.A., M.A. (Canterbury, New Zealand), Ph.D. (York)-2002.

#### Assistant Professors

Virdi, Jyotika; B.A. (St. Stephen), M.A. Social Work (Delhi), M.A. (Cornell), Ph.D. (Oregon)-1998.

Talreja, Sanjay; B.Comm., B.Law (Bombay), M.F.A. (Ohio)-2002.

Bae, Min; B.F.A. (Kyung Pook National Univ.), Dip.Creation of Cinema (Ecole Supérieure d'Etudes Cinématographiques), M.F.A. (Concordia)-2003.

#### Adjunct Assistant Professor

Bryant, Susan E.; B.A., M.E.S. (York), Ph.D. (Simon Fraser)-2003.

• Communication Studies:  
Courses

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- Computer Science: Courses

Earth Sciences: Graduate  
Faculty

- Earth Sciences: Programs
- Earth Sciences: Courses

Economics: Graduate Faculty

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- Economics: Courses

Faculty of Education:  
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Electrical Engineering:  
Graduate Faculty

- Electrical Engineering:  
Areas Of Specialization
- Electrical Engineering:  
Courses

Engineering Materials:  
Graduate Faculty

- Engineering Materials:  
Areas of Specialization
- Engineering Materials:  
Courses

Industrial and Manufacturing  
Systems Engineering (IMSE):  
Graduate Faculty

- IMSE: Areas of  
Specialization
- IMSE: Courses

Mechanical, Automotive, and  
Materials Engineering  
(MAME): Graduate Faculty

- MAME: Areas of  
Specialization

- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
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- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
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Psychology: Graduate Faculty

- Psychology: Programs
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Social Work: Graduate  
Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

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Visual Arts: Graduate Faculty

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## COMMUNICATION STUDIES: PROGRAMS OF STUDY

### Communication and Social Justice (MA)

#### THE MASTER OF ARTS DEGREE

M.A. IN COMMUNICATION AND SOCIAL JUSTICE

#### Admission Requirements

Applicants should submit a portfolio consisting of : (i) a completed application form; (ii) a personal profile in accordance with the format prescribed by the Program; (iii) a C.V.; (iv) an official transcript of grades attained in undergraduate courses; (v) two letters of reference; and (vi) a sample of writing from undergraduate courses and/or a media production or multimedia portfolio. Normally, successful applicants will have an Honours B.A. in Communication or a cognate discipline; however, students lacking this formal requirement but having equivalent qualifications (for example, significant experience with a social justice agency or having engaged for a significant time in social justice related activities) are also encouraged to apply. Students lacking formal admission requirements may be required to enroll in a make-up year.

#### Program Curriculum Structure

Students choosing to prepare a thesis will be required to complete four, one-semester, courses in addition to the thesis, two of which must be the Pro-Seminar (40-500) and 40-501 (Critical Communication Theories). Students electing not to prepare a thesis will be required to complete 6 courses, two of which must be 40-500 and 40-501; they must also prepare a major paper which may evolve from one of the courses; presentation of the paper proposal and its defense, however, will be open to all faculty and students, as will be the case for all thesis proposals and defences. (Courses taken in other programs may be counted for credit with the prior permission of the Graduate Chair.)

• Communciation Studies:  
Courses

Computer Science: Graduate  
Faculty

- Computer Science:  
Programs
- Computer Science: Courses

Earth Sciences: Graduate  
Faculty

- Earth Sciences: Programs
- Earth Sciences: Courses

Economics: Graduate Faculty

- Economics: Programs
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Faculty of Education:  
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Engineering Materials:  
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Areas of Specialization
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Industrial and Manufacturing  
Systems Engineering (IMSE):  
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Faculty

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Psychology: Graduate Faculty

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Social Work: Graduate  
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## COMMUNICATION STUDIES: COURSE DESCRIPTIONS

### **40-500. Pro-Seminar**

Development of intellectual skills and exploration of procedures and requirements relevant to graduate study and intellectual life. Other topics will include: communication ethics; introduction to themes of social justice and the common good; research methods and thesis preparation. Research studies will be introduced and students will develop and present proposals for major papers and theses.

### **40-501. Critical Theories of Communication**

A review of critical theories of communication in the context of social justice themes. Key topic areas include theories of commodification, ideology, cultural production and representation, art and politics, communication and democracy, information, and globalization.

### **40-512. Communication and Social Movements**

Examines the use of traditional and non-traditional forms of communication that have been used within, and by, a variety of social movements and social formations. The course draws upon a combination of new social movement theory and critical media and cultural studies. Areas of focus will include the following: an assessment of (i) the contribution of new communication technologies to social activism and social movements; (ii) the representations of social movements in the context of political/economic/social change; (iii) the diversity and importance of alternative media as a central component of movements for social justice.

### **40-513. History of Communication Thought and Technology**

Examines the evolution of media technology from perspectives of dependency theory, political economy, and critical cultural studies. Communication thought from the Greeks to the present, with emphasis on Canadian and U.S. Communication thought and international communication from the perspective of social justice and the common good will be analyzed.

### **40-514. Political Economy of Communication**

Study of social relations influencing the production, distribution and consumption of communication resources. Case studies and histories of media institutions will be examined from the perspective of political economy with comparisons to other approaches, such as neoclassical approaches. Place of communication in world economies and cultures and current issues in the political economy of communication will be examined.

### **40-515. Media Representation and Reception**

A broad range of media modes and texts, such as documentary, experimental, music-video, feature, television, and the emerging digital formats, will be examined in terms of their aesthetics, poetics, history, and cultural politics. Studies in audience reception through both statistical market-survey methods and qualitative ethnographic methods of research will be presented for comparison and critical reflection.

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[Mechanical, Automotive, and Materials Engineering \(MAME\): Graduate Faculty](#)

- [MAME: Areas of Specialization](#)

**40-516. Seminar, Media Praxis**

An exploration of the interplay of aesthetic, sociocultural and political implications of media. [NOTE: one medium or a combination of media, e.g., film, television, etc. may be selected for study by the instructor]. A substantial aspect of the course will involve designing, writing and producing a media project that examines and promotes social justice issues. Previous and significant experience in media production is a prerequisite.

**40-520. Directed Study**

Normally reserved for students not writing a thesis. With approval of the graduate program director, a student may undertake to write an original paper on a specialized topic which will enhance his or her program of study. The course will involve directed supervision of readings and informal discussion with the student's course supervisor.

**40-590. Selected Topics**

Selected advanced topics in Communication Studies based on special faculty interests and opportunities afforded by the availability of visiting professors. Special topics courses are subject to Graduate Committee approval. (May be repeated for credit provided that the topics differ.) (3 lecture hours a week.)

**40-796. Major Paper**

**40-797. Thesis**

- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
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Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
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Physics: Graduate Faculty

- Physics: Programs
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Political Science: Graduate  
Faculty

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Psychology: Graduate Faculty

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Social Work: Graduate  
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## COMPUTER SCIENCE

### GRADUATE FACULTY

#### Professors

Kent, Robert D., B.Sc. (Hons.) (British Co-lumbia), M.Sc., Ph.D. (Windsor)-1982.

Bandyopadhyay, Subir; B.Sc., B. Tech., M. Tech. (Calcutta), M. Math. (Waterloo), Ph.D. (Calcutta)-1984.

Frost, Richard A.; B.Sc. (Hons.) (London), M.Sc. (Aberdeen), Ph.D. (Strathclyde)-1987.

Mukhopadhyay, Asish; B.Sc., M.Sc. (Calcutta), Ph.D. (Bangalore)-1999.

#### Associate Professors

Morrissey, Joan; B.Sc., Ph.D. (Dublin)-1989.

Li, Liwu; M.Sc. (Peking), Ph.D. (Alberta)-1991.

Jaekel, Arunita; B.Engg. (Calcutta), M.A.Sc., Ph.D. (Windsor)-1995.

Ezeife, Christie I.; B.Sc. (Hons.) (Ife), M.Sc. (SFU), Ph.D. (Manitoba)-1996.

Chen, Xiao J.; B.C.S. (Beijing), Ph.D. (Pisa)-1997.

Boufama, Boubakeur; Engg. (Constantine), M.Sc. (France), Ph.D. (Grenoble)-1999.

Aggarwal, Akshai; B.Sc. (Punjab), M.E., Ph.D. (Baroda)-2000.

Sodan, Angela C.; B.Sc., M.Sc., Ph.D. (Berlin)-2000.

Yuan, Xiaobu; B.Sc. (China), M.Sc. (Sinica), Ph.D. (Alberta)-2001.

Goodwin, Scott; B.Math (Hons.), M.Math (Waterloo), Ph.D. (Alberta)-2001.

Ahmad, Imran; B.Sc., M.Sc. (Karachi), M.Sc. (Central Michigan), Ph.D. (Wayne State)-1998.

Ngom, Alioune; B.Sc. (Quebec), M.Sc., Ph.D. (Ottawa)-2000.

Lu, Jianguo; B.Sc., M.Sc., Ph.D. (Nanjing)- 2002.

#### Assistant Professors

EI-Marakby, Randa; B.Sc. (American Uni-versity, Cairo), M.Sc. (North Texas), Ph.D.

- **Communciation Studies: Courses** (Lancaster)-2000.
- Computer Science: Graduate Faculty** Tawfik, Ahmed; B.Sc. (Cairo), M.Sc. (Ne-braska), Ph.D. (Saskatchewan)-2000.
- **Computer Science: Programs** Rueda, Luis; Lic. (San Juan), M.C.S., Ph.D. (Carleton)-2002.
- **Computer Science: Courses** Wu, Dan; B.Sc. (Wuhan), M.Sc. (Beijing), Ph.D. (Regina)-2003.

**Earth Sciences: Graduate Faculty**

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**Economics: Graduate Faculty**

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**Faculty of Education: Graduate Faculty**

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- **CEE: Courses**

**Electrical Engineering: Graduate Faculty**

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- **Electrical Engineering: Courses**

**Engineering Materials: Graduate Faculty**

- **Engineering Materials: Areas of Specialization**
- **Engineering Materials: Courses**

**Industrial and Manufacturing Systems Engineering (IMSE): Graduate Faculty**

- **IMSE: Areas of Specialization**
- **IMSE: Courses**

**Mechanical, Automotive, and Materials Engineering (MAME): Graduate Faculty**

- **MAME: Areas of Specialization**

**Adjunct Professors**

- Kabanza, Froduald; Lic. B.Bc. (Liege), Ph.D. (Belgium)-2002.
- Wang, Shengrui; B.Math (Hebei), M.Appl.Math (J. Fournier), Ph.D. (INPG)-2002.
- Wong, S.K. Michael; B.Sc. (Hong Kong), M.A., Ph.D. (Toronto)-2004.

**Cross-Appointments**

- Aneja, Yash Paul; M.Sc., B.Sc. (Indian Statistical Inst.), Ph.D. (John Hopkins)-1984.
- Ali, Adnan; B.Sc. (Punjab), M.Sc. (Quaid-I-Azam), M.Sc., Ph.D. (Waterloo)-2001.

- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
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Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
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Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
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- Political Science: Programs
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Psychology: Graduate Faculty

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## COMPUTER SCIENCE: PROGRAMS OF STUDY

[Computer Science \(MSc\)](#)  
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### THE DOCTOR OF PHILOSOPHY DEGREE

The general regulations for the Degree of the Doctor of Philosophy (Ph.D.) at the University of Windsor, as set out in Section 1.5 of the Calendar of the Faculty of Graduate Studies and Research, will apply together with the more specific requirements for the degree of Ph.D. in Computer Science given in the following section. For admission, continuation in good standing, and graduation, students must satisfy both the general university regulations and the specific regulations for Computer Science.

#### Admission Requirements

In order to be considered for admission to the doctoral program in Computer Science, applicants must have completed a thesis-based Master's degree in Computer Science, or, have completed a course-based Master's degree in Computer Science, and have demonstrated to the Admissions Committee, the ability to conduct independent research through the completion of research-oriented project work or appropriate research experience in industry or academia.

#### Outline of Degree Requirements

- All Ph.D. students must fulfill the following graduate academic requirements:
- (a) A qualifying examination within four months after entering the program.
  - (b) No less than two and usually no more than four graduate courses.
  - (c) A comprehensive examination within two years after entering the program.
  - (d) A research proposal within two years of entering the program.
  - (e) Submission of an annual progress report.
  - (f) Presentation of three seminars, including the research proposal.
  - (g) A final examination consisting of a Ph.D. dissertation defense ([60-798](#)).

#### Qualifying Examination

The qualifying examination must be taken by all students entering the doctoral program.

The qualifying examination is intended to ensure that the student has a mastery of the fundamentals in Computer Science in order to undertake research. This is a breadth requirement in that it does not require the student to be able to undertake research in each of the fundamental areas. Rather, the student must demonstrate knowledge, in each of the fundamental areas, at a level that would be expected of a graduate from a four-year honours Computer Science university-degree program.

• **Communciation Studies:**  
Courses

The student must obtain at least an overall grade of B in the tests and/or course works done for the qualifying examination.

**Computer Science: Graduate Faculty**

**Graduate Courses**

- Computer Science: Programs
- Computer Science: Courses

Each student must complete no less than two and usually no more than four graduate Computer Science courses, not including those taken for credit in a Master's degree, and not including seminar or thesis courses. Graduate course selection will be determined by the student's Doctoral Committee. Graduate credit will be given for a grade of B- or higher in a graduate course.

**Earth Sciences: Graduate Faculty**

**Comprehensive Examination**

- Earth Sciences: Programs
- Earth Sciences: Courses

The comprehensive examination is one in which the student is asked to demonstrate a reasonable mastery of the field of specialization; it is designed to test the student's command of knowledge and ability to integrate that knowledge, after completion of all or most of the graduate course work. Normally, this examination is completed during the second year of graduate study and is a prerequisite to admission to candidacy.

**Economics: Graduate Faculty**

**Admission to Candidacy**

- Economics: Programs
- Economics: Courses

A student is admitted to candidacy when the student has passed the qualifying examination, has completed all of the required graduate courses, and has passed the comprehensive examination.

**Faculty of Education: Graduate Faculty**

A detailed description of the regulation for the doctoral program can be obtained from the graduate secretary of the School of Computer Science.

- Education: Programs
- Education: Courses

**THE MASTER OF SCIENCE DEGREE**

**Admission Requirements**

**Faculty of Engineering: Programs of Study Overview**

- General Courses, Engineering

Graduates of the University of Windsor or of other recognized colleges or universities may be admitted to programs leading to the Master's degree. A student with an honours Bachelor's degree or equivalent with adequate specialization in Computer Science and with at least B standing in the major subject may be admitted to a minimum one-year Master's program (II Master's Candidate). A student with an honours Bachelor's degree in a related subject and with at least B standing in the major subject may be admitted to a minimum two-year Master's program (I Master's Qualifying followed by II Master's Candidate) or to a minimum two-year II Master's Candidate program depending upon prior qualifications.

**Civil and Environmental Engineering (CEE): Graduate Faculty**

- CEE: Areas of Specialization
- CEE: Courses

Students with deficiencies in some areas of Computer Science may be required to make up those deficiencies by registering in undergraduate courses prior to or as part of their graduate program or by following a program of supervised reading.

**Program Requirements**

**Electrical Engineering: Graduate Faculty**

- Electrical Engineering: Areas Of Specialization
- Electrical Engineering: Courses

1) The requirements for the degree of Master of Science will be satisfied by pursuing a program of studies consisting of six approved courses and a thesis. (A thesis is a major research project which must involve substantial innovative work generally culminating in original results.)

**Engineering Materials: Graduate Faculty**

- Engineering Materials: Areas of Specialization
- Engineering Materials: Courses

2) Courses [60-510](#) and [60-520](#) will be required of all candidates. Master's II students must register in [60-510](#) in the first term of their studies.

**Industrial and Manufacturing Systems Engineering (IMSE): Graduate Faculty**

- IMSE: Areas of Specialization
- IMSE: Courses

3) With prior approval of the graduate coordinator, candidates may be permitted to

**Mechanical, Automotive, and Materials Engineering (MAME): Graduate Faculty**

- MAME: Areas of Specialization

- MAME: Courses

include at most one advanced undergraduate computer science course in their program.

English: Graduate Faculty

- English: Programs
- English: Courses

4) With prior approval of the graduate coordinator, candidates may be permitted to include graduate courses offered by other departments in their program.

History: Graduate Faculty

- History: Programs
- History: Courses

5) No student will be allowed to include in his or her program a course which substantially overlaps a course previously taken.

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

6) All candidates' programs are subject to approval by the Computer Science program graduate committee.

A student who fails to achieve satisfactory performance in all aspects of the program (course work, thesis or major paper) may be required to withdraw.

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics: Programs
- Mathematics and Statistics: Courses

The Master's committee is chosen in the manner described in 1.6.2 of this Graduate Calendar. The final examination will take the form of an open seminar in the presence of the Master's committee. The examination will be open to the public.

Each student must obtain approval of his or her program, in writing, from the graduate coordinator within three weeks of registration. Subsequent changes require written approval from the graduate coordinator.

Faculty of Nursing: Graduate Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

- Sociology: Programs
- Sociology: Courses

Visual Arts: Graduate Faculty

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[Communication Studies: Graduate Faculty](#)

- [Communications Studies: Programs](#)

## COMPUTER SCIENCE: COURSE DESCRIPTIONS

Not all of the courses listed below will necessarily be offered in any one year. A component of certain courses will be offered in conjunction with an advanced undergraduate course; in such cases the undergraduate course work will comprise one half of the graduate course.

All courses are restricted to students enrolled in the Master's II Computer Science program who have all undergraduate qualifying courses and who have approval from the instructor and Computer Science program graduate committee.

Note: Certain courses listed below require more than one term to complete. Unless such courses are officially graded as "In Progress" (IP), regulations for incomplete grades will apply (see 1.4.3).

To remove any suggestion that the word "engineering" in the context of courses in Computer Science may be taken to cover the meaning of "engineering" as used in the context of courses in Professional Engineering, it is hereby acknowledged that Software Engineering is a collection of principles, models, methods, and techniques for the development, maintenance, evolution and reuse of software that meets functional, performance and quality requirements in an economic and competitive manner.

### **60-510. Literature Review and Survey**

The purpose of this course is to prepare students for conducting the specific research on which their thesis will be based. Students are required to complete a thorough literature search on the general area in which they intend to conduct research and to undertake extensive supervised reading. Students must submit a comprehensive survey of relevant research, together with an annotated bibliography of important papers, theses, books, and conference proceedings. The survey should include a "citation lattice" indicating clearly the major papers in the area. The bibliography should include names and current addresses of scientists working in the student's chosen area and also a list giving details of relevant forthcoming conferences and workshops relevant to the student's chosen research area. Students may not register in [60-510](#) until they have completed all undergraduate qualifying courses required. This is the first graduate course in which students must enrol.

### **60-511. Advanced Software Engineering**

Development and maintenance of software systems that satisfy their specifications. Topics include integrating informal and formal software design methodologies, software reuse, and software reliability.

### **60-512. Software Engineering for Distributed Systems**

This course introduces to the students both formal and informal techniques used in software specification, verification and testing. The concentration is put on advanced methods and techniques in dealing with large-scale distributed concurrent systems. The aim of the course is to provide graduate students the opportunity of obtaining strong background and skills in developing complex software systems for their future work in

• Communciation Studies:  
Courses industry.

Computer Science: Graduate  
Faculty

• Computer Science:  
Programs  
• Computer Science: Courses

Earth Sciences: Graduate  
Faculty

• Earth Sciences: Programs  
• Earth Sciences: Courses

Economics: Graduate Faculty

• Economics: Programs  
• Economics: Courses

Faculty of Education:  
Graduate Faculty

• Education: Programs  
• Education: Courses

Faculty of Engineering:  
Programs of Study Overview

• General Courses,  
Engineering

Civil and Environmental  
Engineering (CEE): Graduate  
Faculty

• CEE: Areas of Specialization  
• CEE: Courses

Electrical Engineering:  
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• Electrical Engineering:  
Areas Of Specialization  
• Electrical Engineering:  
Courses

Engineering Materials:  
Graduate Faculty

• Engineering Materials:  
Areas of Specialization  
• Engineering Materials:  
Courses

Industrial and Manufacturing  
Systems Engineering (IMSE):  
Graduate Faculty

• IMSE: Areas of  
Specialization  
• IMSE: Courses

Mechanical, Automotive, and  
Materials Engineering  
(MAME): Graduate Faculty

• MAME: Areas of  
Specialization

### **60-513. Topics in Software Engineering**

Some advanced selected topics in software engineering will be discussed in this course. Topics include software quality engineering, formal methods in software verification, and reverse engineering of software.

### **60-515. Middleware and Web Engineering**

This course introduces software engineering concepts, principles and techniques in middleware and web-based systems. Selected topics include, but are not limited to: architecture design; web modelling in UML; testing techniques in web applications; software monitoring with CORBA interceptors; distributed object systems using CORBA; formal methods in message-oriented middleware. (3 lecture hours a week.)

### **60-520. Presentations and Tools**

Students are required to present one seminar on a topic approved by the course coordinator. They are also required to investigate, through reading and experimentation, five equally weighted computing tools that reflect the breadth of the Computer Science discipline including, for example, parser generators, database management packages, simulators, synthesizer generators, VLSI design packages, and state-of-the-art programming languages and environments. Each student will be required to submit a report comprising summary descriptions, critical reviews and evidence of successful nontrivial use of the tools investigated. The selection of tools to be investigated will be made by the student with the approval of the course coordinator within the first two weeks of the term. Tool selection from the student's chosen research area may be limited. Students must commence this course in their first academic year and complete it in no more than 3 semesters. Within each of the first two semesters the student is enrolled in this course, the student must complete at least two of the remaining tools. If the student does not complete all of the course requirements in two semesters, any remaining tools must be completed in the third semester. (This course has the same weight as the other courses, but is extended over a full academic year.)

### **60-535. Distributed Query Processing**

This course will cover topics such as algorithms and techniques for query optimization in distributed databases; methods for evaluating algorithms and experimental procedures. Each student will be required to survey a topic in the area and present a report. Students will also be required to implement algorithms and comparatively evaluate techniques.

### **60-536. Multimedia Databases**

This course focuses on the study of basic and advanced database techniques used to manage multimedia objects in multimedia database systems. Topics covered include: motivation for multimedia databases; fundamental database implementation techniques; characteristics of multimedia applications; multidimensional access structures; image databases; movie databases; further media types such as text and audio; multimedia databases; models and languages; storage techniques; and multimedia presentations.

### **60-537. Database Management Systems**

Current developments in selected aspects of database management. Topics covered may include data models, database languages, database logics, database machines, and transaction management.

### **60-538. Information Retrieval Systems**

Fundamental principles and advanced topics in the design of information retrieval systems. Theoretical as well as practical aspects will be discussed.

### **60-539. Emerging Non-traditional Database Systems**

Course focuses on the study of one or more advanced, new and non-traditional

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English: Graduate Faculty

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History: Graduate Faculty

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Faculty of Human Kinetics:  
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- Kinesiology: Courses

Mathematics and Statistics:  
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- Mathematics and Statistics: Programs
- Mathematics and Statistics: Courses

Faculty of Nursing: Graduate Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate Faculty

- Political Science: Programs
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Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate Faculty

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Sociology: Graduate Faculty

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database system(s) like data warehousing and mining, video database systems, mobile database systems, and distributed object-oriented database systems. Topics discussed include system architecture, components, features, implementation, applications and research issues. Both theoretical and practical contributions to further improve the system under study remain part of the course objective.

### **60-540. Foundations of Programming Languages**

Current developments in the theory and practice of programming language design and implementation. Various languages will be considered and may include imperative, applicative, logic, constraint, object-oriented, and equational languages.

### **60-549. Virtual Reality**

This course introduces the fundamental concepts, advanced techniques, and most recent practices of virtual reality research and applications. Topics include: web-based virtual interfaces design, object and behaviour modelling, animation and physical simulation, 3D human-computer interaction, real-time rendering of multi-sensory feedback, and virtual reality tools and applications. (Prerequisite: B.Sc. (Hons., Computer Science) or permission of instructor.)

### **60-550. Scientific and Data Visualization**

Current developments in scientific and data visualization research techniques. Introduction to visualization methods, algorithms, design and current system models. Integrated roles of modeling, simulation and visualization.

### **60-551. Visual Processing**

This course introduces fundamental aspects of visual processing. Topics include: image formatting, image processing, image acquisition, camera geometry, camera calibration, feature detection, 3D reconstruction, camera motion computation, feature matching, feature tracking, object recognition and vision for robotics.

### **60-552. Computer Graphics**

Current developments in computer graphics. Topics covered will include hardware, software, interfaces, graphics standards, data structures, rendering algorithms, and visualization.

### **60-554. Advanced Algorithms**

Methodology for developing efficient algorithms. Advanced data structures. Intractable computational problems and approximation algorithms.

### **60-555. Parallel Computation**

Introduction to fundamental issues in parallel computation. Basic parallel computing platforms. Models of parallel computation such as shared data and message passing. Data parallel and other abstractions. Cost models and debugging. Programming for performance. Scalability. Workload balancing. Meta-computing in grid environments. Libraries and compilers. Parallel algorithms for numeric and non-numeric problems.

### **60-556. Parallel Runtime Systems**

Introduction to fundamental issues in parallel runtime systems. Thread systems and communication libraries. VSM, I/O and checkpointing. Scheduling and load distribution, synchronization, dynamic memory management, representation. Interface to user and computer architecture. Multiple-strategy systems and configuration. (Prerequisite: B.Sc. (Hons., Computer Science) or permission of instructor.)

### **60-557. Computational Geometry and Its Applications**

This focus of this course is on the algorithmic issues in geometry and its various applications. Topics include: basic geometric algorithms pertaining to construction of convex hull, Voronoi diagram, triangulations, and other constructions of a point set; construction of the arrangement of a set of lines and its connection with the Voronoi diagram; applications of fundamental algorithms in areas such as computer graphics,

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robotics and geographical information processing.

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### **60-558. Computational Molecular Biology**

This introductory course discusses the development and use of computer science techniques to help solve problems in molecular biology. The purpose is to present a representative sample of computational problems in molecular biology and some of the efficient algorithms that have been proposed to solve them. Topics include: sequence comparisons, database search, DNA fragments assembly, DNA mapping, phylogenetic trees, genome rearrangements, molecular structure prediction, DNA computing. Student will be required to investigate selected problems/methods in computational biology. (Prerequisite: B.Sc. (Hons., Computer Science) or permission of instructor.)

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### **60-560. Advanced Computer Architecture**

Current developments in computer architecture covering advanced concepts in sequential and parallel architectures. Topics include memory hierarchy, homogeneous and heterogeneous architectures, shared-memory (SMP and DSM) and distributed-memory machines (Beowulf cluster to high-end parallel machines), dataflow and multi-threaded architectures, ILP and VLIW, pipelining, and vector machines. Systolic arrays and application/language specific architectures. Networks. Programming models for parallel machines. Programming for performance on different architectures.

### **60-561. Artificial Neural Networks**

This course introduces the fundamentals of Artificial Neural Networks. Standard neural network architectures are discussed along with their associated set of learning algorithms. Application classes of neural networks are also presented. Topics include: supervised and unsupervised learning, associative learning, competitive learning, probably approximately correct learning, adaptive learning, pattern recognition, linear separability, gradient-descent and optimization. Students will be required to investigate selected architectural and/or learning models of some neural networks. (Prerequisite: B.Sc. (Hons., Computer Science) or permission of instructor.)

### **60-562. Computational Grid Systems**

Introduction to computational grid system goals; issues in requirements acquisition and design, specification and development; computing, networking and institutional infrastructure development; relationship to cluster and super-computing approaches; mechanisms and approaches to account management; grid adaptation of programming model; information service provision and delivery; measurement and analysis of end-to-end performance of parallel and distributed applications; analysis and monitoring tools; issues related to remote access and transparency; resource scheduling and management; and, security issues in authentication, authorization and data integrity. (Prerequisite: B.Sc. (Hons., Computer Science) or permission of instructor.)

### **60-564 Security and Privacy on the Internet**

This course introduces the issues of security in public distributed networks. Topics include: security planning, policies and procedures, threats and strategies, security services and mechanisms, digital rights; topics in Internet related to security and privacy; secure protocols, DES, AES; public key algorithms; VPN; Internet sniffing and scanning tools; intrusion detection, intrusion analysis and tools; viruses and enterprise anti-virus tools; other applications such as digital cash, code signing and anonymous e-mail. (3 lecture hours a week.)

### **60-567. Advanced Computer Networks**

This course will cover developments in modern communication networks. Topics will include: link-level protocols; internet routing and protocols such as IPv4, IPv6, DHCP and ICMP; subnetting; interdomain routing and CIDR; virtual networks and tunnels; wireless protocols and mobile IP; ATM technology; switching hardware; optical communications; and, network security. This course will cover developments in modern communication networks. Topics will include: link-level protocols; internet routing and protocols such as IPv4, IPv6, DHCP and ICMP; subnetting; interdomain routing and CIDR; virtual networks and tunnels; wireless protocols and mobile IP; ATM technology;

switching hardware; optical communications; and, network security.

### **60-568. Advanced Internet Systems**

This course covers the internet design philosophy and its protocols, such as IPv4, IPv6, TCP and RTP/RTCP. Topics include emerging Internet multimedia services, Quality of Service (QoS), scheduling and policing mechanisms, routing, resource reservation, reliable multicast, flow and congestion control, integrated services, differentiated services, and adaptive applications. (Prerequisite: B.Sc. (Hons., Computer Science) or permission of instructor.)

### **60-569 Semantic Web**

The Semantic Web is an extension of the current world wide web in which information is given well-defined, machine-understandable meaning, thus enabling computers and people to work in cooperation. This course introduces both theoretical and practical aspects in semantic web. Topics will include: languages and representation issues in semantic web; cooperative software agents; web service technology; and information integration theory and practice. ( 3 lecture hours a week.)

### **60-570. Introduction to Artificial Intelligence**

This course covers fundamental concepts in Artificial Intelligence including problem solving, knowledge representation and reasoning, planning, learning and natural language understanding. (Prerequisite: B.Sc. (Hons., Computer Science) or permission of instructor.)

### **60-572. Topics in Artificial Intelligence**

Students will study in depth selected fundamental topics in artificial Intelligence. The focus will be on theories, techniques and algorithms. (Prerequisite: [60-570](#) or permission of the instructor.)

### **60-573. Natural Language Processing and Understanding**

This course covers the basic linguistic, logical and AI approaches to the development of natural language understanding systems. Topics covered include: syntactic/parsing strategies, formal semantics, pragmatics and the resolution of various types of ambiguities. Inference strategies involved in the resolution of ambiguities at the pragmatic level include a detailed discussion of the representation of and reasoning with commonsense knowledge. The course also includes the implementation of natural language interfaces and the application of linguistic approaches to the development of intelligent text retrieval systems. (Prerequisite: [60-570](#) or permission of the instructor.)

### **60-574. Machine Learning**

This course is a general introduction to Machine Learning. Topics include: Concept learning, Decision Tree Learning, Artificial Neural Networks, Bayesian Learning, Computational Learning Theory, Instance-Based Learning, Genetic Algorithms, Learning Sets of Rules, Analytical Learning, and Reinforcement Learning. (Prerequisite: B.Sc. (Hons., Computer Science) or permission of instructor.)

### **60-575. Knowledge Representation and Reasoning**

This course covers advanced topics in knowledge representation and reasoning including Non-monotonic logic, Temporal and spatial representation and reasoning, Probabilistic approaches, Belief and decision networks, and an overview of the applications of these formalisms to diagnosis, navigation and decision making. (Prerequisite: B.Sc. (Hons., Computer Science) or permission of instructor.)

### **60-576. Advanced Search Methods**

This course covers advanced search methods including, for example, gradient-descent family of search methods, hill climbing, simulated annealing, evolutionary search, tabu search, hybrid techniques, adaptive techniques, constraint satisfaction search, forward checking, consistency enforcement and adversarial search (two player games). (Prerequisite: B.Sc. (Hons., Computer Science) or permission of instructor.)

**60-579. Topics in Applied Artificial Intelligence**

Topics in artificial intelligence focussing on intelligent systems and applications. Topics will be selected from areas such as intelligent agents, intelligent tutoring systems, knowledge acquisition, intelligent scheduling, embedded intelligence, constraints satisfaction techniques, and knowledge discovery. (Prerequisite: [60-570](#) or permission of the instructor.)

**60-588. Advanced Programming Languages**

Current developments in the design, application, and implementation of pure lazy functional programming languages.

**60-590. Directed Special Studies**

With approval of the graduate program coordinator, a student may undertake to write an original paper on a specialized topic which would enhance his or her program of study. The course will involve directed supervised reading and informal discussion with the graduate supervisor. The work undertaken in fulfilling the requirements for this course will not be counted directly for credit in the evaluation of [60-797](#) (M.Sc. Thesis).

**60-592. Selected Topics**

Selected advanced topics in computer science.

**60-797. M.Sc. Thesis**

Students may not register in [60-797](#) until they have completed [60-510](#).

**60-798. Doctoral Dissertation Research**

An original research investigation, the results of which will be embodied in a concisely written dissertation conforming in style and format to a recognized journal in the field of specification. The dissertation should be of the highest quality possible and suitable for publication. In no case may this course be used for credit toward fulfilling the course requirements in the Ph.D. program.

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## **EARTH SCIENCES**

### **GRADUATE FACULTY**

#### **Professor Emeritus**

Symons, David T.A.; B.A.Sc. (Toronto), A.M. (Harvard), Ph.D. (Toronto), P. Eng.-1970.

#### **Professors**

Trenhaile, Alan S.; B.Sc., Ph.D. (Wales)-1969.

Simpson, Frank; B.Sc. (Edinburgh), Dr. Nat. Sc. (Jagiellonian U., Krakow), P.Eng., P.Geo.-1974.

Lakhan, V. Chris; B.A. (Guyana), M.A. (Windsor), Ph.D. (Toronto), F.R.G.S. (U.K.), C.E.I., C.E.S. -1984.

Samson, Iain M.; B.Sc., Ph.D. (Strath-clyde)-1986.

Al-Aasm, Ihsan S.; B.Sc., M.Sc. (Baghdad), Ph.D. (Ottawa)-1989.

Fryer, Brian J.; B.Sc. (McMaster), Ph.D. (Massachusetts Inst. Tech.), F.R.S.C.-1993.

#### **Assistant Professors**

Graniero, Phil A.; B.E.S., M.E.S. (Water-loo), Ph.D. (Toronto)-2000.

Fowle, David A.; B.Sc. (Western Ontario), M.Sc., Ph.D. (Notre Dame)-2001.

Cioppa, Maria T.; B.Sc. (Carleton), M.Sc. (Victoria), Ph.D. (Lehigh)-2001.

Polat, Ali; B.Sc. (Technical University of Istanbul), M.Sc. (Houston), Ph.D. (Saskatchewan)-2002.

Yang, Jianwen; B.Eng. (Guilin Institute of Geology, China), M.Eng. Central-South University of Technology, China), M.Sc., Ph.D. (Toronto)-2002.

#### **Adjunct Professor**

Greenough, John D.; B.Sc (Acadia), M.Sc. (Carleton), Ph.D. (Memorial)-1999.

#### **Cross-Appointment**

Reitsma, Stanley; B.A.Sc., M.Sc. (Water-loo), Ph.D. (Queen's)-1997.



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## EARTH SCIENCES: PROGRAMS OF STUDY

[Earth Sciences \(MSc\)](#)  
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### THE DOCTOR OF PHILOSOPHY DEGREE

In addition to the general requirements outlined in 1.5, the following requirements must be met by all students proceeding to the Ph.D. degree.

#### Admission Requirements

The normal requirement for entry into the Ph.D. program shall be an M.Sc. in Earth Sciences or an appropriate degree in a cognate discipline. Students who have enrolled in the M.Sc. program may apply to transfer to the Ph.D. program after one year of registration, and must have achieved a minimum A- average in course work and have a strong recommendation from their thesis committee.

#### Program Requirements and Structure

Students entering the Ph.D. program with an M.Sc. degree will be required to:

- take a minimum of four, one-semester courses, including the doctoral research proposal and graduate seminar courses.
- Additional courses may be required if the doctoral committee feels that a particular area of the student's background needs to be strengthened.

The required courses will be chosen in the context of the student's previous education to ensure a sufficient intellectual challenge, commensurate with the Ph.D. degree.

Students transferring into the Ph.D. program after having completed one year of the M.Sc. degree will be required to take a minimum of six courses in total, including the doctoral research proposal and graduate seminar courses.

*Grading:* The minimum passing grade in graduate courses is "B-". Any student whose performance is deemed unsatisfactory in course work or research will be required to withdraw.

*Doctoral Committee:* The doctoral committee shall comprise the advisor(s), two other faculty members from the Department of Earth Sciences and one faculty member from another department at the University of Windsor. Other committee members can be added where appropriate (e.g. from other universities or from industry).

*Research Proposals:* Doctoral candidates will be required to prepare research proposals that must be successfully defended in a public forum, prior to continuation in the program. Presentation of the research proposal will normally be at the end of the

• [Communciation Studies: Courses](#)

first calendar year after enrollment.

• [Computer Science: Graduate Faculty](#)

*Dissertation:* The student will be required to submit a dissertation that is a compilation of original research carried out by the student, under the supervision of the student's advisor(s) and the doctoral committee. The dissertation may be submitted in a traditional format or as a compilation of published papers and/or manuscripts, linked by introductory and conclusion chapters. In the latter case, the contribution of the student to any jointly authored papers must be clearly stated and justified.

- [Computer Science: Programs](#)
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• [Earth Sciences: Graduate Faculty](#)

*Progress reports:* The student will submit annual research progress reports to the doctoral committee. Continuation in the program is dependent on a satisfactory progress report. The Faculty of Graduate Studies and Research also monitors student progress via an annual progress report submitted by the student and supervisor.

- [Earth Sciences: Programs](#)
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• [Economics: Graduate Faculty](#)

### Examinations

*Comprehensive Examination:* The comprehensive examination will normally occur at the end of the first year and will typically be held in conjunction with the defense of the research proposal. However, the two may be held at different times for logistical or other reasons. The comprehensive exam is complementary to the defense of the research proposal, and is designed to assess whether the student's scientific knowledge is appropriate for continuance in the Ph.D. program, and to ensure that the student has the background knowledge that is required for their research. A pass/fail decision will be by a majority vote of the committee. If a student should fail the comprehensive exam, he or she will be allowed to re-sit the exam within a four-month period after the first exam. The student will be required to withdraw from the program should he or she fail the second exam.

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• [Civil and Environmental Engineering \(CEE\): Graduate Faculty](#)

*Defense:* The dissertation will be defended by the student and examined by an examination committee in a public defense. The examination committee will comprise the student's doctoral committee and an external examiner.

- [CEE: Areas of Specialization](#)
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## THE MASTER OF SCIENCE DEGREE

### Program Requirements

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- [Electrical Engineering: Areas Of Specialization](#)
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1) *Course Requirements:* The candidate for a Master's degree will be required to take [61-580](#) and [61-582](#), plus a minimum of three 500-level courses, of which at least two should be Earth Science courses. Not more than one course may be in Special Topics ([61-590](#)), and not more than two courses may be from the same instructor. Additional 500-level Science or Engineering courses may be taken on the recommendation of the student's Master's Committee. Up to three additional courses may be required to be taken as prerequisites or required background courses. The total of all courses taken shall not exceed eight. The student's Master's Committee shall recommend to the program coordinator all courses to be taken for graduate credit after discussion with the candidate. In addition, original research work must be pursued and embodied in a thesis submitted for degree credit. Credit for graduate study previously undertaken may be given for a maximum of two courses, but the duration of study at the University of Windsor may not be reduced to less than the minimum of one year.

• [Engineering Materials: Graduate Faculty](#)

- [Engineering Materials: Areas of Specialization](#)
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2) *Examination Requirements:* The final examination of a candidate for the Master's degree shall be an oral defense of the thesis at a public lecture.

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- [IMSE: Areas of Specialization](#)
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## EARTH SCIENCES: COURSE DESCRIPTIONS

All courses listed will not necessarily be offered in any one year.

### **61-530. Crustal Fluids**

Physical and chemical architecture of crustal fluid flow systems. Sources of fluids, fluid geochemistry, fluid-mineral equilibria and interactions, fluid inclusions, controls and mechanisms of fluid flow. The role of fluids in selected geological processes will be investigated. (3 lecture/seminar hours a week.)

### **61-531. Fluid Flow in Porous Media**

Evolution and dynamics of fluids in porous media: theory for groundwater flow; multiphase flow; fluid-mineral equilibria and interactions; chemical transport and reactive flows. The role of fluids in selected low temperature environments will be investigated. (3 lecture/seminar hours a week.)

### **61-532. Numerical Simulation of Subsurface Fluid Migration**

Numerical modelling theory, methods and implementation into computer software for subsurface fluid flow and mass transport; finite difference method; finite element method; integral equation method; conceptual model design and sensitivity analysis; applications to exploration, environmental and engineering issues. (3 lecture/seminar hours a week.)

### **61-544. Sedimentology of Detrital Deposits**

Hydrodynamic significance of primary sedimentary structures, post-depositional modification of sediments; biostratification and trace fossils; sedimentary environments; sedimentological methods in economic geology. (3 lecture hours a week.)

### **61-545. Advanced Topics in Igneous Petrology and Global Tectonics**

Petrochemistry of igneous rocks in important geotectonic settings and implications for mantle and crustal processes. Precambrian greenstone belt magmatism and crustal evolution. Major and trace element geochemistry and stable and radiogenic isotopic systematics of igneous rocks. (Prerequisite: [61-565](#) or consent of instructor.) (3 lecture and/or seminar hours a week.)

### **61-548. Advanced Topics in Environmental Geochemistry**

An investigation into the effects of near-surface geochemical processes and activities on the migration of chemicals in the environment. Topics to be covered include current research in: geomicrobiology, analytical techniques, colloid chemistry, contaminant transport, and bioavailability. (3 lecture and/or seminar hours a week.) (Prerequisite: [61-565](#) or consent of instructor.)

### **61-549. Advanced Topics in Sedimentology and Sedimentary Geochemistry**

Principles of facies models as derived from modern environments and ancient successions; geochemistry and mineralogy of sedimentary rocks and natural waters; chemistry and mineralogy of weathering; geochemical facies analysis; fractionation of elements and isotopes during sedimentation; chemical diagenesis; organic matter and



• [Communciation Studies: Courses](#)

mineral diagenesis; geochemical evolution of sedimentary rocks through geologic history. (Prerequisite: [61-565](#) or consent of instructor.) (3 lecture hours a week.)

• [Computer Science: Graduate Faculty](#)

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**61-555. Advanced Topics in Geophysics**

Recent advances in selected geophysical topics. Subjects may include paleomagnetism and environmental magnetism, tectonophysics, modern analytical methods or exploration geophysics. Lectures and seminars on fundamentals and selected case histories. (Prerequisite: consent of the instructor.) (3 lecture and/or seminar hours per week.)

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**61-556. Applied Geophysical Techniques**

The theory, methodology and application of selected geophysical techniques are studied through the design and implementation of a class project. Surveyed techniques may include: magnetic, gravitational, ground penetrating radar, induced polarization and others. (Prerequisite: consent of instructor.) (3 lecture and/or project hours a week.)

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**61-559. Underground Storage**

Exploitation of subsurface space for storage of industrial products and wastes. Possible environmental impact of poorly planned underground storage. Economics of subsurface vs. surface storage. Emphasis on Canadian case histories. (3 lecture hours a week.)

• [Faculty of Education: Graduate Faculty](#)

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**61-560. Advanced Topics in Mineral Deposit Geology and Geochemistry**

Discussion of current genetic models for selected types of mineral deposits. Ore-forming processes. Selected topics in hydrothermal geochemistry. (Prerequisite: [61-565](#) or consent of instructor.) (3 lecture and/or seminar hours a week.)

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**61-564. Research Methods in Geochemistry**

Sampling of geological materials. Sampling statistics. Modern analytical methods in geochemistry theory and selected applications. Data analysis. (Prerequisite: consent of instructor.) (3 lecture and/or project hours a week.)

• [Civil and Environmental Engineering \(CEE\): Graduate Faculty](#)

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**61-565. Advanced Topics in Geochemistry**

A discussion of key concepts in geochemistry. Topics may include aqueous complexation and solubility, mineral stability, radiogenic and stable isotopes, fluid phase equilibria, trace elements, thermodynamics, and kinetics. (Prerequisite: consent of instructor.) (3 lecture and/or seminar hours a week.)

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**61-574. Advanced Topics in Geoinformatics**

Selected analytical and processing techniques in geographical information systems (GIS), remote sensing (RS), environmental modelling, and spatial decision support systems (SDSS). Spatial data acquisition methods and database integration. Application examples and technical issues. (Prerequisite: consent of the instructor.) (3 seminar hours per week.)

• [Engineering Materials: Graduate Faculty](#)

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**61-575. Advanced Integration of Remote Sensing and GIS Techniques**

Lectures, readings and practical projects will focus on image rectification, restoration, registration, and integration of digital photographic, multispectral scanner data, radar image data and ancillary data in a GIS environment. Multitemporal data merging, change detection procedures, and multi-source image classification decision rules will also be emphasized. (Prerequisite: [61-574](#) or consent of instructor.) (3 lecture, seminar, and/or project hours a week.)

• [Industrial and Manufacturing Systems Engineering \(IMSE\): Graduate Faculty](#)

- [IMSE: Areas of Specialization](#)
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**61-576. Environmental Modelling and Spatial Simulation**

The modelling process; integrating environmental models and GIS; spatial heterogeneity and representative areal units; measurement scales vs. process scales; sensitivity and uncertainty analysis; model complexity; effects of input data quality; simulation model experiments; technical and conceptual limits of environmental modelling. Students will complete a small research project. (Prerequisite: [61-574](#), or consent of instructor.) (3 seminar hours a week, plus project.)

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**61-580. Graduate Seminar**

Discussion of current topics in the earth sciences. (Students must register in this course in each term of full-time registration in the M.Sc. or Ph.D. programs.) (1 hour a week.)

**61-582. Master's Thesis Proposal**

Preparation of a written report containing: a thorough review of the literature relevant to the proposed research topic; an outline of the proposed research including a discussion of the expected contributions to the subject area and how these relate to previous work; a description of the relevant methods; and the expected timetable to completion. The student shall be examined by his or her advisory committee on the content of the proposal and related background knowledge, and shall present the proposal in a public lecture.

**61-590. Special Topics**

(May be taken for credit more than once provided that the topics are different.)

**61-700. Doctoral Research Proposal**

Preparation of a written research proposal containing: a thorough review of the literature relevant to the proposed research topic(s); an outline of the proposed research including a discussion of the expected contributions to the subject area and how these relate to previous work; a description of the relevant methods; and the expected timetable for completion. The proposal shall be presented in a public lecture. The student shall be examined by his or her advisory committee on the content of the proposal. The student must demonstrate an understanding of the context of the research project in the light of published research on the topic(s) presented, an understanding of the objectives and the methods to be used, and be able to articulate the contribution that the research will make to the advancement of knowledge. (Prerequisite: registration in the Ph.D. program.)

**61-797. Master's Thesis**

**61-798. Doctoral Dissertation**

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[Chemistry and Biochemistry: Graduate Faculty](#)

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- [Chemistry and Biochemistry: Courses](#)

[Communication Studies: Graduate Faculty](#)

- [Communications Studies: Programs](#)

## **ECOMOMICS**

### **GRADUATE FACULTY**

#### **Professors**

Anglin, Paul; B.Sc. (Toronto), M.A., Ph.D. (Western Ontario)-1988.

Suh, Sang-Chul; B.A. (Korea), M.A. (Tai-wan), Ph.D. (Rochester)-1994.

#### **Assistant Professors**

Li, Dingding; B.Sc. (Hebei), M.A., Ph.D. (Guelph)-2002.

Wang, YunTong; B.Sc. (Hebei), M.Sc. (Huazhong), Ph.D. (Nankai), Ph.D. (Montreal)-2003.

• Communciation Studies:  
Courses

Computer Science: Graduate  
Faculty

- Computer Science:  
Programs
- Computer Science: Courses

Earth Sciences: Graduate  
Faculty

- Earth Sciences: Programs
- Earth Sciences: Courses

Economics: Graduate Faculty

- Economics: Programs
- Economics: Courses

Faculty of Education:  
Graduate Faculty

- Education: Programs
- Education: Courses

Faculty of Engineering:  
Programs of Study Overview

- General Courses,  
Engineering

Civil and Environmental  
Engineering (CEE): Graduate  
Faculty

- CEE: Areas of Specialization
- CEE: Courses

Electrical Engineering:  
Graduate Faculty

- Electrical Engineering:  
Areas Of Specialization
- Electrical Engineering:  
Courses

Engineering Materials:  
Graduate Faculty

- Engineering Materials:  
Areas of Specialization
- Engineering Materials:  
Courses

Industrial and Manufacturing  
Systems Engineering (IMSE):  
Graduate Faculty

- IMSE: Areas of  
Specialization
- IMSE: Courses

Mechanical, Automotive, and  
Materials Engineering  
(MAME): Graduate Faculty

- MAME: Areas of  
Specialization

- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

- Sociology: Programs
- Sociology: Courses

Visual Arts: Graduate Faculty

- Visual Arts: Programs
- Visual Arts: Courses

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[Chemistry and Biochemistry: Graduate Faculty](#)

- [Chemistry and Biochemistry: Programs](#)
- [Chemistry and Biochemistry: Courses](#)

[Communication Studies: Graduate Faculty](#)

- [Communications Studies: Programs](#)

## ECONOMICS: PROGRAMS OF STUDY

### Economics (MA)

#### THE MASTER OF ARTS DEGREE

##### Admission Requirements

- 1) A student with an honours Bachelor's degree in Economics or its equivalent, with at least a major average of B, may be admitted to a minimum one-year Master's program. Applicants are expected to have completed one course in each of calculus, linear algebra and statistics. Applicants who have not completed the above mathematics requirements are encouraged to do so prior to beginning their graduate course work.
- 2) A student with a general degree, or an honours graduate in another discipline, with at least a B standing, may be admitted to a minimum two-year Master's program.

##### Program Requirements

- 1) Students in the two-year program are required to take a make-up or qualifying year in their first year of the M.A. program. Selection of courses is to be made in consultation with a graduate advisor.
- 2) Students in the one-year M.A. program (Candidate year) are required to complete:
  - a) eight graduate courses and a major paper normally to be in conjunction with one of the courses OR nine graduate courses (no major paper);
  - b) at least one course in microeconomics, one in macroeconomics and one in econometrics. Students intending to enter a Ph.D. program are advised to take [41-501](#), [41-502](#), [41-503](#), [41-504](#), [41-541](#), and [41-542](#).



• Communciation Studies:  
Courses

Computer Science: Graduate  
Faculty

- Computer Science:  
Programs
- Computer Science: Courses

Earth Sciences: Graduate  
Faculty

- Earth Sciences: Programs
- Earth Sciences: Courses

Economics: Graduate Faculty

- Economics: Programs
- Economics: Courses

Faculty of Education:  
Graduate Faculty

- Education: Programs
- Education: Courses

Faculty of Engineering:  
Programs of Study Overview

- General Courses,  
Engineering

Civil and Environmental  
Engineering (CEE): Graduate  
Faculty

- CEE: Areas of Specialization
- CEE: Courses

Electrical Engineering:  
Graduate Faculty

- Electrical Engineering:  
Areas Of Specialization
- Electrical Engineering:  
Courses

Engineering Materials:  
Graduate Faculty

- Engineering Materials:  
Areas of Specialization
- Engineering Materials:  
Courses

Industrial and Manufacturing  
Systems Engineering (IMSE):  
Graduate Faculty

- IMSE: Areas of  
Specialization
- IMSE: Courses

Mechanical, Automotive, and  
Materials Engineering  
(MAME): Graduate Faculty

- MAME: Areas of  
Specialization

- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

- Sociology: Programs
- Sociology: Courses

Visual Arts: Graduate Faculty

- Visual Arts: Programs
- Visual Arts: Courses

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- [Chemistry and Biochemistry: Courses](#)

[Communication Studies: Graduate Faculty](#)

- [Communications Studies: Programs](#)

## ECONOMICS: COURSE DESCRIPTIONS

All courses listed will not necessarily be offered in every term. Courses are normally three hours a week.

### **41-501. Microeconomics**

An intensive review of the theory of the firm and consumer theory.

### **41-502. Macroeconomics**

An intensive review of theories of the determination of aggregate output, employment and price level.

### **41-503. Microeconomic Theory II**

Additional topics in microeconomic theory.

### **41-504. Macroeconomic Theory II**

Additional topics in macroeconomic theory.

### **41-510. Theory of International Trade**

An introduction to the problem of international trade goods and services, and the related issues of exchange rate determination and balance of payments control.

### **41-516. Labour Economics I**

The demand and supply analysis; human capital; trade unions and collective bargaining; wage structures; labour mobility.

### **41-531. Industrial Organization**

A theoretical and empirical analysis of firms and markets.

### **41-541. Econometric Theory I**

The general linear model, selected single equation problems, and an introduction to simultaneous equations methods.

### **41-542. Econometric Theory II**

Additional topics in econometric theory (Prerequisite: [41-541.](#))

### **41-543. Applied Econometrics**

The specification, estimation and testing of economic models. Emphasis will be on the classical linear regression model, the implications or violations of its basic assumptions and diagnostic testing. (This course is not intended for students who take [41-541.](#))

### **41-550. Monetary Theory**

A survey of recent developments in the theory of money and monetary control of an economy, in addition to selected topics.

### **41-580. Models of Strategic Behaviour**

A review of game theory showing how strategic reasoning can be used as a tool in

• **Communciation Studies:  
Courses**

decision theory. Topics include solution concepts for Normal form and Extensive form games, plus applications.

**Computer Science: Graduate  
Faculty**

- **Computer Science:  
Programs**
- **Computer Science: Courses**

**41-581. Mathematical Economics**

The formal properties of selected economic models. Includes an examination of the problems of existence, uniqueness and stability of solutions.

**Earth Sciences: Graduate  
Faculty**

- **Earth Sciences: Programs**
- **Earth Sciences: Courses**

**41-582. Selected Topics in Advanced Theory**

An examination of the most recent literature on one or two selected topics in theory.

**Economics: Graduate Faculty**

- **Economics: Programs**
- **Economics: Courses**

**41-590. Regional Economics**

Theoretical and policy issues relating to large regions, including, for example, distribution of wealth, distribution of productive resources, and migration.

**Faculty of Education:  
Graduate Faculty**

- **Education: Programs**
- **Education: Courses**

**41-591. Urban Economics**

Theoretical and policy issues relating to urban areas, including, for example, urban growth and land use.

**Faculty of Engineering:  
Programs of Study Overview**

- **General Courses,  
Engineering**

**41-594. Special Studies in Economics**

Research and reading course in a selected field approved by the Department.

**Civil and Environmental  
Engineering (CEE): Graduate  
Faculty**

- **CEE: Areas of Specialization**
- **CEE: Courses**

**41-796. Major Paper**

**Electrical Engineering:  
Graduate Faculty**

- **Electrical Engineering:  
Areas Of Specialization**
- **Electrical Engineering:  
Courses**

**Engineering Materials:  
Graduate Faculty**

- **Engineering Materials:  
Areas of Specialization**
- **Engineering Materials:  
Courses**

**Industrial and Manufacturing  
Systems Engineering (IMSE):  
Graduate Faculty**

- **IMSE: Areas of  
Specialization**
- **IMSE: Courses**

**Mechanical, Automotive, and  
Materials Engineering  
(MAME): Graduate Faculty**

- **MAME: Areas of  
Specialization**

- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

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Visual Arts: Graduate Faculty

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- Visual Arts: Courses

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## FACULTY OF EDUCATION

### GRADUATE FACULTY

#### Professors

Williams, Noel H.; B.A. (Sir George Wil-liams), M.Ed. (McGill), Ph.D. (Alberta)-1976.

Morton, Larry; B.A. (Waterloo), B.Th. (O.B.C.), B.Ed. (O.T.E.C.), M.A., Ph.D. (Toronto)-1988.

Rogers, Pat; B.A. (Oxon.), M.Sc. (Toronto), Ph.D. (London)-2001.

Ezeife, Anthony; B.Sc. (Lagos), M.A., M.Sc. (Columbia), Ph.D. (Nigeria)-2002.

#### Associate Professors

McKay, Linda; B.S. (North Carolina), M.S. (Maryland), Ph.D. (Wayne State)-1968.

Diffey, Norman R.; B.A., Dip.Ed. (Oxon.), M.A. (McMaster), Ph.D. (McGill)-1987.

Flewelling, Janet; B.A. (Guelph), B.Ed. (Queen's), M.Ed., Ed.D. (Toronto)-1990.

Tarailo, Michele; B.F.A., B.Ed. (Windsor), M.F.A. (Cranbrook), Ed.D. (Wayne State)-1990.

Glassford, Larry; B.A., Dip.Ed. (Western Ontario), M.A. (Carelton), Ph.D. (York)-1991.

Shantz, Doreen; B.A. (Wilfrid Laurier), M.Ed., Ed.D. (Toronto)-1991.

Starr, Elizabeth; B.A. (Guelph), B.Ed. (Queen's), M.Ed. (Acadia), Ph.D. (Alberta)-1996.

Egbo, Benedicta O.; B.Ed., Dip.Ed. (Al-bertha), M.A., Ph.D. (Toronto)-1998.

#### Assistant Professors

Smith, Kara; B.Comm. (Windsor), B.A. (Waterloo), B.Ed. (Western Ontario), M.Ed. (Western Ontario), Ph.D. (Stirling)-1998.

Clovis, Christopher; B.Sc., PGCE, Ph.D. (London)-1999.

Allen, Andrew; Dip. Tech., B.Tech. (Ryerson), B.Ed., M.Ed. (York), Ph.D. (Toronto)-2002.

Beckford, Clinton L.; Cert. In Teaching (Church), B.A., Ph.D. (West Indies)-2002.



• **Communciation Studies:  
Courses**

Bayley, Jonathan G.; B.Mus. (McGill), B. Ed., M. Mus. (Alberta), M.M. (Eastman), Ph.D. (Ohio State)-2003.

**Computer Science: Graduate  
Faculty**

Dlamini, S. Nombuso; B.A., Dipl.Ed. (Swaziland), M.A. (St. Mary's), Ph.D. (Toronto)-2003.

• **Computer Science:  
Programs**

• **Computer Science: Courses**

**Earth Sciences: Graduate  
Faculty**

• **Earth Sciences: Programs**

• **Earth Sciences: Courses**

**Economics: Graduate Faculty**

• **Economics: Programs**

• **Economics: Courses**

**Faculty of Education:**

**Graduate Faculty**

• **Education: Programs**

• **Education: Courses**

**Faculty of Engineering:**

**Programs of Study Overview**

• **General Courses,**

**Engineering**

**Civil and Environmental**

**Engineering (CEE): Graduate**

**Faculty**

• **CEE: Areas of Specialization**

• **CEE: Courses**

**Electrical Engineering:**

**Graduate Faculty**

• **Electrical Engineering:**

**Areas Of Specialization**

• **Electrical Engineering:**

**Courses**

**Engineering Materials:**

**Graduate Faculty**

• **Engineering Materials:**

**Areas of Specialization**

• **Engineering Materials:**

**Courses**

**Industrial and Manufacturing**

**Systems Engineering (IMSE):**

**Graduate Faculty**

• **IMSE: Areas of**

**Specialization**

• **IMSE: Courses**

**Mechanical, Automotive, and**

**Materials Engineering**

**(MAME): Graduate Faculty**

• **MAME: Areas of**

**Specialization**

- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

- Sociology: Programs
- Sociology: Courses

Visual Arts: Graduate Faculty

- Visual Arts: Programs
- Visual Arts: Courses

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[• Chemistry and Biochemistry: Courses](#)

[Communication Studies: Graduate Faculty](#)

[• Communications Studies: Programs](#)

## FACULTY OF EDUCATION: PROGRAMS OF STUDY

**Education (MEd)**

**Educational Studies (PhD)**

### JOINT DOCTOR OF PHILOSOPHY IN EDUCATIONAL STUDIES

The Joint Ph.D. in Educational Studies is offered jointly by Brock University, Lakehead University, The University of Western Ontario, and the University of Windsor. The designation of "home university" is applied to the home university of the doctoral candidate's dissertation supervisor. The student has the right to take courses and seminars or to use the academic facilities at any of the participating universities in accordance with the approved plan.

The regulations governing the preparation of theses and conduct of examinations will be those of the supervisor's home university.

The degree requirements, regulations and procedures for the Joint Ph.D. program have been approved by the appropriate governing body of each institution. Where there is a conflict in regulations and procedures:

(a) in academic matters, the regulations of the institution offering the course will prevail;  
(b) in non-academic matters, the regulations of the institution at which the student is registered will prevail.

#### *PROGRAM GOALS AND OBJECTIVES*

The joint program will accomplish the following goals:

- 1) provide greater access to advanced study in education for qualified candidates across a wider geographic range in the province;
- 2) promote the growth of research activity and professional development through collaboration among practitioners, scholars, educational institutions, and Faculties of Education;
- 3) foster inter-university links and promote partnerships among Ontario universities;
- 4) further the expansion of research culture and service throughout the province; and
- 5) contribute to the renewal of the professoriate and educational leadership in Ontario during the upcoming period of heavy retirement in the universities and school systems.

The objectives of the program are to produce graduate students who will:

- **Communciation Studies: Courses** 1) contribute to the development of knowledge and expertise in teaching/ learning at all levels on the education continuum;
- Computer Science: Graduate Faculty** 2) contribute to the solution of problems/issues in Canadian education;
- **Computer Science: Programs** 3) promote scholarly enquiry and the development of methodological advances in the study of education;
- **Computer Science: Courses** 4) integrate theory and practice in education; and
- Earth Sciences: Graduate Faculty** 5) assume positions of leadership in Faculties of Education, school systems, and other public- and private-sector institutions concerned with education.
- **Earth Sciences: Programs**
- **Earth Sciences: Courses**

- Economics: Graduate Faculty**
- **Economics: Programs**
- **Economics: Courses**

- Faculty of Education: Graduate Faculty**
- **Education: Programs**
- **Education: Courses**

- Faculty of Engineering: Programs of Study Overview**
- **General Courses, Engineering**

- Civil and Environmental Engineering (CEE): Graduate Faculty**
- **CEE: Areas of Specialization**
- **CEE: Courses**

- Electrical Engineering: Graduate Faculty**
- **Electrical Engineering: Areas Of Specialization**
- **Electrical Engineering: Courses**

- Engineering Materials: Graduate Faculty**
- **Engineering Materials: Areas of Specialization**
- **Engineering Materials: Courses**

- Industrial and Manufacturing Systems Engineering (IMSE): Graduate Faculty**
- **IMSE: Areas of Specialization**
- **IMSE: Courses**

- Mechanical, Automotive, and Materials Engineering (MAME): Graduate Faculty**
- **MAME: Areas of Specialization**

### *ADMISSION REQUIREMENTS*

Normally, the minimum academic requirement for admission to the Ph.D. is successful completion of a Master of Education or Master of Arts in Education with an A standing.

In exceptional circumstances, applicants with lower formal academic qualifications but with a strong track record of professional experience related to the proposed area of doctoral study may be admitted. In these cases, however, the Admissions Committee may place additional requirements upon the applicant. Additional requirements will be stated on the offer of admission.

Applicants must provide evidence of research competence normally demonstrated by a master's thesis.

English is the primary language of communication and instruction in the program. Applicants from other countries who have not completed a degree at a university where the primary language of instruction is English must pass the Test of English as a Foreign Language (TOEFL) with a minimum score of 600 (250 computer-based) or an equivalent demonstration of proficiency. Candidates who are working on the degree at a distance from the home university must purchase the software and access to the internet which will enable them to participate fully in the required courses.

### *ADMISSION WITH ADVANCED STANDING*

Students may receive advance credit for a maximum of one-half course specialization elective at the graduate level provided that this course has not been credited to a degree or certificate already awarded, is relevant to the proposed area of study and has been taken within three years of admission. Requests for advanced credit must be declared prior to admission. No substitution may be made for Core Seminars I and II or the Joint Specialization Elective via distance education.

### *RESEARCH PLAN*

Applicants must submit a description of their proposed area of research (approximately 2-3 typed pages). When an applicant meets the basic requirements for admission, the potential supervisor and/or the Program Director will assist the applicant in developing a plan of study which will be presented to the Program Committee for approval. If approved, the applicant will proceed to register as a doctoral student at the home university of the dissertation supervisor and will be subject to the general degree regulations of that university. The offer of admission will be made to the applicant by the home university.

Dissertation supervisors will be required to report candidates' progress annually to the Program Committee and to appropriate authorities at the participating universities. Normally, candidates will be expected to complete course requirements and the

- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

- Sociology: Programs
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Visual Arts: Graduate Faculty

- Visual Arts: Programs
- Visual Arts: Courses

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comprehensive portfolio, and to submit a research proposal within three years of their initial registration. Changes to the approved plan of study must be approved in advance by the Program Director in consultation with the candidate and the supervisor.

### PROGRAM FIELDS OF STUDY

1) *Policy and Leadership*: This field focuses upon the study of policy and leadership within educational systems. It draws upon organizational and administrative studies to construct critical perspectives on actions and structures at the macropolitical and micropolitical levels and examines how these influence the climate and the quality of curriculum and learning.

2) *Sociocultural Contexts of Education*: This field draws upon diverse disciplines such as comparative education, cultural psychology, history, philosophy, sociology, and traditional curriculum areas to advance understanding of the sociocultural contexts which influence curriculum, teaching, and learning, to generate theory, and to plan, develop, implement, and evaluate programs, teaching, and learning.

3) *Cognition and Learning*: This field draws primarily upon psychology and educational psychology to examine critically the cognitive processes of teachers and learners as they engage in teaching and learning. Integral components of this field are assessment and the adaptation of instruction to the needs of individual learners.

Applicants to the program must declare a field of study prior to admission to the program.

### PROGRAM REQUIREMENTS

Doctoral candidates must be familiar with the academic regulations governing graduate studies at the home university.

### Course Requirements

- (a) Core Seminar I (80-602) and Core Seminar II (80-604);
- (b) Directed Study (80-651), one Joint Ph.D. Specialization Elective Course via distance education, and one additional Specialization Elective Course. Candidates may meet the requirement for the latter through a graduate level course offered at any of the participating institutions;
- (c) Research Proposal Colloquium (80-669) (via distance education). (Prerequisite: must have completed two terms of full-time residency or equivalent.)

### Comprehensive Portfolio

The Comprehensive Portfolio (80-680) requires doctoral candidates to demonstrate their potential as scholars through the satisfactory completion of authentic tasks. The criteria used by the dissertation supervisory committee to set tasks and assess a candidate's performance are:

- (a) an understanding of the concepts, theories, and issues in the field of study;
- (b) a knowledge of current literature and research methods in the field of study;
- (c) the ability to analyze and synthesize current literature on a specific problem within the field of study;
- (d) an understanding of and ability to critique research in the field of study and research paradigms.

The tasks candidates are expected to complete include the dissertation research proposal, and three other tasks. Candidates must defend their portfolios.

[General Information](#)

The candidate's defence will be evaluated by the dissertation supervisory committee and at least one other member of the core faculty selected by the Program Director. Candidates are required to present their completed portfolio to an audience in a forum such as the Core Seminar.

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Candidates may not begin their dissertation research until the portfolio requirements have been completed successfully.

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The Dissertation supervisory committee will involve faculty from at least two participating universities, including whenever possible and reasonable, a member from the university closest to the candidate's home to serve as co-supervisor in cases where the supervisor is at some distance. The regulations and procedures governing the preparation of theses and conduct of examinations will be those of the supervisor's university.

**Residence**

Candidates must meet a minimum residency of four terms. Two terms of residency may be fulfilled by completion of the Core Seminars I and II. The other two terms of residency must be consecutive. It is strongly recommended that candidates complete two of the terms of residency after they have defended their comprehensive portfolio and are authorized to commence their doctoral research. Credit for residency may be given, with the approval of the Program Committee and the home university, for research carried out off-campus.

Candidates are required to maintain continuous registration. They shall complete the requirements for the degree within a minimum of three years and a maximum of six years.

Recommendations for a time extension or leave of absence are subject to the regulations and procedures at the home university and must be approved in advance by the supervisor and the Joint Program Committee.

*DOCTORAL COURSES*

**Core Seminars**

- [80-602](#). Core Seminar I: Current Research, Theories, and Issues
- [80-604](#). Core Seminar II: Current Research, Theories, and Issues

**Specialization Elective Courses**

*Policy and Leadership*

- [80-621](#). Educational Policy and Leadership: Historical Contexts

*Sociocultural Contexts of Education*

- [80-631](#). Sociocultural Contexts of Curriculum

*Cognition and Learning*

- [80-641](#). Conceptual Bases for Cognition and Learning

*Other Required Courses*

- [80-651](#). Directed Study
- [80-669](#). Research Proposal Colloquium
- [80-680](#). Comprehensive Portfolio
- [80-798](#). Doctoral Dissertation

## THE MASTER OF EDUCATION DEGREE

The objectives of the Master of Education program are to provide candidates with opportunities to develop:

- 1) a commitment to intellectual enquiry and scholarship as a basis for continuing professional growth;
- 2) a knowledge of current theory and research relevant to the curriculum and administration of elementary and secondary schools; and
- 3) an understanding of, and respect for, the principles of educational research.

### Admission Requirements

1) In addition to the requirements set forth in 1.3 and 1.6.1 for admission to the Faculty of Graduate Studies and Research, and to programs leading to a Master's degree, applicants to the Master of Education program must:

- (a) present an undergraduate degree from an approved university with standing in the B range overall and at least B standing in the final two years of study;
- (b) present a Bachelor of Education degree with standing in the B range or the equivalent professional preparation;
- (c) have at least one year of successful professional experience in education;
- (d) submit a "Statement of Personal Objectives" outlining the applicant's professional background and reasons for seeking a graduate degree in education.

2) Applicants who fulfill the requirements above with the exception of (c) may be considered if they hold an honours Bachelor's degree or the equivalent with standing in the B range overall and at least a B standing in the final two years of study.

Moreover, in exceptional cases, applicants may be considered who do not possess a Bachelor of Education degree or equivalent, but who hold an honours Bachelor's degree or the equivalent with standing in the B range overall and at least a B standing in the last two years, and who can demonstrate experience, interests, and motivation that make them appropriate applicants to the program.

3) *Advanced Standing*: Applicants may be granted credit for up to two graduate term courses completed before application to the Master of Education program and taken in another program at the University of Windsor or at another accredited institution. Requests for advanced standing will be considered only at the time of application and only for graduate courses completed with at least B standing. The Faculty will not grant credit for any course taken more than seven years before all the requirements for the degree have been fulfilled.

4) Admission to the Master of Education program is to the II Master's Candidate level.

### Program Requirements

1) Candidates for the Master of Education degree will pursue studies in one of two areas of concentration:

- (a) Curriculum Studies;
- (b) Educational Administration.

2) Candidates will follow either a major paper or a thesis program. Those who wish to include a thesis in their program must request approval from the Graduate Committee of the Faculty. Normally, the Committee will not consider such requests from part-time candidates until four courses have been completed, which should include [80-510](#)



(Statistics in Education) and [80-527](#) (Research in Education).

Additional information concerning the procedures for theses and major papers may be obtained from the Coordinator of Graduate Studies.

3) In addition to the general requirements for a Master's degree set forth in 1.6.2 and 1.6.3, all candidates are required to complete successfully the equivalent of a minimum of ten term courses and the comprehensive examination in Education. Specific requirements include:

- (a) three compulsory courses, [80-510](#) (Statistics in Education), [80-527](#) (Research in Education), and [80-524](#) (Fundamentals of Curriculum Theory and Development) or [80-529](#) (Theories of Educational Administration), depending on their area of concentration;
- (b) a research project resulting in either a major paper ([80-796](#)), with the value of two term courses, or a thesis ([80-797](#)), with the value of four term courses;
- (c) candidates proceeding to the degree by major paper are required to complete five additional courses, at least three of which must be chosen from the option courses listed for their area of concentration;
- (d) candidates proceeding to the degree by thesis must complete three additional courses, at least two of which must be selected from the option courses listed for their area of concentration;
- (e) in the case of candidates following thesis programs, the comprehensive examination is the responsibility of their thesis committees.

4) Candidates with previous courses in research methods or statistics may request the Graduate Committee of the Faculty for permission to substitute other courses for either one or both of [80-527](#) and [80-510](#).

5) Transfer Credit: While the student is registered in the M.Ed. program, credit for up to two graduate term courses normally may be applied towards the degree from another Faculty at the University of Windsor or transferred from another accredited institution. Candidates must receive the approval of the Executive Dean of Graduate Studies and Research or designate before taking such courses. Credit will be granted only for courses completed with at least a B standing.

6) Full-time candidates must complete all requirements for the degree within three years of their first registration.

7) Part-time students may not carry more than two courses in any term and must complete all requirements for the degree within five years of their first registration.

#### *STUDIES IN THE AREA OF CONCENTRATION*

##### **Compulsory Courses**

[80-510](#). Statistics in Education

[80-527](#). Research in Education

[80-524](#). Fundamentals of Curriculum Theory and Development\*

[80-796](#). Major Paper\*\*

[80-797](#). Thesis\*\*

[82-529](#). Theories of Educational Administration\*\*\*

\* Compulsory for students in Curriculum Studies.

\*\* All students must write either a Major Paper or a Thesis.

\*\*\* Compulsory for students in Educational Administration.

##### **Educational Administration Options**

- 80-530. Qualitative Methods in Educational Research
- 80-531. Supervision of the Instructional Process
- 80-534. Individual Reading
- 80-555. Strategies for the Implementation of Change in Education
- 80-591. Special Topics in Education
- 82-529. Theories of Educational Administration
- 82-532. Organization and Administration of the School
- 82-535. Organizational Behaviour in Educational Institutions
- 82-550. Issues in Education
- 82-560. Politics of Education
- 82-561. Legal Aspects of Education
- 82-562. Educational Finance
- 82-565. Sociological Aspects of Education
- 82-566. Interpersonal Relationships in Education

### **Curriculum Studies Options**

- 80-524. Fundamentals of Curriculum Theory and Development
- 80-530. Qualitative Methods in Educational Research
- 80-534. Individual Reading
- 80-554. Fundamentals of Instructional Design
- 80-591. Special Topics in Education
- 81-503. The Psychology of Learning and Teaching
- 81-537. Language Arts in the Elementary School
- 81-539. Theories and Applications
- 81-541. The Social Sciences Curriculum
- 81-547. Learning in Science
- 81-551. Microcomputers for Educators
- 81-552. Curriculum Developments in Mathematics Education
- 81-553. The Teaching and Learning of Mathematics
- 81-556. Approaches to Literacy Development
- 81-557. The English Language Arts
- 81-558. Psychology of Learning Problems
- 81-572. Theory and Practice in Early Childhood Education

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## FACULTY OF EDUCATION: COURSE DESCRIPTIONS

Not all courses will necessarily be offered each year. All 600-level courses are restricted to students in the joint Ph.D. program.

### **80-510. Statistics in Education**

This course will deal with the following: descriptive and inferential statistical procedures; commonly used one- and two-sample tests; an introduction to analysis variance and corresponding research designs. (3 lecture hours a week.)

### **80-524. Fundamentals of Curriculum Theory and Development**

A survey of the major theories of curriculum that have influenced education Canada. An outline of the techniques employed in curriculum development, including sources of influence and control, specification of outcomes, selection and coordination of activities, strategies, resources and evaluation. (3 hours a week.)

### **80-527. Research in Education**

An overview of educational research methods: e.g., the interpretation of research literature, the identification and use of data bases, the design of research proposals and the application of specific methods to research projects. (3 hours a week.)

### **80-530. Qualitative Methods in Educational Research**

This course will examine the concepts and methods involved in carrying out educational research through naturalistic observation, participant observation, case studies, and other qualitative approaches. (3 hours a week.)

### **80-531. Supervision of the Instructional Process**

A practice-oriented course designed to develop administrative competency in the supervision of instruction. The focus will be threefold: (1) awareness and recognition of specific technical skills, (2) the development of competence in interpersonal and group skills, and (3) a general examination of supervisory approaches. (3 hours a week.)

### **80-534. Individual Reading**

The Individual Reading course is intended to permit students with special interests in, and knowledge of, particular areas of education not covered in sufficient depth in available courses to pursue those interests through independent, supervised study. (Permission of an advisor and of a subcommittee of the Graduate Studies Committee is required.)

### **80-554. Fundamentals of Instructional Design**

This course will consider current principles, research, theory and practice in the design, development, implementation and evaluation of instruction within various learning and teaching settings. (3 hours a week.)

### **80-555. Strategies for the Implementation of Change in Education**

Procedures for dissemination, adoption, implementation, and integration of changes for teachers, administrators, and leaders of professional organizations. Attention will be

• **Communciation Studies: Courses**

given to theoretical models and their applications, change agency, and modification of organizational climate and structure. (3 hours a week.)

**Computer Science: Graduate Faculty**

- **Computer Science: Programs**
- **Computer Science: Courses**

**80-591. Special Topics in Education**

Selected advanced topics in Education based on new developments in particular areas, special faculty interests, and opportunities afforded by the availability of visiting professors. Special topics are subject to Graduate Committee approval and may be taken more than once provided the topics are different. Current topics include: 1. The Recent History of Education in Ontario; 2. Pervasive Developmental Disorders; 3. Environmental Education, 4. Tertiary Teaching and Learning. (3 hours a week.)

**Earth Sciences: Graduate Faculty**

- **Earth Sciences: Programs**
- **Earth Sciences: Courses**

**80-602. Core Seminar I: Current Research, Theories, and Issues**

Core Seminars I and II are compulsory for all students. The Seminars promote breadth in understanding the interdisciplinary dimensions of educational studies and will focus on current research, theories, and issues. The Core Seminars are the primary vehicle for integration across fields and universities and operate face-to-face. The Core Seminars are held each July and rotate to different home university campuses annually. (78 hours.) (2 course equivalencies.)

**Economics: Graduate Faculty**

- **Economics: Programs**
- **Economics: Courses**

**80-604. Core Seminar II: Current Research, Theories, and Issues**

Core Seminars I and II are compulsory for all students. The Seminars promote breadth in understanding the interdisciplinary dimensions of educational studies and will focus on current research, theories, and issues. The Core Seminars are the primary vehicle for integration across fields and universities and operate face-to-face. The Core Seminars are held each July and rotate to different home university campuses annually. (78 hours.) (2 course equivalencies.)

**Faculty of Education: Graduate Faculty**

- **Education: Programs**
- **Education: Courses**

**Faculty of Engineering: Programs of Study Overview**

- **General Courses, Engineering**

**80-621. Educational Policy and Leadership: Historical Contexts**

The global development of theories related to educational policy and leadership are analyzed. Candidates critically examine the history of Canadian schools at all levels and consider how policy and leadership practices relate to theoretical traditions. (39 hours.) (1 course equivalency.)

**Civil and Environmental Engineering (CEE): Graduate Faculty**

- **CEE: Areas of Specialization**
- **CEE: Courses**

**80-631. Sociocultural Contexts of Curriculum**

The traditional bases of curriculum theory are examined in relation to the perspectives drawn from diverse disciplines such as comparative education, cultural psychology, history, philosophy, and sociology to advance understanding of the social, historical, and cultural influences on curriculum, teaching and learning. Candidates will analyze existing theories and models and construct alternative frameworks. (39 hours.) (1 course equivalency.)

**Electrical Engineering: Graduate Faculty**

- **Electrical Engineering: Areas Of Specialization**
- **Electrical Engineering: Courses**

**80-641. Conceptual Bases for Cogition and Learning**

Current theories and models of teaching, learning, and assessment are analyzed from the perspective of the potential and implications of such models for research on cognition and learning. (39 hours.) (1 course equivalency.)

**Engineering Materials: Graduate Faculty**

- **Engineering Materials: Areas of Specialization**
- **Engineering Materials: Courses**

**80-651. Directed Study**

Under the supervision of a faculty member with appropriate expertise, the candidate may complete a sustained program of study relating to a topic of current theoretical and/or empirical interest within the program field and leading to the production of a substantial research paper. Subject to the approval of the Joint Program Committee, directed studies are intended for students with special interests which cannot be satisfied by courses that are otherwise available. (39 hours.) (1 course equivalency.)

**Industrial and Manufacturing Systems Engineering (IMSE): Graduate Faculty**

- **IMSE: Areas of Specialization**
- **IMSE: Courses**

**80-669. Research Proposal Colloquium**

Candidates develop the dissertation proposal. Participants registered in the colloquium will be in contact through a computer conferencing program. (Prerequisite: must have completed two terms of full-time residency or equivalent.) (39 hours.) (1 course equivalency.)

**Mechanical, Automotive, and Materials Engineering (MAME): Graduate Faculty**

- **MAME: Areas of Specialization**

- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics: Programs
- Mathematics and Statistics: Courses

Faculty of Nursing: Graduate Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

- Sociology: Programs
- Sociology: Courses

Visual Arts: Graduate Faculty

- Visual Arts: Programs
- Visual Arts: Courses

Postgraduate Awards and Financial Aid

**80-680. Comprehensive Portfolio**

(3 course equivalencies.)

**80-796. Major Paper**

Conducted under the guidance of at least two members of the Faculty, a major paper may analyze and evaluate a substantial body of scholarly literature or describe or interpret a research project undertaken by the student. The major paper is subject to an oral examination (see Thesis or Major Paper, 1.6.3, and Program Requirements, 9.2.2.)

**80-797. Thesis**

(See Thesis or Major Paper, 1.6.3, and Program Requirements, 9.2.1.)

**80-798. Doctoral Dissertation**

(See Dissertation, 1.5.3, and Program Requirements, 9.2.1.) (10 course equivalencies.)

**81-503. The Psychology of Learning and Teaching**

This course will provide students with an in depth view of psychological theory and research towards the understanding of learning and teaching. While both behavioural and cognitive perspectives will be discussed, the emphasis will be upon cognitive theory and application. Topics will include behaviourism, behaviour modification, information processing, metacognition, cognitive behaviour modification, cognitive strategy training, motivation and individual differences. (3 hours a week.)

**81-537. Language Arts in the Elementary School**

This course will examine issues in language arts instruction in the light of current language theories. The focus is on current research and its practical application, with special emphasis on methods of instruction, teacher strategies, student activities and evaluation practices. (3 hours a week.)

**81-539. Second Language Teaching: Theories and Applications**

This course reviews current thinking on the nature of language, communication and second-language learning and examines implications for teaching methods and curriculum design. (3 hours a week.)

**81-541. The Social Science Curriculum**

An examination of trends and development of social science curricula. Curriculum theory will be applied to one or more of the social sciences within the context of provincial guidelines and the academic and professional qualifications of the students. (3 hours a week.)

**81-547. Learning in Science**

This course will consider current research and theory in the promotion of science as a process and product. Included will be a critical survey of recent issues in science education. The focus will be on their implications for curriculum and practice at the classroom level. An examination of some of the major difficulties in the design, development, implementation, and evaluation of science curricula. (3 hours a week.)

**81-551. Microcomputers for Educators**

A comprehensive survey of the uses of microcomputers in the classroom, including a discussion of current issues in the use of microcomputers by educators. (3 hours a week.)

**81-552. Curriculum Developments in Mathematics Education**

This course will examine recent developments in curriculum, instruction, and evaluation in elementary and secondary mathematics education. Trends will be discussed in light of recent research findings, technological advances, and social goals. International comparisons will be made. (3 hours a week.)

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### **81-553. The Teaching and Learning of Mathematics**

This course will examine research into students' learning and the teaching of mathematics. First, the motivational aspects of teaching and learning will be considered, including those related to the topic "Women in Mathematics." Second, specific mathematical topics will be dealt with, selected according to the interests of students. (3 hours a week.)

### **81-556. Approaches to Literacy Development**

This course will consider current research and theory in the development of reading and writing abilities, and will examine some aspects of assessing literacy development. (3 hours a week.)

### **81-557. The English Language Arts**

This course will examine current theories and issues in the English Language Arts with particular focus on their implications for curriculum and practice in the intermediate and senior divisions. Current issues at the local or provincial level, determined by the group, may be examined in detail. (3 hours a week.)

### **81-558. Psychology of Learning Problems**

This course will review current theories of learning disabilities and learning problems. Various approaches to diagnosis and remediation will be presented. Students will be expected to discuss case study examples during the course, and to develop a particular interest area to great depth. (Prerequisite: [81-503](#) or permission of instructor.) (3 hours a week.)

### **81-572. Theory and Practice in Early Childhood Education**

An examination of theory and current practice in Early Childhood Education. The emphasis will be on the translation of theory into sound educational practice. Organization and management of Early Childhood programs will be of concern as well as teaching procedures. (3 hours a week.)

### **82-529. Theories of Educational Administration**

This course will examine current knowledge in educational administration. Theory, research, and the practice of leadership within the educational system will be the main foci. Emphasis will be placed on administrative problems, such as staff development, team building, and motivation. (3 hours a week.)

### **82-532. Organization and Administration of the School**

This course will consider and analyze the many variables impacting upon school administrators as they organize their schools. The effects of administrative theory, past and present, will be considered. A case study approach will be taken to the problems of day-to-day operation. (3 hours a week.)

### **82-535. Organizational Behaviour in Educational Institutions**

A study of theory and research in the socio-behavioral sciences which concerns the behaviour of individuals and groups in educational settings. Attention will be given to the implications of such theory and research for administration in educational institutions. (3 hours a week.)

### **82-550. Issues in Education**

This course will examine current issues affecting contemporary Canadian education. Specific course content and instructors will be published in advance. (3 hours a week.)

### **82-560. Politics of Education**

This course will examine the administration of education from a political perspective. Both the legal and extra-legal factors that influence educational outcomes will be examined. Their roles will be viewed in terms of comparative forms of educational administration. Finally, several administrative decisions will be analyzed using the perspectives gained throughout the course. (3 hours a week.)

**82-561. Legal Aspects of Education**

This course will focus on legislation and court decisions dealing specifically with the educational process. Both the historical and philosophical basis of these and the practical application of the same in a contemporary setting will form the primary emphasis for the course. (3 hours a week.)

**82-562. Educational Finance**

This course will be concerned with educational finance in Canada, with particular emphasis on Ontario. It will examine such topics as equity, accountability, efficiency, and adequacy of educational revenues and expenditures. Provincial grant systems will be analyzed within the contexts of political governance and the economics of education. (3 hours a week.)

**82-565. Sociological Aspects of Education**

This course will examine the school and its occupants and their relationship to the contemporary social order. Analysis of topics such as student culture, learning and social class, roles within the school setting will occur. The focus will be on theoretical positions, representative research findings and representative research methods. (3 hours a week.)

**82-566. Interpersonal Relationships in Education**

This course will analyze the importance and dynamics of interpersonal behaviour. Students will be given the opportunity to examine and develop their own skills in this area. Emphasis will also be placed upon a practical orientation toward utilizing these skills in the educational environment. (3 hours a week.)

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## FACULTY OF ENGINEERING: PROGRAMS OF STUDY OVERVIEW

**Master of Applied Science** (in [Civil Engineering](#), [Electrical Engineering](#), [Engineering Materials](#), [Environmental Engineering](#), [Industrial Engineering](#), or [Mechanical Engineering](#))

**Master of Engineering** (in [Civil Engineering](#), [Electrical Engineering](#), [Engineering Materials](#), [Environmental Engineering](#), [Industrial Engineering](#), or [Mechanical Engineering](#))

**Doctor of Philosophy** (in [Civil Engineering](#), [Electrical Engineering](#), [Engineering Materials](#), [Environmental Engineering](#), or [Mechanical Engineering](#))

Ph.D. and M.A.Sc. degrees are offered in Civil Engineering, Electrical Engineering, Engineering Materials, Environmental Engineering, and Mechanical Engineering. The M.A.Sc. degree is offered in Industrial Engineering. The M.Eng. degree is offered in Civil Engineering, Electrical and Computer Engineering, Environmental Engineering, Engineering Materials, Industrial Engineering, and Mechanical Engineering. The Civil Engineering program has two fields of studies: structures and water resources. The Mechanical Engineering program offers the following fields of studies: machine dynamics and design, and thermofluids. In addition, at the Master's level, a third automotive field is available.

Requirements common to these Programs and supplementary to the general requirements of the Faculty of Graduate Studies and Research are listed below.

The Faculty of Engineering offers a Bachelor's/Master's Integrated Engineering Degree program which allows students with outstanding academic ability to achieve both a B.A.Sc. and M.A.Sc. degree in a time period as short as five years. This program treats the educational process through the B.A.Sc. to the M.A.Sc. degree as a single coherent integrated whole, while ensuring that the requirements for both degrees are fully satisfied. This structured program represents a complementary alternative to the existing separate undergraduate and graduate degree programs.

### THE DEGREE OF DOCTOR OF PHILOSOPHY

#### Areas of Specialization

The areas of specialization are listed by Program.

#### Admission Requirements

An applicant for admission to a course of graduate studies leading to the Doctor of Philosophy degree in Engineering must normally be a graduate of a recognized university with a Master's degree in Engineering or Applied Science. Applicants with degrees in related fields will be considered but will normally require strengthening of



<ul style="list-style-type: none"><li>• <b>Communciation Studies: Courses</b></li></ul>	their background in engineering. At the discretion of the Program Graduate Committee, Graduate Record Examinations (GREE) may be required.
<ul style="list-style-type: none"><li>• <b>Computer Science: Graduate Faculty</b></li><li>• <b>Computer Science: Programs</b></li><li>• <b>Computer Science: Courses</b></li></ul>	<p>All applicants whose native language is not English are required to satisfy the English proficiency requirement as described in 1.3.</p> <p>Possession of the minimum requirements does not automatically ensure acceptance.</p>
<ul style="list-style-type: none"><li>• <b>Earth Sciences: Graduate Faculty</b></li><li>• <b>Earth Sciences: Programs</b></li><li>• <b>Earth Sciences: Courses</b></li></ul>	<p><i>Candidacy:</i> Admission to graduate study does not imply admission to candidacy for a degree. The candidacy of a student normally will be determined within the second year after initial registration in the doctoral program.</p> <p>Candidacy will be granted to students who meet all of the following requirements:</p> <ul style="list-style-type: none"><li>(a) satisfactory completion of the comprehensive examination;</li><li>(b) demonstration to the doctoral committee of ability to conduct independent research;</li><li>(c) acceptance by the doctoral committee of the research proposal.</li></ul> <p>The doctoral committee will assess the student's competence to continue research on the basis of (a), (b) and (c), and make a recommendation to the Chair of the Program Graduate Committee.</p>
<ul style="list-style-type: none"><li>• <b>Economics: Graduate Faculty</b></li><li>• <b>Economics: Programs</b></li><li>• <b>Economics: Courses</b></li></ul>	<p><b>Program Requirements</b></p> <p>The specific minimum program requirements for the Ph.D. include the successful completion of:</p> <ol style="list-style-type: none"><li>1) <i>Course Requirements:</i> Satisfactory completion of at least four courses, comprising a minimum of eight term hours, beyond the courses required for the Master's degree.</li><li>2) A comprehensive examination.</li><li>3) Satisfactory progress in research within each review period. The doctoral committee will establish by periodic review, which will include at least one formal seminar a year, that adequate progress in research has been accomplished by the candidate. The doctoral committee will also grant permission to write the dissertation when it decides the candidate has achieved sufficient competence in carrying out research, and when the candidate has done substantial research.</li><li>4) A dissertation on the research. Each candidate will be required to make an oral presentation of the dissertation research and will be examined orally on the subject of the dissertation and related fields.</li></ol> <p><i>Residence and Time Limits:</i> Every student will undertake a full program of study for a minimum of three years beyond the Baccalaureate of Engineering or its equivalent. Credit for one of these years may be given for the time spent in proceeding to a Master's degree. Credit for one of these years may also be given for work done at another institution. However, in no case shall the student spend fewer than two of the three required years of residence in full-time attendance at the University of Windsor.</p>
<ul style="list-style-type: none"><li>• <b>Faculty of Education: Graduate Faculty</b></li><li>• <b>Education: Programs</b></li><li>• <b>Education: Courses</b></li></ul>	<p>A student admitted to a Ph.D. program requiring the student's attendance for a minimum of three years must complete all requirements within seven years. Students admitted to a program requiring a minimum of two years' residence must complete all requirements within six years.</p>
<ul style="list-style-type: none"><li>• <b>Faculty of Engineering: Programs of Study Overview</b></li><li>• <b>General Courses, Engineering</b></li></ul>	<p><i>Committees:</i> Research undertaken as part of a doctoral program is normally directed and supervised by a doctoral committee. Whereas the student's advisor provides day-to-day guidance and direction, the committee is ultimately responsible for the overall supervision to ensure that adequate progress is being maintained. The doctoral committee will consist of at least four members, with the student's advisor as</p>
<ul style="list-style-type: none"><li>• <b>Civil and Environmental Engineering (CEE): Graduate Faculty</b></li><li>• <b>CEE: Areas of Specialization</b></li><li>• <b>CEE: Courses</b></li></ul>	
<ul style="list-style-type: none"><li>• <b>Electrical Engineering: Graduate Faculty</b></li><li>• <b>Electrical Engineering: Areas Of Specialization</b></li><li>• <b>Electrical Engineering: Courses</b></li></ul>	
<ul style="list-style-type: none"><li>• <b>Engineering Materials: Graduate Faculty</b></li><li>• <b>Engineering Materials: Areas of Specialization</b></li><li>• <b>Engineering Materials: Courses</b></li></ul>	
<ul style="list-style-type: none"><li>• <b>Industrial and Manufacturing Systems Engineering (IMSE): Graduate Faculty</b></li><li>• <b>IMSE: Areas of Specialization</b></li><li>• <b>IMSE: Courses</b></li></ul>	
<ul style="list-style-type: none"><li>• <b>Mechanical, Automotive, and Materials Engineering (MAME): Graduate Faculty</b></li><li>• <b>MAME: Areas of Specialization</b></li></ul>	

• MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

- Sociology: Programs
- Sociology: Courses

Visual Arts: Graduate Faculty

- Visual Arts: Programs
- Visual Arts: Courses

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chairperson. The advisor must be a member of graduate faculty. At least one member shall be from a program area within the University of Windsor other than the one in which the student is majoring.

The student's advisor will propose the names of members for the doctoral committee, and these will be subject to the approval of the Program Graduate Committee and the Executive Committee of the Faculty of Graduate Studies and Research. Within one month after initial registration, each student will be assigned to a doctoral committee.

The final appraisal of the dissertation and the conduct of the final oral examination of the dissertation will be carried out by an examining committee. The examining committee will consist of the doctoral committee, the Dean of Graduate Studies and Research or designate as chairperson (non-voting), and an external examiner.

*Examinations:* At the discretion of the doctoral committee a qualifying examination may be required. A qualifying examination is one in which the student is asked to demonstrate a reasonable mastery of the fundamentals in the major subject; it is designed to test the student's preparation for advanced graduate work. If such an examination is required, it must be administered and passed before the student registers for the second year of Ph.D. work.

In addition to the usual examinations on course work, all students must meet the following requirements:

1) Review of Progress on Research: Within the first year, the student will present in the form of a seminar an outline of his or her proposed thesis research. This will be presented to the doctoral committee who must approve, with or without modifications, or reject the proposal. Thereafter, at least once a year the student will report his or her progress in the form of a seminar.

2) Comprehensive Examination: Students who have previously obtained a Master's degree must attempt this examination within twelve months of registering for the Ph.D. program. Other students must take it within twenty-four months of registration for the Ph.D. program. This set of examinations requires the students to demonstrate an adequate background in the general discipline of engineering, and an advanced knowledge in their fields of specialization. The comprehensive examination will be conducted by a program comprehensive committee in one or two sections at the discretion of the Program Graduate Committee:

(a) a scheduled, supervised written portion, of at least three hours' duration, designed to test the student's general knowledge on core subjects in the field of study, with questions set and answers evaluated by the program comprehensive committee;

(b) an oral examination to be evaluated by the program comprehensive committee. The objective of this part of the examination is to test the student's ability to integrate general knowledge from different areas of the field of study in order to solve problems the student has not previously encountered.

The student's overall success in the comprehensive examination will be determined by the program comprehensive committee. If the student is unsuccessful, the committee may require:

(a) that the student repeat all or part of the comprehensive examination at a specified time,

(b) that the student take and pass remedial coursework before repeating all or part of the examination, or

(c) after consultation with and approval by the doctoral committee, that the student withdraw from the program.

3) *Final Examination:* The passing of the final oral examination of the dissertation

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requires both an adequate dissertation and a satisfactory defense of the dissertation. This examination will be conducted by the examining committee. Following the acceptance and provisional approval of the dissertation by the doctoral committee, and a satisfactory preliminary report from the external examiner, a date for the oral examination can be set. Except under very unusual circumstances, the external examiner must be present at the oral examination. If the examining committee cannot arrive at a unanimous decision to award a passing grade, the majority decision will be accepted provided that there is no more than one dissenting vote. However, if the dissenting vote is that of the external examiner, a new external examiner may be appointed and another oral examination will be required. If the new examiner also gives a dissenting vote, the dissertation will not be accepted.

## THE DEGREE OF MASTER OF APPLIED SCIENCE

### Areas of Specialization

The areas of specialization are listed by Program.

### Admission Requirements

A candidate for the degree of Master of Applied Science shall hold the degree of Bachelor of Applied Science from this University or an equivalent degree in Engineering or Applied Science. In addition, the applicant must have at least second-class standing or its equivalent in the final year and be recommended by the Program Graduate Committee in which the candidate plans to undertake studies.

Applicants with degrees in related fields will be considered but will normally require strengthening of their background in Engineering. At the discretion of the Program, the Graduate Record Examination (GRE) may be required.

All applicants whose native language is not English are required to satisfy the English proficiency requirement as described in 1.3.

Possession of the minimum requirements does not automatically ensure acceptance.

### Degree Requirements

The specific minimum program requirements for the M.A.Sc. include the successful completion of:

1) *Course Requirements*: Satisfactory completion of courses comprising between twelve and twenty-four term hours, depending on the term hour equivalence assigned to the mandatory thesis or major paper. A thesis may be equivalent to as many as eighteen term hours, and a major paper to as many as six term hours of the total minimum requirement of thirty term hours.

2) Either a thesis or a major paper as specified below:

(a) *Thesis*: A thesis incorporating the results of an original investigation is required of all candidates except those students who are doing non-thesis research toward a major paper. Before writing the thesis the student must meet with the Master's committee to obtain permission to write the thesis. The Master's committee will grant this permission when the student has shown sufficient competence and has accomplished substantial research. After completion of the thesis, each candidate will be required to make a satisfactory oral presentation and defense of the thesis as described below.

(b) *Major Paper*: For those candidates doing non-thesis research, a major paper is required. The topic of the major paper is normally research based on the existing literature in the field of study. The candidate will be required to make an acceptable oral

presentation to the Master's committee based on the major paper (see below).

3) Mechanical Engineering students must take [92-595](#) (Graduate Seminar)

*Residence and Time Limits:* The minimum period of study for a Master's candidate is twelve months. The maximum duration of full-time study as a Master's candidate is three years. Part-time Master's candidates will undertake the equivalent of a minimum of one year of full-time study. For a part-time Master's candidate the maximum time limit generally will not exceed five calendar years. Master's candidates who expect to require an extension of these time limits must petition the Dean of Graduate Studies and Research, giving reasons for the request and plans for completion of the work. The Chair of the Program Graduate Committee will then make a recommendation to the Dean of Graduate Studies and Research.

*Committees:* Research undertaken as part of a Master's program is normally directed and supervised by a Master's committee. Whereas the student's advisor provides day-to-day guidance and direction, the committee is ultimately responsible for the overall supervision to ensure that adequate progress is maintained. The Master's committee will consist of at least three members with the student's advisor as chairperson. The advisor must be a member of graduate faculty.

At least one member shall be from a Program within the University of Windsor other than the one in which the student is majoring. The student's advisor will propose the names of the Master's committee and these will be subject to the approval of the Program Graduate Committee and the Executive Committee of the Faculty of Graduate Studies and Research. Within one month after registration, each student will be assigned to a Master's committee.

The final appraisal of the thesis and the conduct of the final oral examination of the dissertation will be carried out by the examining committee. The examining committee will consist of the Master's committee and the Chair of the Program Graduate Committee or designate of the Dean of Graduate Studies and Research as chairperson (non-voting).

*Examinations:* At the discretion of the Program Graduate Committee a qualifying examination may be required. A qualifying examination is one in which the student is asked to demonstrate a reasonable mastery of the fundamentals in the major subject; it is designed to test the student's preparation for advanced graduate work. If such an examination is required, it must be administered and passed before the student registers for the final candidate year of Master's work.

In addition to the usual examination on course work, all students must meet the following requirements:

1) *Review of Progress on Research or Major Paper:* Within the first year a full-time student will present in the form of a seminar an outline of his or her proposed thesis research or outline the content of his or her major paper. This will be presented to the Master's committee, who must approve, with or without modifications, or reject the proposal. Thereafter, at least once a year, the student will report his or her progress in the form of a seminar.

2) *Final Examinations:* The passing of the final oral examination on the thesis (or the major paper) requires both an adequate thesis (or major paper) and a satisfactory defense. The examination will be conducted by the examining committee and the thesis defence will be chaired by the Chair of the Program Graduate Committee or appointed designate. If the examining committee cannot arrive at a unanimous decision to award a passing grade, a majority decision will be accepted provided there is no more than one dissenting vote. If there is more than one dissenting vote, the student may be required to carry out additional work if the thesis is judged to be adequate in all other

respects, or the student may be required to withdraw.

*Grading:* The grading system is outlined in 1.4.3.

The Faculty of Engineering requires that students maintain at least a B average at all times.

Courses in which a grade of B or higher is received will be accepted for graduate credit. In addition, upon the positive recommendation of the Chair of the Program Graduate Committee and advisor concerned, credit may be granted by the Faculty of Graduate Studies and Research for not more than two term courses in which a grade of C or C+ has been obtained.

If a student fails to obtain credit in a course, the course may be repeated only once, at the discretion of the Chair of the Program Graduate Committee concerned and the Dean of Graduate Studies and Research. No student may repeat, or replace with another course, more than two term courses in which credit was not obtained.

All research work for which a letter grade is assigned must be graded B or better to receive credit.

Make-up courses will not count for graduate credit. Make-up courses are those courses required to compensate for deficiencies in the student's academic background.

In exceptional cases, at the discretion of the Chair of the Program Graduate Committee and the advisor, a graduate student may take one undergraduate course for credit.

## **THE DEGREE OF MASTER OF ENGINEERING**

### **Admission Requirements**

A candidate for the degree of Master of Engineering shall hold the degree of Bachelor of Applied Science from this University or an equivalent degree in Engineering or Applied Science from another University. In addition, the applicant must have at least second-class standing or its equivalent in the final year and be recommended by the Program Graduate Committee in which the candidate plans to undertake studies. Applicant qualifications will be assessed through a Prior Learning Assessment Committee, if necessary, set up for this purpose by the Dean of Engineering or his/her designate in consultation with the Dean of Graduate Studies and Research.

Applicants with degrees in related fields may be considered but will normally require strengthening of their background in Engineering. At the discretion of the AAU's relevant Graduate Studies Committee, the Graduate Record Examination (GREE) may be required. In such instances, rules outlined in Section 1.3.2 shall apply.

All applicants whose native language is not English are required to satisfy the English proficiency requirement as described in Section 1.3.2 of the Graduate Calendar.

Applicants who can demonstrate relevant post-Baccalaureate engineering employment experience may be given preference during the admission process.

Possession of the minimum requirements does not automatically ensure acceptance into the program.

It is not anticipated that students with an M.Eng. Degree will seek admission into our Ph.D. programs. However, if they do, the Prior Learning Assessment Committee will determine what extra credits will be required for admission into the Ph.D. program. Students will not be allowed to take both degrees, M.Eng. and M.A.Sc., concurrently. Courses counted for one degree cannot be credited towards the other, although

students may apply for permission to transfer between the two masters programs, provided they meet the admission requirement of the new program.

### **Degree Requirements**

The M.Eng. consists of a total of 10 (ten) graduate level courses (equivalent to a minimum of 30 credits). The distribution of these courses will be as follows:

- 1) A minimum of 5 (five) courses, equivalent to 15 credits, from the list of graduate courses in the specific program.
- 2) No less than 2 (two) courses, equivalent to at least 6 credits, from other engineering programs.
- 3) Up to 3 (three) courses may be selected from other graduate programs within the university with the approval of the programs involved.

One of the 5 courses from the specific program will have one or two short projects (case studies) requiring literature search, report writing and presentations. Each student in the program should obtain approval from the Program's Graduate Coordinator regarding the planned program of study.

### **RESEARCH IN OUTSIDE INSTITUTIONS**

Research for the Ph.D. or M.A.Sc. degree, in part or in whole, may be carried out in an outside institution (e.g., industrial, governmental, or academic university). A student who does research at an outside institution must fulfil the same requirements as a student doing on-campus research. The only exception is that the time spent doing the off-campus research relevant to the thesis or dissertation will be credited toward the residence requirement. In addition to the general requirements, a student applying for permission to do research at an outside institution must provide:

- 1) A detailed statement of the research proposal, including arrangements for supervision, and of the circumstances under which the research is to be carried out;
- 2) Evidence that the institution has adequate facilities for the research; and that the applicant will be able to pursue independent research;
- 3) A proposed time schedule;
- 4) A letter of support from a responsible person in the outside institution giving approval of the proposal and accepting these regulations.

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### **FACULTY OF ENGINEERING: GENERAL COURSES**

#### ***GENERAL ENGINEERING***

##### **85-111. Engineering Mechanics I**

Statics of particles and rigid bodies; trusses, frames, machines; centroids and centres of gravity; friction. (2 lecture, 2 tutorial hours a week.)

##### **85-118. Professional Development**

The practice of engineering in various disciplines; career development; administrative processes in the profession; ethical considerations; the relationship of engineering to society. Responsibility of professional engineers for public health and safety in the workplace. Fundamentals of expository writing, including types of exposition, planning, organization, format and style, résumé preparation, engineering reports, and other forms of written communication. Assignments using word processing. (2 lecture hours a week.)

##### **85-122. Engineering Mechanics II**

Kinematics of particles; kinetics of particles: Newton's Second Law, work-energy and impulse-momentum methods; moments of inertia of areas and masses; kinematics of rigid bodies, plane motion. (3 lecture, 2 tutorial hours a week.)

##### **85-124. Electric Circuits**

Electric charge, electric fields and potentials; conduction, resistivity, circuit variables, ideal sources and components; diodes; simple resistive circuits; techniques of circuit analysis, mesh and node analysis; network theorems, Thevenin and Norton theorems; source transformations; operational amplifiers, circuits, analysis and applications; inductance, capacitance; computer-oriented solution methods using SPICE and MATLAB. (3 lecture, 2.0 laboratory/tutorial hours or equivalent a week.)

##### **85-130. Graphical Communications**

A course in the fundamentals of engineering graphic communication, including the following: orthographic projection; isometric drawing and sketching; single and double auxiliary views; sections and conventions; dimensioning; reading engineering drawings and prints; the fundamentals of descriptive geometry; introduction to computer graphics. (1 lecture hour, 3 laboratory hours a week.)

##### **85-131. Computer-Aided Design**

Design project organization, design methodology, needs validation, problem identification and definition, modern problem-solving techniques, effective oral and written communication. Design evaluation using criterion functions. Application to major projects. (2 lecture, 2 laboratory hours a week.)

##### **85-132. Computer-Aided Analysis I**

Introduction to simple engineering problems and the application of digital computers to analyze these problems; use of MATLAB in engineering computations; introduction to various computer programming languages, with emphasis on C. (2 lecture, 2 tutorial hours a week.)

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**85-198. Work Term I**

Supervised experience in an approved career-related setting with a focus on the application of theory and the development of transferable skills. The co-op work experience is designed to provide students with an enriched learning opportunity to integrate academic theory and concepts in an applied setting. (Prerequisite: Student must be enrolled in a co-operative education program. Offered on a Pass/non-Pass basis. Supervised practicum requires the successful completion of a minimum of 420 hours. Students who do not pass the course may not be allowed to remain in the co-op program.)

**85-211. Computer-Aided Analysis II**

Programming; numerical methods; solution of linear algebraic equations with real and complex coefficients; matrix oriented methods; equations in one variable, roots of polynomials; solutions of nonlinear algebraic equations; curve-fitting techniques, numerical integration, solution of ordinary differential equations. (Prerequisite: [85-132](#).) (3 lecture, 1.5 tutorial hours a week.)

**85-212. Thermodynamics I**

An introductory thermodynamics course in which fundamental principles are developed. Included are ideal gas relations, properties of pure substances, First Law for closed and steady flow systems, the Second Law with entropy relations, and an introduction to cycles. (3 lecture, 1.5 tutorial hours a week.)

**85-214. Circuit Analysis**

Inductance, capacitance and mutual inductance; natural response of first-order RL and RC circuits; natural and step response of RLC circuits; state equation formulation, numerical solutions; sinusoidal steady-state analysis; sinusoidal steady state power calculations; balanced three-phase circuits; unbalanced three-phase transient analysis; Fourier series; discrete Fourier transform; frequency domain analysis; network simulations using SPICE and MATLAB. (Prerequisite: [85-124](#).) (3 lecture, 1.5 laboratory/tutorial hours or equivalent a week.)

**85-217. Engineering Mechanics of Deformable Bodies I**

An introduction to stress, strain, and stress-strain relations, and a brief discussion of mechanical properties and types of loads. A study of members subjected to axial load, flexure, and torsion. (Prerequisites: [85-111](#) and [62-140](#).) (2 lecture, 2 laboratory/tutorial hours a week.)

**85-219. Introduction to Engineering Materials**

This course explains how the properties of solid materials are derived and are related to their basic crystallographic and electronic structures: Metals, ceramics, polymers, and electronic materials are covered. (3 lecture, 2 laboratory or tutorial hours a week.)

**85-222. Engineering Treatment of Experimental Data**

Treatment of engineering data using the concepts of frequency distribution; measures of central tendency and dispersion. Probability; random variables; discrete and continuous distributions. Tests of hypotheses; estimation; goodness-of-fit test; linear regression and correlation. Applications using computers in engineering design problems, quality control, and manufacturing processes. (Prerequisite: [62-140](#).) (3 lecture hours, 1 tutorial hour a week.)

**85-224. Technical Communications**

Effective oral communication techniques and approaches, including informative presentations, persuasive presentations, and the use of visual aids (computer projected/slides) for conveying technical/engineering information. Written engineering communication including: abstracts, formal letters, figures, tables, references, proposals and technical reports. Introduction to literature research techniques. The main objective is to introduce consciousness and clarity into all forms of



- MAME: Courses

communications. (2 lecture, 1 tutorial hours a week.)

English: Graduate Faculty

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History: Graduate Faculty

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Faculty of Nursing: Graduate  
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Philosophy: Graduate Faculty

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Physics: Graduate Faculty

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Political Science: Graduate  
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Psychology: Graduate Faculty

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Social Work: Graduate  
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### 85-233. Fluid Mechanics I

Fluid properties and basic concepts, fluid statics, equations of motion, one dimensional flows, flows in pipes in series, parallel and networks, dimensional analysis and similitude. (3 lecture hours, 1 tutorial hour a week.)

### 85-298. Work Term II

Supervised experience in an approved career-related setting with a focus on the application of theory and the development of transferable skills. The co-op work experience is designed to provide students with an enriched learning opportunity to integrate academic theory and concepts in an applied setting. (Prerequisite: Student must be enrolled in a co-operative education program. Offered on a Pass/non-Pass basis. Supervised practicum requires the successful completion of a minimum of 420 hours. Students who do not pass the course may not be allowed to remain in the co-op program.)

### 85-313. Engineering Economy

Cost estimation, cost accounting, and cost control. Comparison of engineering alternatives by annual cost, present worth, and rate of return methods. Depreciation and taxes. Equipment replacement. (3 lecture, 1.5 tutorial hours a week.)

### 85-398. Work Term III

Supervised experience in an approved career-related setting with a focus on the application of theory and the development of transferable skills. The co-op work experience is designed to provide students with an enriched learning opportunity to integrate academic theory and concepts in an applied setting. (Prerequisite: Student must be enrolled in a co-operative education program. Offered on a Pass/non-Pass basis. Supervised practicum requires the successful completion of a minimum of 420 hours. Students who do not pass the course may not be allowed to remain in the co-op program.)

### 85-421. Engineering and Society

The technology-society relationship in a historical context; the nature of technological change and its consequences; the engineer's role in the control of technology and sustainable development; the responsibility of engineers for health and safety in the workplace, including OHS, WHMIS. The development of the engineering profession; professional registration and the code of ethics; the duties and responsibilities of engineers; the engineer and the law. (Restricted to fourth-year students.) (3 lecture hours a week.)

### 85-498. Work Term IV

Supervised experience in an approved career-related setting with a focus on the application of theory and the development of transferable skills. The co-op work experience is designed to provide students with an enriched learning opportunity to integrate academic theory and concepts in an applied setting. (Prerequisite: Student must be enrolled in a co-operative education program. Offered on a Pass/non-Pass basis. Supervised practicum requires the successful completion of a minimum of 420 hours. Students who do not pass the course may not be allowed to remain in the co-op program.)

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## CIVIL AND ENVIRONMENTAL ENGINEERING

### GRADUATE FACULTY

#### University Professors

Kennedy, John B.; B.Sc. (Hons.) (Cardiff), Ph.D. (Toronto), D.Sc. (Wales), F.A.S.C.E., F.C.S.C.E., P.Eng.-1963.

Bewtra, Jatinder K.; B.E. (Roorkee), M.S., Ph.D. (Iowa), P.Eng.-1968.

Biswas, Nihar; B.E. (Calcutta), M.A.Sc., Ph.D. (Ottawa), P.Eng.-1981.

#### Professors Emeriti

McCorquodale, John Alexander; B.E.Sc. (Western Ontario), M.Sc. (Glasgow), Ph.D. (Windsor), F.C.S.C.E., P.Eng.-1966.

Abdel-Sayed, George; B.Sc., M.Sc. (Cairo), Dr.Ing. (T. U. Karlsruhe), F.C.S.C.E., P.Eng.-1967.

Madugula, Murty K. S.; B.E. (Hons.), M. Tech., Ph.D. (I.I.T., Kharagpur), P.Eng.-1979.

#### Professors

Asfour, Abdul-Fattah Aly; B.Sc. (Hons.), M.A.Sc. (Alexandria), Ph.D. (Waterloo), P.Eng.-1981.

Budkowska, Bozena Barbara; B.A.Sc., M.A.Sc., Ph.D. (Gdansk)-1989.

Balachandar, Ram; B.E. (Madras), Ph.D. (Concordia), P.Eng.-2003.

#### Associate Professors

Henshaw, Paul; B.Sc., B.Eng.Sc. (Western Ontario), Ph.D. (Windsor), P.Eng.-1997. (Undergraduate Program Coordinator)

Hearn, Nataliya; B.A.Sc. (Toronto), Ph.D. (Cambridge)-1999.

Lalman, Jerald; B. Sc., B.A.Sc., M.Eng., Ph.D. (Toronto), P.Eng.-2003.

#### Assistant Professors

Reitsma, Stanley; B.A.Sc., M.Sc. (Water-loo), Ph.D. (Queen's)-1998.

Ghrib, Faouzi; B.Sc. (Tunis), M.Sc., Ph.D. (Ecole Polytechnique)-1999.

• **Communciation Studies:**  
Courses

Tam, Edwin K. L.; B.Sc., M.Sc. (Alberta), Ph.D. (Toronto)-2001.

**Computer Science: Graduate Faculty**

Seth, Rajesh; B.E. (Govt. Engin. College, Jabalpur), M.Tech. (Indian Inst. Of Technology), Ph.D. (Toronto)-2002.

• **Computer Science:**  
Programs

Xu, Xiaohong; B.E. (Beijing Sci. & Tech. Univ.), M.Sc. (China Agric. Univ.), M.Sc., Ph.D., Connecticut-2002.

• **Computer Science: Courses**

**Earth Sciences: Graduate Faculty**

**Adjunct Professor**

• **Earth Sciences: Programs**

Grace, Nabil; B.Sc. (Cairo), M.A.Sc., Ph.D. (Windsor), P.Eng.-2000.

• **Earth Sciences: Courses**

**Economics: Graduate Faculty**

**Adjunct Assistant Professors**

• **Economics: Programs**

Jasim, Saad Y.; Ph.D. (Wales), P.Eng.-1994.

• **Economics: Courses**

**Faculty of Education:**  
Graduate Faculty

Bhattacharjee, Sudip; B.Sc., M.Sc. (Dhaka), Ph.D. (McGill), P.Eng.-1998.

• **Education: Programs**

Mazurek, Kerry Anne; B.Sc., M.Sc., Ph.D. (Alberta), P.Eng.-2001.

• **Education: Courses**

**Faculty of Engineering:**  
Programs of Study Overview

**Cross-Appointment**

• **General Courses,**

Taylor, Keith E.; B.Sc., M.Sc. (Toronto)-1976.

**Engineering**

**Civil and Environmental Engineering (CEE): Graduate Faculty**

• **CEE: Areas of Specialization**

• **CEE: Courses**

**Electrical Engineering:**  
Graduate Faculty

• **Electrical Engineering:**

**Areas Of Specialization**

• **Electrical Engineering:**

**Courses**

**Engineering Materials:**  
Graduate Faculty

• **Engineering Materials:**

**Areas of Specialization**

• **Engineering Materials:**

**Courses**

**Industrial and Manufacturing Systems Engineering (IMSE):**  
Graduate Faculty

• **IMSE: Areas of**

**Specialization**

• **IMSE: Courses**

**Mechanical, Automotive, and Materials Engineering**

**(MAME): Graduate Faculty**

• **MAME: Areas of**

**Specialization**

- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

- Sociology: Programs
- Sociology: Courses

Visual Arts: Graduate Faculty

- Visual Arts: Programs
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- Business: Programs
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[Chemistry and Biochemistry: Graduate Faculty](#)

- Chemistry and Biochemistry: Programs
- Chemistry and Biochemistry: Courses

[Communication Studies: Graduate Faculty](#)

- Communications Studies: Programs

## **CIVIL AND ENVIRONMENTAL ENGINEERING: AREAS OF SPECIALIZATION**

### **Areas Of Specialization**

Civil and Environmental Engineering offers programs of graduate studies and research leading to the degrees of Doctor of Philosophy, Master of Applied Science and Master of Engineering. The Ph.D., M.A.Sc. and M.Eng degrees may be obtained in either Environmental Engineering or Civil Engineering. Within Civil Engineering, the available fields are Structural Engineering and Water Resources Engineering. In the Environmental Engineering program, research focuses on air and water quality and modeling, wastewater and industrial waste treatment, and ground water contamination. In the Water Resources field, research is in hydraulics, hydrology, and hydrogeology. In the Structures field, research encompasses ACM, structural dynamics, fatigue damage assessment, steel, concrete technology, soil mechanics, and foundations.

• Communciation Studies:  
Courses

Computer Science: Graduate  
Faculty

- Computer Science:  
Programs
- Computer Science: Courses

Earth Sciences: Graduate  
Faculty

- Earth Sciences: Programs
- Earth Sciences: Courses

Economics: Graduate Faculty

- Economics: Programs
- Economics: Courses

Faculty of Education:  
Graduate Faculty

- Education: Programs
- Education: Courses

Faculty of Engineering:  
Programs of Study Overview

- General Courses,  
Engineering

Civil and Environmental  
Engineering (CEE): Graduate  
Faculty

- CEE: Areas of Specialization
- CEE: Courses

Electrical Engineering:  
Graduate Faculty

- Electrical Engineering:  
Areas Of Specialization
- Electrical Engineering:  
Courses

Engineering Materials:  
Graduate Faculty

- Engineering Materials:  
Areas of Specialization
- Engineering Materials:  
Courses

Industrial and Manufacturing  
Systems Engineering (IMSE):  
Graduate Faculty

- IMSE: Areas of  
Specialization
- IMSE: Courses

Mechanical, Automotive, and  
Materials Engineering  
(MAME): Graduate Faculty

- MAME: Areas of  
Specialization



- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

- Sociology: Programs
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Visual Arts: Graduate Faculty

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## CIVIL AND ENVIRONMENTAL ENGINEERING: COURSE DESCRIPTIONS

### **CIVIL ENGINEERING**

Courses offered by Civil Engineering at the graduate level are listed below. Students may take courses other than Civil Engineering with permission of the Head of the Department and the advisor.

All courses listed will not necessarily be offered in any given year.

#### **87-500. Theory of Elasticity and Plasticity**

Analysis of stress and strain; elastic and plastic stress-strain relations; general equations of elasticity; yield criteria; applications to elastoplastic problems, including rotating disks, thick-walled tubes, reinforced disks, torsion of various shaped bars; stress concentration. (3 lecture hours a week.)

#### **87-501. Finite Element Methods for Solids and Structures**

Structural idealization; stress analysis of 2-D and 3-D solids; error estimation and mesh adaptivity; elastic formulations and uses of beam, plate and shell elements; nonlinear formulations; structural stability; introduction to finite element methods in structural design optimization. (3 lecture hours a week.)

#### **87-502. Analysis and Design of Shell Structures**

General theory of thin shells. Membrane stresses in shells of revolution and shells of double curvature. Bending stresses in shells of revolution, cylindrical shells and folded plates. Design of cylindrical shell roofs. (Prerequisite: [87-500](#) or equivalent.) (3 lecture hours a week.)

#### **87-504. Theory of Plates**

Small deflection of laterally loaded rectangular and circular, isotropic and orthotropic plates with various edge conditions, Navier and Levy solutions, energy methods, finite difference approximation, plates under combined action of lateral loading and forces in its plane, local buckling of column elements, buckling of plates under pure shear and under bending stresses, post-buckling strength in plates. (3 lecture hours a week.)

#### **87-505. Theory of Stability**

This course is designed to give an insight into the basic phenomenon of structural stability. Elastic and plastic flexural-buckling of columns with axial and eccentric loads is studied. Energy and numerical methods are used. Stability functions are introduced and used to study trusses and rectangular frames, with and without sidesway. Some discussion of torsional and torsional-flexural buckling, lateral buckling of beams. (3 lecture hours a week.)

#### **87-506. Advanced Structural Steel Design**

This course is designed to develop and expand the design concepts in steel structures; multiple-storey frames, sway and non-sway frame systems; beam-columns; laterally

• **Communciation Studies:**  
Courses

unbraced beams; local buckling of flanges and webs; plate girders; plastic analysis and design; characteristics of light gauge steel components; design of cold-formed steel structures. (3 lecture hours a week.)

Computer Science: Graduate  
Faculty

- Computer Science:
- Programs
- Computer Science: Courses

**87-510. Reinforced Concrete Structures**

Critical examination of design code requirements for: flexure, shear, bond, eccentrically loaded columns; yield line theory, strip method, and design of slabs. Design of hyperbolic paraboloid shells, domes, cylindrical tanks and rigid-frame structures. (3 lecture hours a week.)

Earth Sciences: Graduate  
Faculty

- Earth Sciences: Programs
- Earth Sciences: Courses

**87-511. Prestressed Concrete**

Materials, principles of prestressing systems; prestressing losses; analytical treatment of the effect of shrinkage, creep of concrete, and cable friction on stresses; analysis and design of statically determinate and indeterminate structures; design codes; research background; introduction to prefabricated concrete structures. (3 lecture hours a week.)

Economics: Graduate Faculty

- Economics: Programs
- Economics: Courses

**87-512. Design, Deterioration, and Repair of Concrete**

Cementing materials-basic constituents and manufacture; hydration of cement; physical properties of fresh and hardened paste; concrete mix design; properties of fresh and hardened concrete; deterioration processes affecting field concrete; inspection, assessment and remedial techniques of concrete and reinforced concrete structures. (3 lecture hours a week.)

Faculty of Education:  
Graduate Faculty

- Education: Programs
- Education: Courses

Faculty of Engineering:  
Programs of Study Overview

- General Courses,
- Engineering

**87-513. Structural Dynamics**

Formulation of equations of motion; single degree-of-freedom systems: free vibration response and response to harmonic, periodic, impulse, and general dynamic loading; analysis of non-linear structural response; multi degree-of-freedom systems: equations of motion, structural property matrices, undamped free vibration, Raleigh's method, forced vibration response, practical vibration analysis; continuous systems: partial differential equations of motion, analysis of undamped free vibration, analysis of dynamic response, wave propagation analysis. (3 lecture hours a week.)

Civil and Environmental  
Engineering (CEE): Graduate  
Faculty

- CEE: Areas of Specialization
- CEE: Courses

**87-514. Advanced Concrete Technology**

Advanced composite materials - constituents and products; structural applications, reinforced concrete members, prestressed concrete members, applications with chopped fibres, repair and rehabilitation; innovative applications. (3 lecture hours a week.)

Electrical Engineering:  
Graduate Faculty

- Electrical Engineering:
- Areas Of Specialization
- Electrical Engineering:
- Courses

**87-515. Earthquake-resistant Design of Buildings**

Formulation of the equations of motion, free vibration response, and forced vibration response of SDOF, MDOF and continuous systems; approximate and numerical methods of analysis; wave propagation analysis. (3 lecture hours a week.)

Engineering Materials:  
Graduate Faculty

- Engineering Materials:
- Areas of Specialization
- Engineering Materials:
- Courses

**87-516. Loads and Load Effects on Structures**

Nature of loads; stress analysis of structures for volumetric deformations; modal analysis of structures; vibration-induced forces in structures; time-domain and frequency-domain analysis of structures; fatigue damage calculation of solids. (3 lecture hours a week.)

Industrial and Manufacturing  
Systems Engineering (IMSE):  
Graduate Faculty

- IMSE: Areas of  
Specialization
- IMSE: Courses

**87-519. Advances in Soil Mechanics and Geotechnical Engineering**

Consolidation and improvement methods; compressibility of soils and application of new modification techniques; frost action in soils; design of gravity, cantilever and mechanically stabilized retaining walls; recent advances in the bearing capacity of foundations on reinforced soils; pile foundations and pile groups; machine foundations on piles. (3 lecture hours a week.)

Mechanical, Automotive, and  
Materials Engineering  
(MAME): Graduate Faculty

- MAME: Areas of  
Specialization

**87-520. Multiphase, Multicomponent Flows**

A thorough treatment of the basic techniques for analyzing one-dimensional multi-

- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics: Programs
- Mathematics and Statistics: Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

- Sociology: Programs
- Sociology: Courses

Visual Arts: Graduate Faculty

- Visual Arts: Programs
- Visual Arts: Courses

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phase, multicomponent flows in order to predict flow regimes, pressure drop, etc. Practical applications in fluidization, sedimentation and boiling heat transfer. (3 lecture hours a week.)

### 87-521. Hydrology

Analysis and synthesis of the hydrograph. Streamflow routing. The hydrograph as a function of drainage characteristics; estimation of runoff from meteorological data. Snowmelt. Flow in rivers with an ice cover. Infiltration theory. Sea water intrusion in coastal aquifers. Application of hydrologic techniques including statistical methods. (3 lecture hours a week.)

### 87-522. River Mechanics

Theory and analysis of uniform, gradually varied, rapidly varied and steady and unsteady flow in open channels; fluvial processes; design of channels; design of hydraulic control structures. (3 lecture hours a week.)

### 87-523. Ground Water Contamination

Introduction of Darcy's equation and governing equation; construction of flownets, flow quantification, and ground water resource evaluation; contaminant hydrogeology, mass transport equations, reaction, and adsorption; introduction to biodegradation and natural attenuation; simulation of ground water flow and transport. (3 lecture hours a week.)

### 87-524. Advanced Hydromechanics

Properties of scalar and vector fields; gradient, divergence and curl. Flow visualization. Flow kinematics: continuity equation, potential flow, stream function. Flow dynamics: transport theorems, integral and differential equations of motion. Boundary-layer theory. Turbulent flow and turbulence models. (3 lecture hours a week.)

### 87-525. Hydraulic Analyses

This course deals with advanced methods of analyzing hydraulics and water resource systems. Exact and approximate methods are reviewed. The formulation and solution of problems by finite difference and finite element methods is a major part of the course. Typical examples from open channel and ground water flows are included. The method of characteristics is applied to transient flow in open channels and closed conduits. (3 lecture hours a week.)

### 87-526. Sediment Transport

Regime approach; turbulence theories; suspended sediment; tractive force method; bedforms and bedload transport; the Einstein method; modified Einstein method; reservoir siltation; recent developments; design of mobile bed channels; design of sedimentation basins; channel degradation. (3 lecture hours a week.)

### 87-527. Coastal Engineering

Introduction to linear and nonlinear wave theory. Wave transformation: shoaling, refraction, diffraction, reflection and breaking. Wave interaction with piles, walls and rubble mounds. Computation of forces and moments. Stability analysis. Wave generation and prediction. Computation of design water levels. Statistical nature of wind-generated waves in deep and shallow waters. Littoral zone processes. Computation of longshore transport. Effect of shore structures on littoral processes. Design of shore protections. Design of small harbours. This course involves the use of microcomputers and physical models. (3 lecture hours a week.)

### 87-590. Special Topics In Civil Engineering

Selected advanced topics in the field of civil engineering. (3 lecture hours a week.)

### 87-796. Major Paper

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**87-797. Thesis**

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**87-798. Dissertation**

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## ***ENVIRONMENTAL ENGINEERING***

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Courses offered by Environmental Engineering at the graduate level are listed below. Students may take courses other than Environmental Engineering with permission of the Head of the Department and the advisor.

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All courses listed will not necessarily be offered in any given year.

### **93-530. Water Pollution Control**

Water quality criteria; methods of wastewater disposal and their effects on ecology; theory and design of different unit operations and processes for water purification; theory and design of different design operations and processes of wastewater treatment; reuse and recycling of wastewater. (3 lecture hours a week.)

### **93-531. Advanced Water Pollution Control**

Discussion on recent advances in the design of water and wastewater treatment plants and new developments in water pollution control practices. (Prerequisite: [93-530](#) or equivalent.) (3 lecture hours a week.)

### **93-533. Solid Waste Management**

A study of municipal and industrial solid wastes, quantities, composition, methods of disposal or reclamation; economic viability of the various methods related to the quantities involved. (3 lecture hours a week.)

### **93-534. Environmental Separation Processes**

Application of the principles of surface chemistry to separation processes involving phase equilibria, ion exchange, membrane separation, adsorption, absorption, flocculation, spherical agglomeration, sedimentation, filtration, and centrifugation. (3 lecture hours a week.)

### **93-535. Water Quality Management**

Water quality criteria; methods of wastewater disposal and their effects on ecology; stoichiometry, reaction kinetics and material balance; movement of contaminants in water bodies; modelling of water quality in natural systems. (3 lecture hours a week.)

### **93-536. Environmental Engineering Thermodynamics**

An advanced study of the application of classical thermodynamic principles to environmental engineering practice; flow systems; composition relationships between equilibrium phases; systems involving surface effects, electric or magnetic fields. (3 lecture hours a week.)

### **93-537. Kinetics**

Basic concepts of chemical reaction kinetics; characterization of chemical and biochemical systems; reactor flow models and consideration of non-ideality. (3 lecture hours a week.)

### **93-538. Biological Treatment of Wastewater**

Wastewater characteristics; biological kinetics; flow and loading variation; wastewater treatment processes; mass balances; aeration; sedimentation; lagoons; fixed-film processes; sludge characteristics. (3 lecture hours a week.)

### **93-539. Industrial Wastewater Treatment**

Sources and characteristics of industrial wastewater; pretreatment and primary treatment; physical and chemical treatment; biological treatment; waste minimization;

treatment of wastes from various industries. (3 lecture hours a week.)

**93-540. Numerical Modeling of Heat and Mass Transfer and Flow in Porous Media**

Introduction to finite difference and finite element approaches for simulation of the diffusion and the advection-dispersion equations; development of finite difference formulation of 1-D and 2-D transient heat transfer, nonlinear conductance and source/sinks; 1-D and 2-D mass transport with reaction; 1-D and 2-D heat transfer with finite element approach. (3 lecture hours a week.)

**93-541. Air Pollution from Mobile Sources**

Air pollutants; emissions from vehicles; testing vehicles for emissions; combustion thermodynamics; thermodynamics and kinetics of pollutant formation; measures to reduce emissions; modeling. (3 lecture hours a week.)

**93-542. Air Pollution**

Air quality standards; emission inventory, source estimation; development of transport models; models with chemical reactions. (3 lecture hours a week.)

**93-550. Sustainability: Principles and Practices**

This course examines the evaluation, design, and management of products, processes, or projects to achieve sustainability. The main topics include: assessing and scoping environmental effects from engineering and other technical activities; eco-balance approaches; life cycle assessment; design-for-environment principles; and decision making for environmental and sustainability objectives. The course will discuss typical examples (e.g., automobiles, infrastructure, electronics), and also draw upon the industrial and research experience and knowledge of the class attendees. Class-based projects will focus on understanding, interpreting, and implementing the knowledge acquired. (Not open to students who attended [93-532](#), Engineering and the Environment, since 2002.) (3 lecture hours per week.)

**93-590. Special Topics In Environmental Engineering**

Selected advanced topics in the field of environmental engineering. (3 hours a week.)

Current topics include:

Air Pollution Control;

Transport Phenomena;

Environmental Law and Policy

Atmospheric Chemistry and Physics of Air Pollution.

**93-796. Major Paper**

**93-797. Thesis**

**93-798. Dissertation**

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[Odette School of Business: Graduate Faculty](#)

- [Business: Programs](#)
- [Business: Courses](#)

[Chemistry and Biochemistry: Graduate Faculty](#)

- [Chemistry and Biochemistry: Programs](#)
- [Chemistry and Biochemistry: Courses](#)

[Communication Studies: Graduate Faculty](#)

- [Communications Studies: Programs](#)

## ELECTRICAL ENGINEERING

### GRADUATE FACULTY

#### Professor Emeritus

Miller, William C.; B.S.E. (Michigan), M.A.Sc., Ph.D. (Waterloo), P.Eng.-1968.

Hackam, Reuben; B.Sc. (Technion, Israel), Ph.D., D.Eng. (Liverpool), F.I.E.E.E., P. Eng.-1978.

Raju, G.R. Govinda; B.E. (Mysore), Ph.D. (Liverpool), F.I.E., P. Eng.-1980.

#### University Professor

Ahmadi, Majid; B.Sc. (Tehran), D.I.C., Ph.D. (Imperial College) C.Eng., F.I.E.E.E.-1981.

#### Professors

Sid-Ahmed, Maher A.; B.Sc. (Alexandria), M.A.Sc., Ph.D. (Windsor)-1978.

Kwan, H.K. Peter; B.Sc. (London), M.Phil. (CUHK), D.I.C., Ph.D. (London), F.I.E.E.E., C.Eng., P.Eng.-1988.

Erfani, Shervin; B.Sc, M.Sc. (Tehran), M.Sc., Ph.D. (Southern Methodist)-2002.

#### Associate Professors

Chen, Chunhong; B.Sc., M.Sc. (Tianjin), Ph.D. (Fudan, China)-1997.

Chen, Xiang; B.Sc., M.Sc. (Huazhong Univ. of Science and Tech.), M.Sc., Ph.D. (Louisiana State)-2000.

Abdel-Raheem, Esam; B.Sc., M.Sc. (Ain Shams), Ph.D. (Victoria), S.M.I.E.E.E.-2003.

#### Assistant Professors

Shahrava, Behnam; B.A.Sc., M.A.Sc. (Tehran), Ph.D. (Waterloo)-1998.

Wu, Huapeng; B.Sc., M.Sc. (USTC, China), Ph.D. (Waterloo)-1999.

Khalid, Mohammed A.S.; B. E. (Osmania), M.S.E.E. (Louisiana State U), Ph.D. (Toronto)-1999.

Kar, Narayan Chandra; B.Sc. (Bangladesh), M.Sc., Ph.D. (Kitami Institute of Technology, Japan)-2000.



• Communciation Studies:  
Courses

Tepe, Kemal; B.Sc. (Hacettepe U, Ankara, Turkey), M.Sc., Ph.D. (Rensselaer Polytechnic Institute, Troy)-2000.

Computer Science: Graduate  
Faculty

• Computer Science:  
Programs

Chowdhury, Sazzadur; B.Sc. (Bangladesh), M.A.Sc., Ph.D. (Windsor)-2003.

• Computer Science: Courses

Earth Sciences: Graduate  
Faculty

• Earth Sciences: Programs

• Earth Sciences: Courses

Economics: Graduate Faculty

• Economics: Programs

• Economics: Courses

Faculty of Education:

Graduate Faculty

• Education: Programs

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Faculty of Engineering:

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Engineering

Civil and Environmental

Engineering (CEE): Graduate

Faculty

• CEE: Areas of Specialization

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Electrical Engineering:

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• Electrical Engineering:

Areas Of Specialization

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Engineering Materials:

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Areas of Specialization

• Engineering Materials:

Courses

Industrial and Manufacturing

Systems Engineering (IMSE):

Graduate Faculty

• IMSE: Areas of

Specialization

• IMSE: Courses

Mechanical, Automotive, and

Materials Engineering

(MAME): Graduate Faculty

• MAME: Areas of

Specialization

- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

- Sociology: Programs
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Visual Arts: Graduate Faculty

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## **ELECTRICAL ENGINEERING: AREAS OF SPECIALIZATION**

### **Areas Of Specialization**

Electrical Engineering offers graduate programs leading to the degrees of Doctor of Philosophy (Ph.D.), Master of Applied Science (M.A.Sc.) and Master of Engineering (M.Eng.) Research is carried out in the broadly defined area of Signals and Systems.

Within the area of Signals and Systems such research topics as digital signal processing, microsystems, communications and computers are investigated.

• Communciation Studies:  
Courses

Computer Science: Graduate  
Faculty

- Computer Science:  
Programs
- Computer Science: Courses

Earth Sciences: Graduate  
Faculty

- Earth Sciences: Programs
- Earth Sciences: Courses

Economics: Graduate Faculty

- Economics: Programs
- Economics: Courses

Faculty of Education:  
Graduate Faculty

- Education: Programs
- Education: Courses

Faculty of Engineering:  
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Civil and Environmental  
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Faculty

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Courses

Engineering Materials:  
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Areas of Specialization
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Courses

Industrial and Manufacturing  
Systems Engineering (IMSE):  
Graduate Faculty

- IMSE: Areas of  
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- IMSE: Courses

Mechanical, Automotive, and  
Materials Engineering  
(MAME): Graduate Faculty

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English: Graduate Faculty

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History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

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Physics: Graduate Faculty

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Political Science: Graduate  
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- Communications Studies: Programs

## ELECTRICAL ENGINEERING: COURSE DESCRIPTIONS

The graduate course offerings in Electrical Engineering are designed to complement the areas of specialization. Course requirements for the Ph.D., M.A.Sc., and M.Eng. degrees in Electrical Engineering will be selected from the courses listed below and related courses in other programs.

Graduate students will be associated with one of the areas of research. Their program of studies will be formulated in consultation with the graduate advisors and approved by the Chair of the Program Graduate Committee coordinator.

Only a selected number of the courses listed below will be available each year. The current list will be provided by the Coordinator of Graduate Studies in Electrical Engineering.

### **88-510. Advanced Electromagnetic Theory**

Advanced theory and applications of electromagnetic fields and wave propagation. (3 lecture hours a week.)

### **88-511. Electrical and Magnetic Materials**

Selected topics in the properties of electrical, electronic, dielectric and magnetic materials. Measurement techniques of the properties and applications of the materials. (3 lecture hours a week.)

### **88-513. High Voltage Technology**

Generation and measurement of high voltages, non-destructive and destructive testing techniques. (3 lecture hours a week.)

### **88-514. Advanced Power Systems**

High voltage surges, origins, propagation and reflections; transients in power equipment; protection of substations. (3 lecture hours a week.)

### **88-515. Electric and Magnetic Field Calculations**

Development and application of analytic and numerical techniques for calculating electromagnetic and electrostatic fields. Computer-oriented approaches are emphasized and a project is required. (3 lecture hours a week.)

### **88-516. High Voltage Phenomena**

Ionization and decay processes, electrical breakdown mechanisms in gaseous, liquid and solid insulation. (3 lecture hours a week.)

### **88-517. Electrical Arcs in Power Apparatus**

Thermodynamics of gaseous plasmas. Elenbass-Heller description of the steady state arc. Current zero phenomena in power circuit interruption. Theory of unsteady and transient arc columns. Low and high pressure arcs and their radiative properties. Cathode, anode and wall phenomena. Vacuum arcs in rectifiers and circuit breakers. Arc gas heaters and plasma torches. Thermionic arcs in searchlights and thyratrons.



• **Communciation Studies: Courses**

Glow to arc transition. (3 lecture hours a week.)

Computer Science: Graduate Faculty

- Computer Science: Programs
- Computer Science: Courses

**88-521. Digital Signal Processing**

Discrete Signals, z-transforms, Time Domain and Frequency Domain Analysis of Digital Filters, Design and Realization of FIR and IIR filters, DFT and FFT, Stability and Stabilization of IIR Filters, Discrete Hilbert Transform, Sectioned and Fast Convolution. (3 lecture hours a week.)

Earth Sciences: Graduate Faculty

- Earth Sciences: Programs
- Earth Sciences: Courses

**88-522. Applied Time Signals Analysis and Processing**

Continuous and discrete signals; sampling theory and practice; filtering, interpolation, coding, statistical concepts, transform methods; power density estimation, correlation functions, convolution. (3 lecture hours a week.)

Economics: Graduate Faculty

- Economics: Programs
- Economics: Courses

**88-523. System Theory**

Continuous and discrete time systems, state formulation techniques, controlability and observability concepts, and system simulation. (3 lecture hours a week.)

Faculty of Education: Graduate Faculty

- Education: Programs
- Education: Courses

**88-524. Stochastic Processes**

Development and applications of probability models in the analysis of stochastic systems; review of probability, random variables and stochastic processes; correlation functions applications to filtering, prediction, estimation and system identification. (3 lecture hours a week.)

Faculty of Engineering: Programs of Study Overview

- General Courses, Engineering

**88-525. 2-Dimensional Digital Signal Processing**

Fundamentals of 2-D Signals and Transforms; Z, Fourier, discrete Fourier, etc., 2-D FFT, Design Techniques for 2-D FIR and IIR Digital Filters using Transformation and Optimization Techniques. Stability and Stabilization of 2-D Filters, Homomorphic Filtering, Reconstruction of Signals from their Projections. (3 lecture hours a week.)

Civil and Environmental Engineering (CEE): Graduate Faculty

- CEE: Areas of Specialization
- CEE: Courses

**88-526. Computer Graphics**

2-dimensional transformation: translation, scaling, rotation. Clipping and windowing. Transformation system. Interactive graphics. 3-D computer graphics. 3-D transformation. Wire frame perspective display. Hidden line and shading. Display devices, vector generators, display files. (3 lecture hours a week.)

Electrical Engineering: Graduate Faculty

- Electrical Engineering: Areas Of Specialization
- Electrical Engineering: Courses

**88-527. Speech Processing**

Production, perception, and acoustic-phonetic characteristics of speech signal; auditory models; linear prediction of speech; cepstral analysis; speech recognition; speech synthesis; spoken language processing; human-computer communications. (3 lecture hours a week.)

Engineering Materials: Graduate Faculty

- Engineering Materials: Areas of Specialization
- Engineering Materials: Courses

**88-528. Image Processing**

Digital image representation, elements of image processing system, image enhancement, 2-D sampling theorem, image transforms, image restoration and colour image processing. (3 lecture hours a week.)

Industrial and Manufacturing Systems Engineering (IMSE): Graduate Faculty

- IMSE: Areas of Specialization
- IMSE: Courses

**88-529. Discrete Transforms and Number Theoretical Methods**

Introduction to orthogonal transforms, DFT, DCT, DHT; implementation methods; fast algorithms, FFT, WFT; polynomial transforms; finite rings and fields; number theoretic techniques; residue number systems; conversion and computation; finite polynomial rings; VLSI implementation consideration. (3 lecture hours a week.)

Mechanical, Automotive, and Materials Engineering (MAME): Graduate Faculty

- MAME: Areas of Specialization

**88-530. Selected Topics in Digital Signal Processing**

Selected topics in the analysis and design of digital systems and subsystems and their applications in the area of signal processing. (May be repeated more than once for credit if the topics are different.) (3 lecture hours a week.)

**88-531. VLSI Design**

- [MAME: Courses](#)

[English: Graduate Faculty](#)

- [English: Programs](#)
- [English: Courses](#)

[History: Graduate Faculty](#)

- [History: Programs](#)
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[Faculty of Human Kinetics: Graduate Faculty](#)

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Overview of VLSI designs, CAD tools, application, technology; review of properties of silicon, solid state physics and devices; SPICE models; analog simulation; IC technology; target CMOS process; static CMOS logic; principles of standard cell CMOS design; dynamic characteristics of static CMOS logic; dynamic logic; system level considerations; hardware description languages; silicone compilers. (3 lecture hours a week.)

**88-533. Computational Intelligence**

Models of the human brain and sensory systems. Neural networks and learning algorithms. Fuzzy sets, fuzzy logic, and fuzzy systems. Evolutionary computation. Advanced topics in computational intelligence. (3 lecture hours a week.)

**88-534. Systolic Array Architectures**

Introduction to systolic array architectures; mapping methodology; systolic array realization of convolution and discrete Fourier transform; systolic array realization of digital filters; bit-level systolic array realizations; fault-tolerance; VLSI implementation. (3 lecture hours a week.)

**88-535. Nonlinear Systems**

Introduction to the analysis and design of nonlinear control systems, mathematical preliminaries, second-order systems (including Lyapunov stability, center manifold theorem, input-output-stability) perturbation theory; control design for non-linear systems. (Prerequisite: For Electrical Students [88-324](#); For Mechanical Students [92-412](#).) (3 lecture hours a week.)

**88-536. Automotive Control Systems**

Introduction to automotive control systems; engine operation and dynamics; engine management and control; robust engine control; hybrid powertrain modelling and control; estimation of vehicle parameters and models; vehicle control system; automotive electronics. (Prerequisite: For Electrical Students [88-324](#); For Mechanical Students [92-412](#).) (Crosslisted with [92-545](#).) (3 lecture hours a week.)

**88-541. Low Power CMOS Design**

This course is designed to prepare students for advanced VLSI design where low power dissipation is of critical concern. Topics will include: Introduction to low power techniques for CMOS circuit design; design levels of abstraction; sources of power dissipation, capacitance analysis, and power estimation; simulation-based and probability-based power estimation; low-level and high-level power optimization; advanced techniques for modern IC fabrication, and low power design tools from an industrial perspective; recent advances in low power CMOS design (Prerequisites: [88-217](#) and [88-316](#).) (3 lecture hours per week plus project.)

**88-590. Special Topics**

Selected advanced topics in a field of research in the Electrical Engineering. (May be repeated more than once for credit if the topics are different.) (3 lecture hours a week.)

**88-797. Thesis**

**88-798. Dissertation**

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## ENGINEERING MATERIALS

### GRADUATE FACULTY

#### Professor Emeritus

Watt, Daniel Frank; B.Sc. (Alberta), Ph.D. (McMaster), P.Eng.-1969.

#### Professors

Northwood, Derek Owen; B.Sc. (Eng.), A.R.S.M. (London), M.Sc. (Part I), Ph.D. (Surrey), F.I.M, F.A.S.M., FIMMA, F.I.E. Aust., C.P.Eng. (Australia), P. Eng.,-1976.

Alpas, Ahmet T.; B.A.Sc., M.Sc. (Middle East Tech., Turkey), Ph.D. (Open University, U.K.) P.Eng., GM/NSERC Industrial Research Chair-1989.

Sokolowski, Jerzy; M.M.E., Ph.D. (Tech. U. Silesia, Poland), NSERC/Industrial Research Chair-1993.

#### Associate Professor

Hu, Henry; B.A.Sc. (Shanghai), M.A.Sc. (Windsor), Ph.D. (Toronto)-2000.

#### Assistant Professors

Altenhof, William; B.A.Sc., M.A.Sc., Ph.D. (Windsor), P.Eng.-1999.

Bowers, Randy; S.M. (M.I.T.), B.S., Ph.D. (Rensselaer)-2000.

Nie, Xueyuan; B.A.Sc., M.Sc. (Nanjing), Ph.D. (Hull, UK)-2003.

Stoilov, Vesselin; M.Sc. (Sofia, Bulgaria), M.Sc. (Sofia, Bulgaria/Erlangen, Germany), Ph.D. (Alberta)-2003.

#### Adjunct Professors

Cheng, Yang-Tse; B.S., M.S., Ph.D. (Caltech)-2003.

Perry, Thomas; B.S. (Michigan), M.S. (Wisconsin), Ph.D. (Michigan)-2003.

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Courses

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Faculty

- Computer Science:  
Programs
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Earth Sciences: Graduate  
Faculty

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- Education: Courses

Faculty of Engineering:  
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Engineering

Civil and Environmental  
Engineering (CEE): Graduate  
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- CEE: Areas of Specialization
- CEE: Courses

Electrical Engineering:  
Graduate Faculty

- Electrical Engineering:  
Areas Of Specialization
- Electrical Engineering:  
Courses

Engineering Materials:  
Graduate Faculty

- Engineering Materials:  
Areas of Specialization
- Engineering Materials:  
Courses

Industrial and Manufacturing  
Systems Engineering (IMSE):  
Graduate Faculty

- IMSE: Areas of  
Specialization
- IMSE: Courses

Mechanical, Automotive, and  
Materials Engineering  
(MAME): Graduate Faculty

- MAME: Areas of  
Specialization

- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
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- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
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Physics: Graduate Faculty

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Political Science: Graduate  
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Psychology: Graduate Faculty

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Social Work: Graduate  
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## ENGINEERING MATERIALS: AREAS OF SPECIALIZATION

Ph.D., M.A.Sc. and M.Eng. graduate programs in Engineering Materials are administered by Mechanical, Automotive and Materials Engineering upon the advice of its Graduate Studies Committee for Engineering Materials. Research is concentrated on the physical, mechanical, tribological and chemical aspects of materials. The program hosts two NSERC/Industry Research Chairs: i) Chair in Light Metals Casting Technology, ii) Chair in Tribology of Lightweight Materials. Particular research topics include:

**Material Design, Development:** Aluminum alloys (wrought, cast, particulate, reinforced), structure refinement, nanocrystalline alloys, solidification and precipitation processing, metal hydrides for energy applications, ceramics and cementitious materials, metallic forms, materials for batteries and fuel cells, smart materials, computational materials science.

**Material Processing:** Surface coatings, surface modification technologies (PVD, CVD, thermal spraying) welding, machining, galvanizing and galvannealing of steels, steel fabrication, nanofabrication.

**Mechanical Properties of Materials:** Creep and fatigue behaviour, deformation mechanisms, computer simulation of deformation, corrosion, erosion, impact testing, crashworthiness evaluation.

**Light Metals Casting Technology:** Advanced foundry processes for lightweight castings for automotive engines; aluminum and magnesium alloys; new generation foundry materials, solidification modelling, die casting process control.

**Tribology (Wear) Research:** Friction and wear of metal matrix composites, coatings for tribological applications, development of wear resistant materials for automotive applications, micromechanical modeling of tribological processes.



• Communciation Studies:  
Courses

Computer Science: Graduate  
Faculty

- Computer Science:  
Programs
- Computer Science: Courses

Earth Sciences: Graduate  
Faculty

- Earth Sciences: Programs
- Earth Sciences: Courses

Economics: Graduate Faculty

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Civil and Environmental  
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- Communications Studies: Programs

## ENGINEERING MATERIALS: COURSE DESCRIPTIONS

Course requirements for the Ph.D. and M.A.Sc. programs in Engineering Materials will be selected from the courses listed below and related courses in other programs. A student's course program will be formulated in consultation with the Graduate Studies Committee for Engineering Materials and requires approval of the research advisor and Chair of the Program Graduate Committee. Students will take no more than 2 of the 4 required courses from their supervisor(s).

All courses listed will not necessarily be offered in any given year.

### **89-501. Advanced Crystallography**

Application of X-ray diffraction principles to the study of materials, application of Fourier series, single crystal techniques, studies of preferred orientation, imperfections. (3 lecture hours a week.)

### **89-502. Phase Transformations**

Phenomenological treatment of transformation processes; diffusion controlled and diffusionless (martensitic) transformations; application of thermodynamic and phenomenological rate laws to transformations: nucleation, recrystallization, precipitation, spinoidal decomposition, ordering, eutectoid decomposition, etc. (3 lecture hours a week.)

### **89-505. Strengthening Mechanisms in Materials**

Dislocation-particle interactions, strengthening by dislocation substructures, particle and fiber reinforcement, strong microstructures from the melt, strong microstructures from the solid. (3 lecture hours a week.)

### **89-506. Microscopy of Materials**

The theoretical and technical aspects of the study of microstructure and composition of materials, optical microscopy, electron microscopy (scanning and transmission) including electron diffraction and image analysis principles, electron microanalysis, x-ray topography, field-ion microscopy, relationship of observed microstructures to the macroscopic properties of materials. (2 lecture, 2 laboratory hours a week.)

### **89-507. Fracture Mechanics**

The fracture mechanics approach to design; physical significance of fracture toughness; measurement of fracture mechanics parameters; non-destructive inspection techniques; principles of fracture-safe design; the relation between the microscopic and macroscopic aspects of plane-strain fracture; fracture of specific metallic and nonmetallic materials. (3 lecture hours a week.)

### **89-510. Solidification Fundamentals**

Fundamental principles of solidification theory including thermodynamics, kinetics, solid-liquid interface morphology and growth mechanics. Solidification mechanisms of pure metals. Heat flow phenomena in casting and crystal growth. Effect on solidification heat transfer of process variables, casting and mold properties, metal and mold

• Communciation Studies:  
Courses

temperatures. Students will apply the fundamentals of thermodynamics and kinetics to materials processes such as casting and welding. (3 lecture hours a week.)

Computer Science: Graduate  
Faculty

- Computer Science:  
Programs
- Computer Science: Courses

### **89-511. Casting: Modeling and Simulation**

Review of casting fundamentals. Techniques for mathematical model formulation. Development of general numerical method based on control volume finite difference scheme to predict mold filling, heat transfer, and solidification phenomena. Treatment of gates, runners, risers, and overflow. Mesh generation for full casting. Applications using commercial casting-simulation software. Students will apply their knowledge of engineering mathematics and transport phenomena to the processes of manufacturing light weight automotive components. (3 lecture hours a week.)

Earth Sciences: Graduate  
Faculty

- Earth Sciences: Programs
- Earth Sciences: Courses

### **89-512. Metal Casting Technology**

Introduction and historical overview of casting. Casting processes, mould design and materials, metallurgical simulation. Metallurgical considerations, liquid metal treatment, heat treatment, casting defects and their prevention. Discussion of challenges faced by today's foundries. (3 lecture hours a week.)

Economics: Graduate Faculty

- Economics: Programs
- Economics: Courses

### **89-513. Tribology: Materials and Manufacturing Aspects**

This course will prepare students to perform experimental and analytical work on the materials and manufacturing aspects of tribology. Fundamental equations of wear, wear testing methods; micromechanisms of wear, modeling of surface contacts, frictional heating during sliding contact; tribology of internal combustion engines, friction and wear during machining operations; wear control via surface coatings, coatings for cutting tools. (3 lecture hours a week.)

Faculty of Education:  
Graduate Faculty

- Education: Programs
- Education: Courses

### **89-590. Special Topics in Materials**

Selected advanced topics in the fields of engineered materials and materials Engineering. (3 lecture hours a week.)

Faculty of Engineering:  
Programs of Study Overview

- General Courses,  
Engineering

Current topics include:

Creep of Metals and Alloys  
Microscopy of Materials II  
Wear of Materials  
Composite Materials  
Fatigue of Metals and Alloys  
Polymers  
Ceramics  
Welding  
Materials Degradation  
Polymer Injection Molding  
Thin Films and Coatings  
Computational Contact Mechanics in Tribology

Civil and Environmental  
Engineering (CEE): Graduate  
Faculty

- CEE: Areas of Specialization
- CEE: Courses

### **89-797. Thesis**

Electrical Engineering:  
Graduate Faculty

- Electrical Engineering:  
Areas Of Specialization
- Electrical Engineering:  
Courses

### **89-798. Dissertation**

Engineering Materials:  
Graduate Faculty

- Engineering Materials:  
Areas of Specialization
- Engineering Materials:  
Courses

Industrial and Manufacturing  
Systems Engineering (IMSE):  
Graduate Faculty

- IMSE: Areas of  
Specialization
- IMSE: Courses

Mechanical, Automotive, and  
Materials Engineering  
(MAME): Graduate Faculty

- MAME: Areas of  
Specialization

- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

- Sociology: Programs
- Sociology: Courses

Visual Arts: Graduate Faculty

- Visual Arts: Programs
- Visual Arts: Courses

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- Biological Sciences: Courses

[Odette School of Business: Graduate Faculty](#)

- Business: Programs
- Business: Courses

[Chemistry and Biochemistry: Graduate Faculty](#)

- Chemistry and Biochemistry: Programs
- Chemistry and Biochemistry: Courses

[Communication Studies: Graduate Faculty](#)

- Communications Studies: Programs

## INDUSTRIAL AND MANUFACTURING SYSTEMS ENGINEERING

### GRADUATE FACULTY

#### Professors

Lashkari, Reza S.; B.Sc. (Tehran), M.S.I.E., Ph.D. (Kansas State), P. Eng.-1977.

Wang, Hunglin (Michael); B.S. (National Tsing-Hua U.), M.S. (State U. of New York, Buffalo), Ph.D. (Iowa), P.Eng.-1991.

El Maraghy, Hoda A.; B.Eng. (Cairo), M.Eng., Ph.D. (McMaster), P.Eng.-1994.

El Maraghy, Waguih; B.Eng. (Cairo), M.Eng., Ph.D. (McMaster), P.Eng.-1994.

#### Associate Professors

Abdul-Kader, Walid; B.A.Sc. (Université du Québec à Trois-Rivières), M.A.Sc. (École Polytechnique de Montréal), Ph.D. (Laval), P.Eng.-2003.

Oriet, Leo; B.A.Sc., M.A.Sc., Ph.D. (Windsor), P.Eng., CCPE,-2003.

#### Assistant Professor

Zhang, Guoqing (Michael); B.Eng. (Southeast U), M.Eng. (Southwest U), Ph.D. (City U of HK)-2002.



• Communciation Studies:  
Courses

Computer Science: Graduate  
Faculty

- Computer Science:  
Programs
- Computer Science: Courses

Earth Sciences: Graduate  
Faculty

- Earth Sciences: Programs
- Earth Sciences: Courses

Economics: Graduate Faculty

- Economics: Programs
- Economics: Courses

Faculty of Education:  
Graduate Faculty

- Education: Programs
- Education: Courses

Faculty of Engineering:  
Programs of Study Overview

- General Courses,  
Engineering

Civil and Environmental  
Engineering (CEE): Graduate  
Faculty

- CEE: Areas of Specialization
- CEE: Courses

Electrical Engineering:  
Graduate Faculty

- Electrical Engineering:  
Areas Of Specialization
- Electrical Engineering:  
Courses

Engineering Materials:  
Graduate Faculty

- Engineering Materials:  
Areas of Specialization
- Engineering Materials:  
Courses

Industrial and Manufacturing  
Systems Engineering (IMSE):  
Graduate Faculty

- IMSE: Areas of  
Specialization
- IMSE: Courses

Mechanical, Automotive, and  
Materials Engineering  
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Specialization

- MAME: Courses

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History: Graduate Faculty

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Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

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- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

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- Psychology: Courses

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- [Communications Studies: Programs](#)

## **INDUSTRIAL AND MANUFACTURING SYSTEMS ENGINEERING: AREAS OF SPECIALIZATION**

The M.A.Sc. and the M.Eng. in Industrial Engineering are offered, encompassing basic as well as applied research.

• Communciation Studies:  
Courses

Computer Science: Graduate  
Faculty

- Computer Science:  
Programs
- Computer Science: Courses

Earth Sciences: Graduate  
Faculty

- Earth Sciences: Programs
- Earth Sciences: Courses

Economics: Graduate Faculty

- Economics: Programs
- Economics: Courses

Faculty of Education:  
Graduate Faculty

- Education: Programs
- Education: Courses

Faculty of Engineering:  
Programs of Study Overview

- General Courses,  
Engineering

Civil and Environmental  
Engineering (CEE): Graduate  
Faculty

- CEE: Areas of Specialization
- CEE: Courses

Electrical Engineering:  
Graduate Faculty

- Electrical Engineering:  
Areas Of Specialization
- Electrical Engineering:  
Courses

Engineering Materials:  
Graduate Faculty

- Engineering Materials:  
Areas of Specialization
- Engineering Materials:  
Courses

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- IMSE: Areas of  
Specialization
- IMSE: Courses

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Materials Engineering  
(MAME): Graduate Faculty

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- MAME: Courses

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- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

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- Philosophy: Courses

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- [Communications Studies: Programs](#)

## INDUSTRIAL AND MANUFACTURING SYSTEMS ENGINEERING: COURSE DESCRIPTIONS

Courses offered by Industrial and Manufacturing Systems Engineering at the graduate level are listed below. Students may take courses from outside Industrial and Manufacturing Systems Engineering with permission of the Chair of the Program Graduate Committee and the advisor.

All courses listed will not necessarily be offered in any given year.

### 91-500. Optimization

Classical theory of optimization. Kuhn-Tucker conditions. Unconstrained optimization; gradient methods, conjugate gradient methods, variable metric methods, search techniques. Constrained optimization. Approximation methods, projection methods, reduced gradient methods; penalty function methods; computational algorithms. Recent advances in optimization. Use of computer software packages. (Prerequisite: [91-312](#) or equivalent.) (3 lecture hours a week.)

### 91-501. Industrial Experimentation and Applied Statistics

Distributions of functions of variables, estimations and tests of hypotheses, power of tests, non-parametric tests, sampling techniques, analysis of variance, randomized blocks. Latin squares and factorial experiments. (Prerequisite: [91-227](#) or equivalent.) (3 lecture hours a week.)

### 91-502. Manufacturing Systems Simulation

Discrete-event system simulation. Random number generation. Stochastic variate generation. Input parameters; identification and estimation. Output analysis. Static and dynamic output analysis; initial and final conditions; measures of performance and their variance estimation; confidence interval. Design of experiments. Various sampling techniques. Single and multifactor designs. Fractional designs. Response surfaces. Regeneration method for simulation analysis; Monte Carlo optimization. (3 lecture hours a week.)

### 91-503. Production and Inventory Control Systems

Analysis of production-inventory systems. Inventory systems; deterministic, single-item and multi-item models; quantity discounts; stochastic, single-period models; periodic review and continuous review models. Production planning. Static demand models; product mix and process selection problems; multi-stage planning problems. Dynamic demand models; multi product and multistage models. Operations scheduling; job shop scheduling; line balancing. New directions in production systems research. (Prerequisite: [91-413](#) or equivalent.) (3 lecture hours a week.)

### 91-504. Advanced Operations Research I

Theory and computational techniques for solving linear and integer programming problems. Theoretical foundations of the simplex algorithm. Duality and sensitivity analysis. Network flow methods. Integer programming problems. Branch and bound methods, implicit enumeration methods, cutting plane methods. Interior point methods



• [Communciation Studies: Courses](#)

and other recent developments. (Prerequisite: [91-312](#) or equivalent.) (3 lecture hours a week.)

[Computer Science: Graduate Faculty](#)

- [Computer Science: Programs](#)
- [Computer Science: Courses](#)

**91-505. Advanced Operations Research II**

Probabilistic O.R. models. Markovian decision process. Queueing theory. Single channel and multichannel queueing systems. Queues with general arrival and service patterns. Bulk queues and priority queues. Applications of queueing models. Probabilistic dynamic programming. (Prerequisite: [91-412](#) or equivalent.) (3 lecture hours a week.)

[Earth Sciences: Graduate Faculty](#)

- [Earth Sciences: Programs](#)
- [Earth Sciences: Courses](#)

**91-507. Advances in Industrial Ergonomics**

Ergonomics and work design; human workload measurement in industry; visual display terminals at the workplace; signal detection and visual inspection; user-computer interaction; human factors aspects of flexible manufacturing systems; effects of individual and combined environmental stressors on human performance. (Prerequisite: [91-415](#) or equivalent.) (3 lecture hours a week.)

[Economics: Graduate Faculty](#)

- [Economics: Programs](#)
- [Economics: Courses](#)

**91-508. Reliability Engineering**

Basic reliability distributions. Constant failure rate models-exponential reliability function, Poisson process. Time dependent failure models-the Weibull, normal, log-normal distributions. State-dependent systems-Markov analysis. System reliability-system structure function. Reliability growth testing-noon-parametric methods, censored testing and accelerated life-testing. Design for reliability-specification, reliability allocation, failure analysis, system safety. Maintainability and availability. (Prerequisite: [91-327](#) or equivalent.) (3 lecture hours a week.)

[Faculty of Education: Graduate Faculty](#)

- [Education: Programs](#)
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- [General Courses, Engineering](#)

**91-509. Computer-Integrated Manufacturing**

Development of CIM; the CIM pyramid-key functions. System integration; standards for communications-MAP. Data base as the hub of CIM-types of data base. Role of simulation and support systems-decision support systems and expert systems. Sensor technology, robot vision, and group technology. Impact of CIM. Factory of the future. (Prerequisite: [91-411](#) or equivalent.) (3 lecture hours a week.)

[Civil and Environmental Engineering \(CEE\): Graduate Faculty](#)

- [CEE: Areas of Specialization](#)
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**91-510. Advanced Engineering Economy**

Principles and methods for engineering analysis of industrial projects and operations. Criteria for economic decisions, project investment analysis, gain and loss estimating and techniques for economic optimization under constraint are included. Emphasis is placed on the construction and use of analytical models in the solution of engineering economy problems. Elements of risk and uncertainty are included through use of probabilistic techniques. (Prerequisite: [85-313](#) or equivalent.) (3 lecture hours a week.)

[Electrical Engineering: Graduate Faculty](#)

- [Electrical Engineering: Areas Of Specialization](#)
- [Electrical Engineering: Courses](#)

**91-511. Stochastic Processes**

Stochastic processes. The Poisson process-relationship to exponential, Erlang and uniform probability distributions. Markov chains-basic limit theorem. Continuous time Markov chains - birth-and-death processes, time-dependent probabilities, limiting probabilities, relationship to the exponential distribution, uniformization. Renewal theory-limit theorems, renewal reward processes, regenerative processes, computing the renewal function. Brownian motion and stationary processes. (Prerequisite: Statistics [91-412](#) or equivalent.) (3 lecture hours a week.)

[Engineering Materials: Graduate Faculty](#)

- [Engineering Materials: Areas of Specialization](#)
- [Engineering Materials: Courses](#)

**91-512. Flexible Manufacturing Systems**

FMS components, characteristics, operation and control. Planning design and implementation of FMS. Product design, process planning, scheduling, machine control, sensing and system control for FMS. (Prerequisite: [91-413](#), [91-502](#), [91-509](#) or equivalent/permission of instructor.) (3 lecture hours a week.)

[Industrial and Manufacturing Systems Engineering \(IMSE\): Graduate Faculty](#)

- [IMSE: Areas of Specialization](#)
- [IMSE: Courses](#)

**91-513. Advanced Manufacturing Technology**

Developments in nontraditional methods in EDM and ECM. Trends in automation. Recent developments in manufacturing processes; micromanufacturing-integrated circuits and laser machining. Advances in computer technology, CAD and CAM.

[Mechanical, Automotive, and Materials Engineering \(MAME\): Graduate Faculty](#)

- [MAME: Areas of Specialization](#)

• MAME: Courses

Kinematics of manipulation robots, artificial intelligence, monitoring and vision systems. (Prerequisite: [91-321](#) or equivalent.) (3 lecture hours a week.)

English: Graduate Faculty

- English: Programs
- English: Courses

**91-514. Engineering Design, Methodology & Applications**

Engineering Design is a creative, iterative and often open-ended process subject to constraints. Topics include: design creativity & problem solving, engineering conceptual design & embodiment design, practices for product realization design theories and methodologies, parametric design, probabilistic design, industrial design, design and manufacturing integration, concurrent Engineering, materials selection in design, design for x (e.g. manufacturing, assembly), engineering design communication. Significant time is devoted to the applications of design theories and methodologies and to a product/process design realization. (3 lecture hours a week.)

History: Graduate Faculty

- History: Programs
- History: Courses

**91-515. Artificial Intelligence Applications in Manufacturing**

The objective of this course is to teach graduate students how artificial intelligence techniques can be applied to manufacturing operations. Detailed topics to be discussed in this course include: basic knowledge representation methods and problem solving techniques; different search algorithms; introduction to AI high level languages; introduction to the CLIPS shell; AI application in Design; AI application in Operation Management; AI application in Diagnosis; and, AI application in Control. (Prerequisite: [91-503](#) or [91-504](#) or equivalent.) (3 lecture hours a week.)

Faculty of Human Kinetics: Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

**91-516. Computer-Aided Design (CAD)**

This course will focus on computer-aided methods and applications. The lectures present basic and generic principles and tools, supplemented with significant hands-on practice and engineering applications. Various topics are studied and practiced using CAD/CAE software, such as Engineering design and the role of CAD, geometric modelling systems, representation of curves and surfaces, surface modelling, solid modelling and applications, parametric representations, assembly modelling, computer-aided engineering (CAE) and applications, distributed collaborative design, and digital mock-up. (Prerequisite: [91-411](#) or equivalent.) (2 lecture hours a week and 2 laboratory hours a week.)

Mathematics and Statistics: Graduate Faculty

- Mathematics and Statistics: Programs
- Mathematics and Statistics: Courses

Faculty of Nursing: Graduate Faculty

- Nursing: Programs
- Nursing: Courses

**92-517. Automotive Applications for Noise, Vibration and Harshness Evaluation**

This course introduces the automotive applications and tools for the evaluation of noise, vibration and harshness. It includes reviews of measurement techniques presently used in the automotive industry to measure various aspects of noise, including the concept of sound quality, vibration and the quantification of the term harshness. The course consists of a review of papers which are to be presented to the class. Participants perform critical reviews on the presentations. Three lecture hours per week. Course evaluation is based on weekly reports, presentations of reviews of papers and critical reviews by participants. (3 lecture hours a week.)

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

**91-590. Special Topics**

Selected advanced topics in the field of Industrial Engineering. (3 lecture hours a week.)

Political Science: Graduate Faculty

- Political Science: Programs
- Political Science: Courses

Current topics include:

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Sustainable Manufacturing  
Industrial Control & Robotics  
Management of Technology  
Product Innovation & Design Management  
Recent Advances in Industrial Ergonomics  
Computer-Aided Modeling of Complex Surfaces  
Lean Manufacturing & Supply Chain Management  
Automotive Assembly Work Measurement  
Manufacturing Systems: Modelling, Analysis and Performance Measures.

Social Work: Graduate Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

- Sociology: Programs
- Sociology: Courses

Visual Arts: Graduate Faculty

- Visual Arts: Programs
- Visual Arts: Courses

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**91-796. Major Paper**

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**91-797. Thesis**

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**91-798. Dissertation**

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[Communication Studies: Graduate Faculty](#)

- [Communications Studies: Programs](#)

## **MECHANICAL, AUTOMOTIVE, AND MATERIALS ENGINEERING**

### **GRADUATE FACULTY**

#### **Professors**

Rankin, Gary W.; B.A.Sc., M.A.Sc., Ph.D. (Windsor), P. Eng.-1980.

Frise, Peter R.; B.Sc., M.Sc. (Queen's), Ph.D. (Carleton), P.Eng.-1997. (Chrysler-NSERC Industrial Chair in Mechanical Design)

Reader, Graham T.; B.Tech. (Bradford), B.A. (O.U.), P.Sc./M.B.A./J.S.D.C., Ph.D. (Bradford), P.Eng., C.M.E., C.Eng., Eur.Ing., F.I.Mar. E.-1999.

#### **Associate Professors**

Gaspar, Robert George Stephen; B.A.Sc., M.A.Sc., Ph.D. (Windsor), P.Eng.-1983.

Ting, David Sing-Khing; B.Sc. (Manitoba), M.Sc., Ph.D. (Alberta)-1997.

Sobiesiak, Andrzej; M.Sc., Ph.D. (Warsaw), P. Eng.-1998. (Chrysler-NSERC Industrial Chair in Alternate Fuels)

Altenhof, William; B.A.Sc., M.A.Sc., Ph.D. (Windsor)-1999.

Hu, Henry; B.A.Sc. (Shanghai), M.A.Sc. (Windsor), Ph.D. (Toronto)-2000.

Fartaj, Amir; B.Sc., M.Sc., Ph.D. (Kansas)-2001.

Zhang, Ming; B.Sc. (Transport Tech. Institute), M.Sc. (Tsinghua), Ph.D. (Calgary)-2002.

#### **Assistant Professor**

Zhou, Biao; B.Eng., M.Eng. (Nanjing), Ph.D. (Tsinghua)-2002.

#### **Adjunct Professors**

Zhang, Chao; B.Sc., M.Sc. (Xi'an Jiaotong), Ph.D. (New Brunswick)-1990.

Mallick, P.K.; B.E. (Calcutta), M.Sc., Ph.D. (Illinois)-2002.

Seth, Brij; B.Sc. (Missouri), M.Sc., Ph.D. (Illinois), M.B.A. (Michigan)-2002.

#### **Adjunct Associate Professor**

• **Communication Studies:**  
Courses

Damodaran, Vijayakanthan; B. E. (Hons.) (Birla Institute of Technology and Science), M.A.Sc., Ph.D. (Windsor)-2003.

• **Computer Science: Graduate Faculty**

Ramakrishnan, Ramani; B.Tech. (Indian Inst. Of Technology), M.Sc., D.Sc. (George Washington U)-2003.

• **Computer Science: Programs**

• **Computer Science: Courses**

**Adjunct Assistant Professor**

• **Earth Sciences: Graduate Faculty**

Tjong, Jimi S-Y.; B.A.Sc., M.A.Sc., Ph.D. (Windsor)-1993.

• **Earth Sciences: Programs**

• **Earth Sciences: Courses**

**Cross-Appointments**

• **Economics: Graduate Faculty**

Barron, Ronald Michael; B.A., M.Sc. (Windsor), M.S. (Stanford), Ph.D. (Carleton)-1975.

• **Economics: Programs**

• **Economics: Courses**

Zamani, Nader G.; B.Sc. (Case Western), M.Sc., Ph.D. (Brown)-1986.

• **Faculty of Education: Graduate Faculty**

Tam, Edwin Lap Tam; B.Sc., M.Sc. (Alberta), Ph.D. (Toronto)-2001.

• **Education: Programs**

• **Education: Courses**

• **Faculty of Engineering: Programs of Study Overview**

• **General Courses, Engineering**

• **Engineering**

• **Civil and Environmental Engineering (CEE): Graduate Faculty**

• **CEE: Areas of Specialization**

• **CEE: Courses**

• **Electrical Engineering: Graduate Faculty**

• **Electrical Engineering: Areas Of Specialization**

• **Electrical Engineering: Courses**

• **Electrical Engineering: Courses**

• **Engineering Materials: Graduate Faculty**

• **Engineering Materials: Areas of Specialization**

• **Engineering Materials: Courses**

• **Engineering Materials: Courses**

• **Industrial and Manufacturing Systems Engineering (IMSE): Graduate Faculty**

• **IMSE: Areas of Specialization**

• **IMSE: Courses**

• **IMSE: Courses**

• **Mechanical, Automotive, and Materials Engineering (MAME): Graduate Faculty**

• **MAME: Areas of Specialization**

• **MAME: Courses**

- MAME: Courses

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Graduate Faculty

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Faculty of Nursing: Graduate  
Faculty

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Philosophy: Graduate Faculty

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Physics: Graduate Faculty

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Political Science: Graduate  
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Psychology: Graduate Faculty

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Social Work: Graduate  
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## **MECHANICAL, AUTOMOTIVE, AND MATERIALS ENGINEERING: AREAS OF SPECIALIZATION**

Ph.D., M.A.Sc. and M.Eng. graduate programs in Mechanical Engineering are administered by Mechanical, Automotive and Materials Engineering upon the advice of its Graduate Studies Committee for Mechanical Engineering. Ph.D., M.A.Sc. and M.Eng. programs are offered in the areas of Machine Dynamics and Design, and Thermo-Fluids. In addition, at the masters level, a third Automotive field is available.



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Courses

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## MECHANICAL, AUTOMOTIVE, AND MATERIALS ENGINEERING: COURSE DESCRIPTIONS

Course requirements for the Ph.D., M.A.Sc. and M.Eng. programs in Mechanical Engineering will be selected from the courses listed below and related courses in other programs. A student's course program will be formulated in consultation with the advisor and requires approval of the Graduate Studies Committee for Mechanical Engineering and the Chair of the Program Graduate Committee.

With the permission of the advisor and Department Head (and under consultation with the Graduate Coordinator), Mechanical Engineering courses with numbers greater than 449 only and related to the graduate field of study may be taken for graduate credit for students enrolled in the M.A.Sc. and M.Eng. programs. Not more than one undergraduate course (numbered greater than 449 only) shall count as credit towards the course requirements for the M.A.Sc. or M.Eng. degree. These courses are not available for course credit towards the Ph.D. degree.

In the case of M.Eng. students, the Chair of the Graduate Committee assumes the role of the advisor.

### **92-503. Turbulent Flow**

General turbulence theories, wall turbulence and free turbulence. (3 lecture hours a week.)

### **92-506. Thermal Systems Design**

Advanced systems design requiring the application of economics, heat transfer, simulation and optimization. (3 lecture hours a week.)

### **92-507. Experimental Techniques in Flow Measurements**

A course covering the theory of flow and velocity measurement. Emphasis will be placed on hot wire instruments and turbulence measurements. (3 lecture hours a week.)

### **92-509. Multiphase, Multicomponent Flows**

A thorough treatment of the basic techniques for analyzing one-dimensional multiphase, multicomponent flows in order to predict flow regimes, pressure drop, etc. Practical applications in fluidization, sedimentation and boiling heat transfer. (3 lecture hours a week.)

### **92-516. Industrial and Motor Vehicle Noise**

Hearing damage risk criteria and in-plant noise regulations; determination of permissible exposure levels due to continuous and intermittent noise. Measurement of machine noise and standard procedures. Fundamentals of noise control. Characteristics and levels of motor vehicle and traffic noise; motor vehicle noise control legislation and standard procedures for measurement. (3 lecture hours a week.)

### **92-517. Automotive Applications for Noise, Vibration and Harshness Evaluation**

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This course introduces the automotive applications and tools for the evaluation of noise, vibration and harshness. It includes reviews of measurement techniques presently used in the automotive industry to measure various aspects of noise, including the concept of sound quality, vibration and the quantification of the term harshness. The course consists of a review of papers which are to be presented to the class. Participants perform critical reviews on the presentations. Three lecture hours per week. Course evaluation is based on weekly reports, presentations of reviews of papers and critical reviews by participants. (3 lecture hours a week.)

**92-530. Combustion Engineering**

An introductory graduate course on combustion engineering, covering a broad range of topics of importance to the field including chemical thermodynamics and kinetics, flames and combustion rates, and detonation of gaseous mixtures. The emphasis is on the understanding of the combustion processes involved in practical systems. (Antirequisite: [92-590-01.](#)) (3 lecture hours a week.)

**92-531. Numerical Heat Transfer and Fluid Flow**

This course is concerned with the ability of using numerical methods to predict heat transfer, fluid flow and related processes. The course consists of an introduction to Computational Fluid Dynamics, descriptions of the general governing differential equations, discretization methods for the differential equations, numerical simulation of conductive heat transfer, numerical treatment of convection and diffusion and calculations of flow fields. (Antirequisite: [92-590-02.](#)) (3 lecture hours a week.)

**92-532. Modeling of Thermo-fluid Systems**

This course will cover the basic types of mathematical models that are used to describe Thermo-fluid systems. Lumped as well as distributed parameter models will be considered with analytical as well as numerical methods of solution. Modern solution tools such as Simulink, Maple, Fluent and Wave will be utilized whenever appropriate. The topics to be considered may include but are not limited to: two-phase flow, transient flow, turbulence, non-newtonian flow, boiling, evaporation, condensation and fluid-structure interaction. (Antirequisite: [92-590-07.](#)) (3 lecture hours a week.)

**92-533. Turbulent Reacting Flows**

This course will cover the following topics: experimental investigation of flames, thermodynamics of combustion processes, transport phenomena, chemical kinetics, reactions mechanism, laminar premixed and diffusion flames, the Navier-Stokes equations for the reacting flows, turbulent premixed and non-premixed flames, low temperature oxidation and engine knock, and pollutants formation. (Antirequisite: [92-590-08.](#)) (3 lecture hours a week.)

**92-534. Introduction to Computational Fluid Dynamics**

This course is intended to provide basic knowledge required to initiate research or applications in computational fluid dynamics. Topics include: numerical methods for model hyperbolic, parabolic and elliptic equations; analysis of difference schemes; numerical stability; explicit and implicit methods; artificial viscosity; linearization techniques; approximate factorization; preconditioning, iterative solutions, successive over-relaxation (SOR), successive line over-relaxation (SLOR), alternating direction implicit (ADI); two-dimensional structured grid generation; introduction to finite volume method. (Antirequisite: [62-577.](#)) (3 lecture hours a week.)

**92-535. Advanced Topics in Computational Fluid Dynamics**

This course is a continuation of [92-534](#). Advanced topics in computational fluid dynamics (CFD) will be discussed, including: structured and unstructured grid generation on surfaces and three-dimensional; Navier-Stokes and Euler solvers; applications of finite volume method; turbulence modeling; current issues in CFD. Students will carry out project work using one or more commercial CFD packages. (Prerequisite: [92-534.](#)) (Antirequisite: [62-587.](#)) (3 lecture hours a week.)

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### **92-536. Fundamentals Of Clean Engine Technology**

This course focusses on the understanding of fuel properties, combustion processes, exhaust emissions, and pollution prevention in diesel and other lean-burn IC engines. Introduction to Stirling and other external combustion engines.

### **92-540. Applied Finite Element Analysis**

This course focuses on the modeling aspects of the finite element method using three well known commercial Finite Element Analysis (FEA) software packages known as DYNA, IDEAS and ANSYS. A variety of stress analysis problems in two and three dimensions are studied and the accuracy of the simulations are assessed through comparison with available theoretical and experimental results. Both static and dynamic situations are covered. The students are expected to prepare a final report summarizing their work and an oral presentation. (Antirequisite: [92-590-03](#).) (3 lecture hours a week.)

### **92-541. Introduction to Vibration Measurement and Modal Analysis**

This course is concerned with basic concepts of modal theory, basic modal parameter analysis, single degree of freedom methods, introduction to frequency response functions, general modal analysis and multiple degree of freedom and global methods. The accuracy of Fast Fourier Transforms (FFT) and windowing, FFT analysis options, zoom, coherence and quality assessment, relationship to finite element modeling will also be considered. In addition, basic measurement techniques, calibration techniques, transient and steady state excitation techniques, general frequency response function interpretation, case study (laboratory experiment) and validation of measured and analyzed data are studied. (Antirequisite: [92-590-04](#)) (3 lecture hours a week.)

### **92-542. Advanced Topics in Mechanical Design**

The topics discussed in the course will be selected from the following: design and analysis of mechanical details such as welded and bonded joints, minimum constraint design, fluid power systems, mobile hydraulic systems, project planning, optimization, decision making methodology, ISO/QS9000 quality methods, concurrent engineering, design reports, design reviews, design for manufacture and assembly, design for quality, configuration design, design for minimum cost, parametric design, developing size ranges for families of products, geometric dimensioning and tolerancing, Taguchi methods, manufacturability and serviceability considerations and product warranties. (Antirequisite: [92-590-05](#).) (3 lecture hours a week.)

### **92-543. Product Design and Development**

This course covers the process of new product creation including topics selected from: the product development team; the product development cycle; conceptual development; models including technology push products; platform products; process-intensive products and customized products; needs analysis - identifying the customer and their needs; establishing product specifications; concept generation; concept selection; product architecture; industrial design and ergonomics; prototyping; economics of the development process and project management. (Antirequisite: [92-590-06](#).) (3 lecture hours a week.)

### **92-544. Finite Element Methods for Crashworthiness and Impact Analysis**

The topics include a brief history on the use of numerical tools in automotive/impact field, Explicit and Implicit time integration techniques, Shell and Solid finite element formulations for impact analyses - advantages and disadvantages, Zero Energy Modes (Hourglassing) and Hourglass control, Material modeling for large displacement problems, Finite element modeling for contact, Mesh Adaptivity, Arbitrary Lagrangian and Eulerian Meshes for large deformation problems, Use of implicit integration techniques for impact problems, Quasistatic simulations as well as the development of finite element models for impact analyses. (Antirequisite: [92-590-12](#).) (3 lecture hours a week.)

### **92-545. Automotive Control Systems**

This course will address advanced control design techniques for automotive systems.

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The interdisciplinary goal of this course is to present the application of control system design to engine operation and vehicle mechanics as well as the approaches for parameter/model identification and estimation of automotive systems. For graduate students in electrical engineering, this course will make it possible for them to access automotive models and to understand engine dynamics, both for the purposes of applying control design techniques. For graduate students in mechanical engineering, this course will provide a chance for them to learn how to apply advanced control design strategies to automotive systems. It is expected that, after taking this course, graduate students from both engineering fields will be able to address automotive control problems from interdisciplinary point of views and to complement expertise in their own areas. (Prerequisite: [92-412](#).) (Antirequisite: [92-590-22](#)) (Cross-listed with [88-536](#).) (3 lecture hours a week.)

#### **92-590. Directed Special Studies**

A special course of studies with content and direction approved by the student's chief advisor. Although there may not be formal lectures, the course will carry the weight of three lecture hours.

#### **92-593. Introduction to Finite Element Analysis**

This course covers the fundamentals of the Finite Element Analysis (FEA) with emphasis on solid mechanics and stress analysis. The subject of finite elements is treated using variational principles such as the principle of virtual work and total potential energy. The course deals with a variety of structural components such as springs, axially loaded bars, beams under bending, two-dimensional/axially symmetric/three-dimensional continuum elements and their formulation is static and dynamic analysis. In addition to three hours of lecture, a two-hour computer lab is mandatory where the students use different commercial FEA software. (Antirequisite: [62-593](#)) (3 lecture hours a week and 2 laboratory hours a week.)

#### **92-595. Graduate Seminar**

Presentations by graduate students, staff, and visiting scientists on current research topics. Graduate students are required to register and give a presentation in the semester prior to thesis defence. All graduate students are expected to attend each and every seminar and no less than 75% of all seminars. This course will be graded on a PASS/FAIL basis. (1 lecture hour a week.)

#### **92-796. Major Paper**

#### **92-797. Thesis**

#### **92-798. Dissertation**

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## ENGLISH

### GRADUATE FACULTY

#### Professor Emeritus

Ditsky, John M.; Ph.B., M.A. (Detroit), Ph.D. (New York)-1967.

#### University Professor

Dilworth, Thomas R.; B.A., M.A., Ph.D. (Toronto)-1977.

#### Associate Professors

Harder, Bernhard D.; B.A., M.A. (British Columbia), Ph.D. (North Carolina)-1970.

Quinsey, Katherine M.; B.A. (Trent), Ph.D. (London)-1989.

Straus, Barrie Ruth; B.A. (Oregon), M.A., Ph.D. (Iowa)-1990.

Matheson, C. Suzanne; B.A. (McGill), M.A. (Toronto), D. Phil. (Oxford)-1991.

Brandt, Di; B.A. (Manitoba), M.A. (Toronto), Ph.D. (Manitoba)-1997.

#### Assistant Professors

Holbrook, Susan; B.A. (Victoria), M.A., Ph.D. (Calgary)-2000.

Jacobs, Dale; B.A., M.A. (Alberta), Ph.D. (Nebraska)-2000.

Pender, Stephen; B.A. (Toronto), M.A. (Queen's), Ph.D. (Toronto)-2000.

Whetter, Darryl; B.A. (Queen's), M.A., Ph.D. (Toronto)-2001.

Davison, Carol Margaret; B.A. (Concordia), M.A. (York), Ph.D. (McGill)-2000.



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### English (MA)

#### THE MASTER OF ARTS DEGREE

##### Programs of Study

The English department offers two stream within the M.A. Program in English: Creative Writing and Literature and Language. Within the Literature and Language stream, there are two different options: the Thesis Option and the Course Work Option. Also within this stream, students with interdisciplinary interests may pursue a Cultural Studies emphasis.

The Creative Writing program allows students to combine graduate-level study of literature with advanced work on creative writing in a two-term workshop and by developing a significant independent writing project. Within the Literature and Language stream, the Course Work Option offers exposure to a wide variety of topics in literature, composition and rhetoric, and linguistics. The Thesis Option allows students to investigate a single topic in depth through independent, extended research with faculty supervision. The Cultural Studies emphasis is intended for the student who wishes to work across traditional academic and creative disciplines to explore a cultural studies topic in depth.

The specific requirements for each stream are:

##### *M.A. IN ENGLISH: CREATIVE WRITING*

Four graduate seminar courses  
[26-590](#). Creative Writing Seminar (over both the Fall and Winter terms)  
[26-794](#). Creative Writing Project (a novel, a play, a collection of poems or short stories)

##### *M.A. IN ENGLISH: LITERATURE AND LANGUAGE*

Thesis Option

Five graduate seminar courses  
[26-797](#). Thesis/Project (of at least 20,000 words)  
Course Work Option

Eight graduate seminar courses.

Students who wish to design their program with a Cultural Studies emphasis must take 5 graduate seminars, including [26-585](#) (Literary Genres: Criticism/Cultural Studies), and complete [26-797-02](#) (Cultural Studies Thesis/Project).

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For all programs, students must include [26-500](#), Scholarship and the Profession (or equivalent), in their program in addition to their regular course load.

**Admission Requirements**

In addition to the requirements set forth in 1.3 and 1.6.1 for admission to the Faculty of Graduate Studies and Research and to programs leading to the Master's degree, applicants for admission to the Candidate year in the programs leading to the Master of Arts degree in English should have the following undergraduate preparation:

1) Some courses, normally four, in the pre- and early-modern periods, that is, from Old English through the Eighteenth Century;

2) Some courses, normally four, in the modern period, that is, the Nineteenth and Twentieth Centuries, including Canadian and American;

3) Some courses, normally two, from the areas of Critical History, Theory and Approaches, Scholarship and Bibliography, and Language and Linguistics;

4) Additional courses from any of the above areas to make up the total number of courses required for a four-year English B.A.

Students who do not have a four-year B.A. or its equivalent may be admitted to the Faculty of Graduate Studies and Research in a qualifying (M1) program. In such a program, the student is expected to register in appropriate undergraduate courses in order to satisfy the requirements above. Alternatively, students who are deficient in any of the stated requirements for admission may be invited or may request to write a qualifying examination (see below, "Qualifying or Placement Examination").

Students who are admitted to the Faculty of Graduate Studies and Research in the minimum two-year M.A. program will be expected to elect courses in their first year to complete the requirements specified above.

In addition to the documents specified in 1.3.2, applicants must submit a "Proposal of Studies" (about 500 words) with their applications indicating the program and option to which they are applying and discussing such issues as their areas of academic or creative interest, their undergraduate training, and their academic or career goals. Students applying to the stream in Creative Writing must submit, with their application, a portfolio of representative creative work (20-25 pages). Students with a four-year B.A. in English may apply to either of the degree programs and to any of the options. Students with interdisciplinary interests, with honours degrees combining English with another discipline, or with abilities or backgrounds that do not correspond to the particular requirements for admission listed above, but who have an overall average of A-, may take a Cultural Studies emphasis of the English Literature and Language stream, which allows for flexible program design.

*Qualifying or Placement Examination:* An applicant for admission to the Candidate year for the Master's degree who is deficient in any of the stated requirements for admission to this level of graduate study may be invited, or may request, to write a qualifying examination. A similar examination is available as a placement test, on the basis of which students in the two-year M.A. program may be granted advanced standing.

Students from other universities may arrange to take these examinations in other centres provided the program coordinator is notified well in advance.

*Counselling:* Students admitted to one of the Master's degree programs in English will be assigned a faculty advisor who will be available to counsel them on all aspects of

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their work. The program coordinator (or a delegate) must approve a student's program of study before registration.

*Grades:* After admission to candidacy, graduate students in the M.A. program in English must maintain at least a B- average, but graduate credit is given only at the A and B level. A student whose grade in a graduate course is less than B- may be allowed to repeat the course or to substitute another for it, at the discretion of the Dean of Graduate Studies and Research and the program coordinator. The student may not repeat more than one course (see 1.4.3).

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## ENGLISH: COURSE DESCRIPTIONS

All graduate courses are seminars. Enrolment is limited in these courses, because considerable contribution is expected from each member of the seminar. For such courses, the corresponding undergraduate survey course, or an acceptable equivalent, is ordinarily a prerequisite. This condition may be waived only by agreement of both the program coordinator and the professor offering the seminar. The specific topics of individual courses may vary, depending upon the interests and needs of professors and students. It is thus impossible to list in detail the many topics that may from time to time be offered. The schedule below lists only the major periods or forms of literature in which special topics courses may be available.

Special topics courses having the same course number may be taken more than once providing the course content is different and with the permission of both the program coordinator and the professor offering the course. More than one seminar or course numbered in sequence in any of the listed areas may be offered in a given term.

In the Fall term each year, the Department of English publishes a booklet giving complete information as to specific topics of the courses to be offered in the upcoming academic year, with texts, reading assignments, and other details about requirements of the course, wherever possible. Students are welcome to write to or call the office for a copy of this booklet.

Not all of the following areas will necessarily be represented by course offerings in any one year. Seminar titles and full course information are available in the English Graduate Handbook.

### **26-500. Scholarship and the Profession**

#### **26-501. Tutorials**

#### **26-505. The English Language and Linguistics**

#### **26-510. Literature of the Old English Period**

#### **26-515. Literature of the Middle English Period**

#### **26-520. Literature of the Renaissance**

#### **26-525. Renaissance Drama**

#### **26-530. Literature of the Restoration Period**

#### **26-535. Literature of the Eighteenth Century**

#### **26-540. Literature of the Romantic Period**



• Communciation Studies: Courses	<b>26-545. Literature of the Victorian Period</b>
Computer Science: Graduate Faculty	<b>26-550. Literature of the Twentieth Century</b>
• Computer Science: Programs	<b>26-555. Literature of the United States</b>
• Computer Science: Courses	<b>26-560. Literature of Canada</b>
Earth Sciences: Graduate Faculty	<b>26-565. Post-Colonial Literature</b>
• Earth Sciences: Programs	<b>26-570. Literary Genres: Poetry</b>
• Earth Sciences: Courses	<b>26-575. Literary Genres: Drama</b>
Economics: Graduate Faculty	<b>26-580. Literary Genres: Fiction</b>
• Economics: Programs	<b>26-581. 26-585. Literary Genres: Criticism/Cultural Studies</b>
• Economics: Courses	<b>26-590. Creative Writing Seminar</b>
Faculty of Education: Graduate Faculty	<b>26-596. Composition Pedagogy: Theory and Practice</b> (Required for Graduate Assistants assigned to teach <a href="#">26-100.</a> )
• Education: Programs	<b>26-794. Creative Writing Project</b>
• Education: Courses	<b>26-797. Thesis/Project</b>
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• IMSE: Courses	
Mechanical, Automotive, and Materials Engineering (MAME): Graduate Faculty	
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Physics: Graduate Faculty

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Political Science: Graduate  
Faculty

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- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
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Social Work: Graduate  
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## **HISTORY**

### **GRADUATE FACULTY**

#### **Professors**

McCrone, Kathleen E.; B.A. (Saskatchewan), M.A., Ph.D. (New York U.)-1968.

Tucker, Bruce; B.A., M.A. (Toronto), Ph.D. (Brown)-1988.

Howsam, Leslie; B.A. (Waterloo), M.A., Ph.D. (York)-1993.

#### **Associate Professors**

Simmons, Christina; B.A. (Radcliffe), M.A., Ph.D. (Brown)-1990.

Burr, Christina A.; B.A., M.A. (Western Ontario), Ph.D. (Memorial)-1997.

#### **Assistant Professors**

Palmer, Steven; B.A. (British Columbia), M.A., Ph.D. (Columbia)-2001.

Hewlett, Mary; B.A., M.A., Ph.D. (University of Toronto)-2002.

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Systems Engineering (IMSE):  
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## HISTORY: PROGRAMS OF STUDY

### History (MA)

#### THE MASTER OF ARTS DEGREE

The Master of Arts degree in history combines an intensive project of research with an orientation to contemporary modes of historical interpretation. A program attentive to developing the craft of historical research, writing and analysis, the graduate program prepares students equally for continuing with academic studies in history at the doctoral level and for a variety of other careers where the knowledge and skills of the historian are valued.

The graduate program has been designed to make all the courses offered relevant to all students. Courses are geared to the knowledge level and analytical ability of students emerging from a Canadian undergraduate programs in history (or equivalent) with a strong academic record. The geographical specializations of faculty members include Canada, the United States, modern Britain and France and early modern Europe. The thematic specializations include women's history, intellectual history, the history of the book and the culture of the written word, historiography, social and cultural history, and the histories of sexuality and of gender. Each thematic course allows students to come to terms with a number of modes of interpretation of a single historical problematic, and then apply historiographical analysis to their chosen nation-state situation and chronological period.

The program takes as its starting point the assumption that most students enter graduate work in history with an orientation to the history of a particular nation in a specific time period. The program's objective is to enable students to expand upon those initial interests and incorporate in their understanding a sophisticated critique of contemporary modes of historical interpretation. To that end, the five courses are thematic in focus; within the framework of each one, students have the opportunity to explore historiographical debates ranging outside the boundaries of time and place. When it comes to the Major Paper, the factors of specialization based on geography and chronology will converge with an appropriate interpretive mode and a suitable body of sources to generate the topic for a sophisticated research paper.

Full-time candidates for the Master of Arts degree will take, during their first two terms of enrollment, two required graduate courses ([43-503](#) and [43-504](#)) and three other graduate courses (offered from the range [43-505](#); [43-506](#); [43-507](#); [43-508](#); [43-509](#); [43-597](#); [43-598](#)). Most students registering in a given year will take all the courses offered, so that course work will normally be completed in the first two semesters. Each student will develop a research plan in conjunction with the required seminars [43-503/43-504](#), and embark on a Major Research Paper under the supervision of two members of the history faculty. A student may, with the consent of the Graduate Advisor or AAU Head, take one course in another University of Windsor graduate program or in History at



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Wayne State University. Part-time candidates must complete [43-503](#) before embarking on further courses.

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## HISTORY: COURSE DESCRIPTIONS

All of the following courses will not necessarily be offered in any one year.

### **43-503. Modes of Historical Interpretation**

This course introduces students to a variety of methods and theories currently used to advance historical explanation. Particular attention will be paid to the role of narrative, the place of the social sciences, and the complexities of race, gender, ethnicity, and class in historical writing. Readings will also address the problem of synthesis, post-modernism and the relationship between history and public policy. This course also stresses the development of skills in critical reading and analytical writing.

### **43-504. Research Methods**

This course introduces students to the range of methods and approaches to historical research, and to the problems associated with interpreting various kinds of sources. Students will identify and establish a research problem, in which they define the questions to be posed, and begin to move from broad to narrow approaches to their topic. They will discover and evaluate accessible sources of evidence, and at the same time develop an appropriate methodological and interpretive framework for a specific research project.

### **43-505. Studies in Culture and the Self**

This course will provide a critical approach to one of the most basic issues in Western intellectual culture. Recent scholarship has problematized the old narrative that people in early modern Europe were unique in "discovering" an inner private subject, or self. The course readings will introduce critiques relating to the way people in other times and cultures defined self in relation to culture; we will examine the influence of perceptions of gender, class and race upon modern representations of self, and also the question of whether a sense of the self continues to be meaningful at the turn of the twenty-first century.

### **43-506. Studies in the History of Sexuality**

This course will provide a thematic approach to the foundations of Western attitudes towards sexuality, especially as they developed in premodern Europe. The complex interweaving of ancient ideas, medicine, Christian law and theology, and popular practices and beliefs will be explored. This course is problem oriented and will explore some of the theoretical issues pertaining to the historical study of human sexuality.

### **43-507. Studies in the History of Women and Gender**

This course examines the historiography and theory of these two interrelated fields since 1970. It explores the themes and approaches in early studies of women's organizations, labour, and sexuality; the later growth of attention to differences of culture and power among women; and the more recent emergence of poststructuralism and the study of the interrelation of gender, class, and race. Readings will range across time periods and national boundaries but with an emphasis on the U.S. literature.

### **43-508. Studies in the History of the Book and the Culture of the Written Word**

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This course will provide an introduction to the historical problems encountered and interpretive possibilities revealed when books (both artefacts and texts) become the focus of inquiry. Ranging broadly through a variety of disciplinary approaches to manuscript and print cultures on both sides of the Atlantic, we will consider such questions as the complex uses of literacy, and the extent to which technological transformations such as the printing press or the computer have determined literary and cultural change. Studies of the book trades (printing, bookselling, journalism, publishing of all kinds) will be used to illuminate changes in religious, scientific, scholarly, literary and other aspects of the cultures (from medieval to postmodern) in which they flourish.

**43-509. Studies in Canadian Social History**

The course discusses approaches, methods, and debates in the writing of social history in English Canada since 1970. Topics discussed include historiographical debates over the writing of a "national" history, the writing of labour and working class history, women's history, ethnic and immigration history, the history of sexuality, regional history, and family history. How the categories of class, gender, race, ethnicity and sexuality have been incorporated into the writing of Canadian social history is a focus of consideration.

**43-510. Studies in Postcolonial History**

This course evaluates important works of history and theory written from a postcolonial perspective. It focuses on novel approaches to studying people whose modern experience began as subordinate subjects of the West's colonizing projects. The course will also consider the influence of postcolonial scholarship on contemporary historiography in general. (2 lecture hours a week.)

**43-597. Selected Topics in History**

**43-598. Selected Topics in History**

**43-796. Major Paper**

A sophisticated scholarly essay, normally amounting to some 40-60 pages, incorporating research on primary sources (in most cases), and written under the supervision of two members of the graduate faculty, a supervisor and a second reader. There will be a public oral examination. Students are advised that they may be required to have proficiency in a language other than English in order to do their research.

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## FACULTY OF HUMAN KINETICS

### GRADUATE FACULTY

#### Professors Emeriti

Moriarty, Richard James; B.A., M.A. (Assumption), M.Ed. (Wayne State), Ph.D. (Ohio State)-1956.

Metcalfe, Alan; D.L.C. (Loughborough), B.P.E. (British Columbia), M.S., M.A., Ph.D. (Wisconsin)-1969.

#### Professors

Boucher, Robert L.; B.Sc. (Mankato State), M.Sc. (Illinois State), Ph.D. (Ohio State)-1974. (Department Head, Kinesiology)

Marino, G. Wayne; B.A., B.P.E. (McMaster), M.P.E. (Windsor), Ph.D. (Illinois)-1977.

#### Associate Professors

Kimmerle, Marliese; B.A., B.P.H.E. (Queen's), M.A., Ph.D. (Michigan)-1969

Holman, Margery J.; B.A., B.P.H.E., (Windsor), M.Ed. (Wayne State), Ph.D. (Michigan State)-1970.

Paraschak, Victoria; B.P.E. (McMaster), M.H.K. (Windsor), Ph.D. (Alberta)-1984.

Weir, Patricia; B.H.K., M.H.K. (Windsor), Ph.D. (Waterloo)-1991.

Potvin, James; B.H.K. (Windsor), M.Sc., Ph.D. (Waterloo)-1997.

Andrews, David M.; B.P.E., M.Sc. (McMaster), Ph.D. (Waterloo)-2000.

Martyn, Scott G.; B.A., M.A., Ph.D. (Western Ontario)-2000.

Chandler, Krista; B.A. (Prince Edward Island), M.A. (Queen's), Ph.D. (Western Ontario)-2001.

Taks, Marijke; B.Sc., M.Sc., Ph.D. (Leuven)-2001.

#### Assistant Professor

Jakobi, Jennifer; B.H.K. (Windsor), M.Sc. (York), Ph.D. (Western Ontario)-2003.



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## **KINESIOLOGY: PROGRAMS OF STUDY**

### **Kinesiology (MHK)**

#### **THE MASTER OF HUMAN KINETICS DEGREE**

##### **General Nature of the Program**

There are two streams to the program, Sport Management and Applied Human Performance: both streams include a thesis option which normally will lead to doctoral work. Both offer an Internship option which combines coursework with practical work term placement designed to serve as an enrichment experience.

##### **Admission Requirements**

1) In addition to the general admission requirements of the Faculty of Graduate Studies and Research outlined in 1.3 and 1.6.1, the following are employed in the determination of a candidate's admission status:

(a) Thesis students must have a faculty research advisor before being admitted into one of the following areas of specialization:

- Applied Human Performance
- Sport Management

(b) A person who holds a three-year degree in another discipline is required to complete the requirements for the Master's degree as outlined in the Graduate Calendar. Up to ten Kinesiology undergraduate courses beyond the minimum requirement may be deemed necessary by the graduate committee.

(c) A person who holds a four-year degree in another discipline will be required to take up to five Kinesiology undergraduate courses prior to taking graduate courses.

Normally, the makeup courses are to be selected from the areas of specialization: Applied Human Performance and Sport Management.

Undergraduate courses, assigned at the discretion of the admissions committee and the student's advisor to form the make-up requirements, may be found in the Undergraduate Calendar (see 9.2).

##### **Program Requirements**

1) In addition to the general requirements for the Master's degree, the candidate must:

- complete a minimum four graduate-level courses and a thesis, or substitute a

<ul style="list-style-type: none"> <li>• <b>Communciation Studies: Courses</b></li> </ul>	<p>minimum of three graduate-level courses and an internship; (b) pass an oral examination based on a thesis;</p>
<ul style="list-style-type: none"> <li>Computer Science: Graduate Faculty</li> <li>• Computer Science: Programs</li> <li>• Computer Science: Courses</li> </ul>	<p>2) Only one Special Problems (95-510) course may be taken regardless of area of specialization.</p> <p>3) <i>Master's Committee and Advisors:</i> Prior to a candidate's initial registration, the Department Head will assign a program advisor for each candidate.</p>
<ul style="list-style-type: none"> <li>Earth Sciences: Graduate Faculty</li> <li>• Earth Sciences: Programs</li> <li>• Earth Sciences: Courses</li> </ul>	<p>The appointed advisor may or may not act as chairperson of the Master's thesis committee, which will include at least two additional members, one of whom shall be a faculty member from outside Human Kinetics. An additional member from the graduate faculty of another university may be invited to serve on the Master's thesis committee.</p>
<ul style="list-style-type: none"> <li>Economics: Graduate Faculty</li> <li>• Economics: Programs</li> <li>• Economics: Courses</li> </ul>	<p>4) <i>Examinations</i></p> <p>(a) <i>Thesis Option:</i> The thesis committee will conduct the oral examination of the thesis proposal. When the thesis has been completed, the thesis committee, in consultation with the candidate, will determine whether to proceed with or postpone the final oral examination. The grade on the written thesis shall be worth sixty percent (60%) of the final grade. For the final oral examination of the thesis, the committee will be supplemented by another member of the Kinesiology graduate faculty who will act as the chairperson. Following the successful defense, the candidate will deposit all copies of the thesis in the Office of the Faculty of Graduate Studies and Research for binding and distribution (two copies for the Leddy Library, a copy to the Faculty of Human Kinetics).</p> <p>(b) <i>Internship Option:</i> The internship consists of a minimum of 360 hours of applied work experience in a sport management or applied human performance setting. The internship option is open to students who have completed four graduate courses. Students develop an internship experience in conjunction with a graduate faculty member prior to registering for the internship. Students are required to complete the "Internship Objectives Form" prior to completing 50 hours of their experience. Their work experience is supervised and evaluated (mid-term and final evaluation) by the cooperating field professional. Students are also required to prepare and defend a research report. Final evaluation is on a Pass/Non-Pass basis and the student is required to pass both the experience and the research report components of the internship. Following the successful completion, the candidate deposits two copies of the internship and research report in the Faculty of Human Kinetics.</p>
<ul style="list-style-type: none"> <li>Faculty of Education: Graduate Faculty</li> <li>• Education: Programs</li> <li>• Education: Courses</li> </ul>	
<ul style="list-style-type: none"> <li>Faculty of Engineering: Programs of Study Overview</li> <li>• General Courses, Engineering</li> </ul>	
<ul style="list-style-type: none"> <li>Civil and Environmental Engineering (CEE): Graduate Faculty</li> <li>• CEE: Areas of Specialization</li> <li>• CEE: Courses</li> </ul>	
<ul style="list-style-type: none"> <li>Electrical Engineering: Graduate Faculty</li> <li>• Electrical Engineering: Areas Of Specialization</li> <li>• Electrical Engineering: Courses</li> </ul>	
<ul style="list-style-type: none"> <li>Engineering Materials: Graduate Faculty</li> <li>• Engineering Materials: Areas of Specialization</li> <li>• Engineering Materials: Courses</li> </ul>	<p><b>APPLIED HUMAN PERFORMANCE</b></p> <p>The program focuses on the application of movement science in sport, the workplace, and activities of daily living. Students pursue course work, thesis research, and internships that examines the basic and applied principles of human biomechanics, motor performance and exercise physiology. To fulfil the degree requirements, each candidate must complete the following:</p>
<ul style="list-style-type: none"> <li>Industrial and Manufacturing Systems Engineering (IMSE): Graduate Faculty</li> <li>• IMSE: Areas of Specialization</li> <li>• IMSE: Courses</li> </ul>	<p><b>Thesis Option</b></p> <p>1) Three course from 95-504, 95-510, 95-522, 95-524, 95-525, 95-526, 95-527, 95-528, 95-595.</p> <p>2) A Thesis (95-797).</p> <p>3) One other graduate courses chosen in consultation with the thesis advisor.</p>
<ul style="list-style-type: none"> <li>Mechanical, Automotive, and Materials Engineering (MAME): Graduate Faculty</li> <li>• MAME: Areas of Specialization</li> </ul>	<p><b>Internship Option</b></p>

• MAME: Courses

- 1) Five of [95-504](#), [95-522](#), [95-523](#), [95-524](#), [95-525](#), [95-526](#), [95-527](#), [95-528](#), [95-595](#).
- 2) Two other graduate courses chosen in consultation with the internship advisor.
- 3) Internship ([95-795](#)).

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

- Sociology: Programs
- Sociology: Courses

Visual Arts: Graduate Faculty

- Visual Arts: Programs
- Visual Arts: Courses

Postgraduate Awards and  
Financial Aid

SPORT MANAGEMENT

The program focuses upon the understanding of the components of organizational behaviour in the context of amateur and professional sport environments. Students will pursue course work and either thesis research or an internship that focuses on topics such as leadership, organizational effectiveness, sport marketing, organizational change, and legal, philosophical and social issues of management. To fulfil the degree requirements, each candidate must complete all of the following:

**Thesis Option**

- 1) Three courses from [95-500](#), [95-501](#), [95-502](#), [95-503](#), [95-505](#), [95-506](#), [95-510](#), [95-562](#), [95-595](#).
- 2) A Thesis ([95-797](#)).
- 3) One other graduate course chosen in consultation with the thesis advisor.

**Internship Option**

- 1) Five courses from [95-500](#), [95-501](#), [95-502](#), [95-503](#), [95-505](#), [95-506](#), [95-562](#), [95-595](#).
- 2) Two other graduate courses chosen in consultation with the internship advisor.
- 3) Internship ([95-795](#)).

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- Chemistry and Biochemistry: Programs
- Chemistry and Biochemistry: Courses

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- Communications Studies: Programs

### **KINESIOLOGY: COURSE DESCRIPTIONS**

All courses listed will not necessarily be offered in any given term. All courses are three hours a week unless otherwise noted.

#### **95-500. Sport Leadership**

A survey course using the current research and literature relating to leadership in administrative environments. Several leadership theories will be reviewed and analyzed. Various models of leadership will be discussed relative to the sport administration environments.

#### **95-501. Legal and Human Rights Issues in Sport Management**

An analysis of the research and professional practice related to the role of legislation and litigation as they relate to sport and physical activity programs and services and participation. Specific emphasis will be placed on the issue of human rights, covering topics including legislation and case study analyses from the sport management domain.

#### **95-502. Organizational Behaviour in Sport Organizations**

An analysis of the interdependent nature of the social/psychological components of organizational behaviour. Special reference will be made to individual and group behaviour in terms of the organizational effectiveness of sport organizations.

#### **95-503. Sport Marketing**

An analysis of the research and literature related to the marketing of sport and physical activity programs and services. Specific emphasis will be placed on the review and application of sport marketing research, an overview and application of the related marketing terms and the development of a marketing plan for a sport organization.

#### **95-504. Advanced Topics in the Psychology of Sport & Exercise**

An analysis of the research and literature related to the psychological phenomena influencing the participants in the sport and exercise situation. Topics include specific sport/exercise intervention techniques, measurement issues and social psychological aspects of sport and exercise.

#### **95-505. Social Issues in Sport Management**

Sport managers operate within a social world. This course examines current social issues and their implications for sport managers. Issues include the impact of various institutions on sport management (e.g., sport, government, economics, media, education), as well as the relationship between sport management and various power relations in society (e.g. race, gender, class, age, and physical ability).

#### **95-506 Crises, Politics and Commercialism in the Modern Olympic Movement**

This course focuses on two dimensions: (1) the study of three persistent problems and issues surrounding the history of the Modern Olympic Movement (crises, politics, commercialism), and (2) individual independent research on a course-related topic for which the greater amount of evidence exists in primary documents housed in various regional archives.



• [Communciation Studies: Courses](#)

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- [Engineering Materials: Courses](#)

[Industrial and Manufacturing Systems Engineering \(IMSE\): Graduate Faculty](#)

- [IMSE: Areas of Specialization](#)
- [IMSE: Courses](#)

[Mechanical, Automotive, and Materials Engineering \(MAME\): Graduate Faculty](#)

- [MAME: Areas of Specialization](#)

**95-510. Special Problems**

Independent study conducted under the advisement of a graduate faculty member. This course cannot be used as a review of literature for thesis. (Prerequisite: consent of program committee.)

**95-522. Instrumentation and Modeling in Kinesiology**

This course will be designed to expose students to methods and instruments used to collect and process data in Kinesiology research. In addition, the course will expose students to examples of modelling approaches used to represent the nervous system, muscle force generation, musculoskeletal structure and the cardiopulmonary system.

**95-523. Applied Biomechanics of Human Performance**

This seminar/lecture course will focus on the application of biomechanics concepts and measurement techniques in the study of human performance. Specific topics will reflect the interests of students and may include areas such as sports, locomotion, activities of daily living, and equipment testing and design.

**95-524. Biomechanics in the Work Place**

This seminar/lecture course will focus on applications of human performance biomechanics in the work place. Special emphasis will be placed on theoretical and practical methods of assessing work place efficiency and effectiveness while considering the comfort and safety of the worker.

**95-525. Motor Skill Acquisition**

This seminar/lecture course will examine the learning processes involved in skill acquisition by novice and experienced learners in a variety of contexts. In lab/field settings students will carry out task analysis and acquire movement observation/analysis skills.

**95-526. Motor Control of Human Performance**

This seminar/lecture course will examine the perceptual, cognitive, and neurophysiological aspects of human motor control. Different theoretical and methodological approaches will be examined and applied to the understanding of functional movements in the home, workplace, and sporting environment. Changes in the control of movement in special populations will also be examined.

**95-527. Physiological Responses to Human Movement Demands**

This seminar/lecture course will examine the acute response and chronic adaptive nature of selected physiological systems directly related to human movement. Specific topics will reflect the interests of students and may include areas such as temperature regulation and fatigue as well as current topics of interest in human movement.

**95-528. Neuromuscular Physiology**

This seminar/lecture course will examine fundamental concepts of the neuromuscular system as they relate to movement, exercise and sport. Special emphasis is placed on physiological adaptations of the neuromuscular system as a result of acute (exercise, fatigue, training) and chronic (age, disease) perturbations.

**95-562. Research Methods**

A review and appraisal of qualitative and quantitative research methods with special reference to design, data collection, analysis and generalization.

**95-590. External Graduate Course**

(Must be a course approved by the Faculty of Graduate Studies and Research).

**95-595. Selected Topics**

Topics developed by individual faculty members, based on new developments in a

- **MAME: Courses**

particular area of study. (Subject to Kinesiology Council approval.)

English: Graduate Faculty

- English: Programs
- English: Courses

**95-795. Internship**

(See Graduate Internship Handbook.)

History: Graduate Faculty

- History: Programs
- History: Courses

**95-797. Thesis**

Undergraduate courses, which may be assigned at the discretion of the admissions committee and Department Head to form part or all of the requirements for admission to candidacy, may be found in the *Undergraduate Calendar* ( see 9.2).

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

- Sociology: Programs
- Sociology: Courses

Visual Arts: Graduate Faculty

- Visual Arts: Programs
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- [Communications Studies: Programs](#)

## MATHEMATICS AND STATISTICS

### GRADUATE FACULTY

#### Professor Emeritus

Chandna, Om Parkash; B.A. (Panjab), M.A. (Delhi), M.Sc., Ph.D. (Windsor)-1968.

Duggal, Krishan L.; B.A. (Panjab), M.A. (Agra), M.Sc., Ph.D. (Windsor)-1968.

Kaloni, Purna N.; M.Sc. (Allahabad), M.Tech., Tech., Ph.D. (Indian Inst. of Tech.)-1970.

Wong, Chi Song; B.S. (National Taiwan), M.S. (Oregon), M.S., Ph.D. (Illinois-Urbana)-1971.

#### Professors

Lemire, Francis William; B.Sc. (Windsor), M.Sc., Ph.D. (Queen's)-1970.

Britten, Daniel J.; B.A. (Merrimack College), M.S., Ph.D. (Iowa)-1971.

Barron, Ronald Michael; B.A., M.Sc. (Windsor), M.S. (Stanford), Ph.D. (Carleton)-1975.

Fung, Karen Yuen; B.A., M.S., Ph.D. (U.C.L.A.)-1976.

Paul, Sudhir R.; B.Sc., M.Sc. (Dacca), Ph.D. (Wales)-1982.

Caron, Richard J.; B.M., M.M., Ph.D. (Waterloo)-1983.

Hlynka, Myron; B.Sc. (Manitoba), M.A., Ph.D. (Pennsylvania State)-1986.

Hu, Zhiguo; B.Sc., M.Sc. (Northeast China), Ph.D. (Alberta)-1993.

Ahmed, Ejaz; B.Sc., M.Sc. (Karachi), M.Sc. (Guelph), Ph.D. (Carleton)-2002.

#### Assistant Professors

Alfakih, Abdo Y.; Licence (Lebanese U.), M.Sc., Ph.D. (Michigan)-2003.

Hussein, Abdulkadir A.; B. Sc. (U of Trieste), M.Sc., Ph.D. (Alberta)-2003.

Monfared, Mehdi; B. Sc. (Sharif U. Of Technology), M.Sc. (Iran U. of Science & Technology), Ph.D. (Alberta)-2003.

#### Adjunct Professors

• **Communciation Studies:  
Courses**

Brill, Percy; B.Sc. (Carleton), M.A. (Columbia), Ph.D. (Toronto)-1984.

**Computer Science: Graduate  
Faculty**

**Adjunct Associate Professors**

• **Computer Science:  
Programs**

Mandelbaum, Marvin; B.A.Sc. (Toronto), M.Sc. (Technion), Ph.D. (Toronto)-2002.

• **Computer Science: Courses**

**Cross-Appointments**

**Earth Sciences: Graduate  
Faculty**

Aneja, Yash Paul; B.Sc., M.Sc. (Indian Statistical Institute), Ph.D. (John Hopkins)-1984.

• **Earth Sciences: Programs**

• **Earth Sciences: Courses**

**Economics: Graduate Faculty**

• **Economics: Programs**

• **Economics: Courses**

**Faculty of Education:**

**Graduate Faculty**

• **Education: Programs**

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**Programs of Study Overview**

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• **CEE: Courses**

**Electrical Engineering:**

**Graduate Faculty**

• **Electrical Engineering:**

**Areas Of Specialization**

• **Electrical Engineering:**

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**Engineering Materials:**

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**Industrial and Manufacturing**

**Systems Engineering (IMSE):**

**Graduate Faculty**

• **IMSE: Areas of**

**Specialization**

• **IMSE: Courses**

**Mechanical, Automotive, and**

**Materials Engineering**

**(MAME): Graduate Faculty**

• **MAME: Areas of**

**Specialization**

- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
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Psychology: Graduate Faculty

- Psychology: Programs
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Social Work: Graduate  
Faculty

- Social Work: Programs
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Sociology: Graduate Faculty

- Sociology: Programs
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Visual Arts: Graduate Faculty

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## MATHEMATICS AND STATISTICS: PROGRAMS OF STUDY

[Mathematics \(MSc\)](#)  
[Statistics \(MSc\)](#)  
[Statistics \(PhD\)](#)

### THE DOCTOR OF PHILOSOPHY DEGREE

#### Admission Requirements

For admission requirements and period of study, the general regulations of the Faculty of Graduate Studies and Research should be consulted (see 1.5). Qualifying examinations will not normally be required.

#### CANDIDACY

Students will be recommended for candidacy (see 1.5.1) only after successful completion of the Comprehensive Examinations and course work.

#### Program Requirements for the Ph.D. (Statistics)

1) *Course Work*: Students admitted with an M.Sc. or equivalent must successfully complete at least four graduate courses numbered with the prefix 65-; further graduate courses may be assigned by the Graduate Studies Committee in consultation with the advisor. Transfer credits will not be allowed. (Up to two courses prefixed 65- may be replaced by [62-510](#) and/or [62-511](#).)

Students admitted with an Honours B.Sc., or equivalent, which is done only in exceptional cases, must successfully complete at least twelve graduate courses, eight of which must be numbered with the prefix 65-; further graduate courses may be assigned by the Graduate Studies Committee in consultation with the advisor. Transfer credits will not be allowed.

It is strongly recommended that all Ph.D. students in Statistics take a measure theoretic probability course.

2) *Doctoral Committee*: within the student's first term of study at the doctoral level, a doctoral committee will be appointed by the Head of the Department upon the advice of the Graduate Studies Committee. The doctoral committee must be approved by the Executive Committee of the Faculty of Graduate Studies and Research. The doctoral committee shall include the student's advisor as chairperson, at least two other members of the Department, one faculty member from outside the Department, and an external examiner, who shall not be involved in the preparation of the dissertation. The selection of the external examiner is subject to the approval of the Dean of Graduate Studies and Research. Members of other departments may also be invited to join the



• [Communciation Studies: Courses](#)

committee (see also 1.5.2).

• [Computer Science: Graduate Faculty](#)

3) *Dissertation*: The dissertation shall be defended at an oral examination (see also 1.5.2).

• [Computer Science: Programs](#)

• [Computer Science: Courses](#)

4) *Comprehensive Examinations*: A student must pass a series of three written comprehensive examinations as follows:

i. Paper I-Mathematical Statistics and Probability

ii. Paper II-Statistics OR Probability

iii. Paper III-Topics (two topics mutually agreed upon by the advisor and student).

• [Earth Sciences: Graduate Faculty](#)

• [Earth Sciences: Programs](#)

• [Earth Sciences: Courses](#)

If a student fails an examination, it may be repeated once, but if the examination is failed a second time, the student must withdraw from the program (see also 1.5.3). In any case, these examinations must be successfully completed within twenty-five months of registration in the doctoral program. If this deadline is not met, the student must withdraw from the program.

• [Economics: Graduate Faculty](#)

• [Economics: Programs](#)

• [Economics: Courses](#)

• [Faculty of Education: Graduate Faculty](#)

• [Education: Programs](#)

• [Education: Courses](#)

## THE MASTER OF SCIENCE DEGREE

### Program Requirements for the M.Sc. (Mathematics)

• [Faculty of Engineering: Programs of Study Overview](#)

• [General Courses, Engineering](#)

The candidate shall successfully complete one of the following courses of study:

(a) seven graduate courses and a major paper;

(b) six graduate courses and a thesis. The originality of a Master's thesis may lie in the organization, presentation, and scholarly evaluation, rather than in the result.

• [Civil and Environmental Engineering \(CEE\): Graduate Faculty](#)

• [CEE: Areas of Specialization](#)

• [CEE: Courses](#)

In addition, graduate courses completed at this institution must include two of the following: Real Analysis ([62-510](#)), Functional Analysis ([62-512](#)), or Partial Differential Equations ([62-561](#)).

### Program Requirements for the M.Sc. (Statistics)

• [Electrical Engineering: Graduate Faculty](#)

• [Electrical Engineering: Areas Of Specialization](#)

• [Electrical Engineering: Courses](#)

The candidate shall successfully complete one of the following courses of study:

(a) seven graduate courses, of which at least five must be numbered with the prefix 65-, and a major paper;

(b) six graduate courses, of which at least four must be numbered with the prefix 65-, and a thesis. The originality of a Master's thesis may lie in the organization, presentation, and scholarly evaluation, rather than in the result.

• [Engineering Materials: Graduate Faculty](#)

• [Engineering Materials: Areas of Specialization](#)

• [Engineering Materials: Courses](#)

In both M.Sc. (Statistics) programs, up to two courses prefixed 65- may be replaced by [62-510](#) and/or [62-511](#).

### Master's Committee

• [Industrial and Manufacturing Systems Engineering \(IMSE\): Graduate Faculty](#)

• [IMSE: Areas of Specialization](#)

• [IMSE: Courses](#)

If the Thesis option is taken for either the M.Sc. (Mathematics) or the M.Sc. (Statistics), a Masters committee must be appointed within the student's first term of study at the II Master's (Candidate) level. The Master's committee must be approved by the Executive Committee of the Faculty of Graduate Studies and Research. The Master's committee shall include the student's supervisor as chairperson, one other member of the Department, and one faculty member from outside the Department.

• [Mechanical, Automotive, and Materials Engineering \(MAME\): Graduate Faculty](#)

• [MAME: Areas of Specialization](#)

• [MAME: Courses](#)

- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
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- Nursing: Programs
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Philosophy: Graduate Faculty

- Philosophy: Programs
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Physics: Graduate Faculty

- Physics: Programs
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Political Science: Graduate  
Faculty

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Psychology: Graduate Faculty

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Social Work: Graduate  
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## MATHEMATICS AND STATISTICS: COURSE DESCRIPTIONS

All courses listed will not necessarily be offered in any given year.

### *MATHEMATICS*

#### **62-510. Functions of a Real Variable I**

Lebesgue measure, abstract measure, integration, monotone and dominated convergence theorems, Radon-Nikodym theorem, Hahn decomposition theorem, Fubini's theorem,  $L_p$  spaces.

#### **62-511. Functions of a Real Variable II**

Metric spaces, topological spaces, compactness, Stone-Weierstrass and Ascoli theorems, Baire category theorem, classical Banach spaces.

#### **62-512. Functional Analysis I**

Normed linear spaces and examples, Hahn-Banach theorem, open mapping theorem, principle of uniform boundedness, weak and weak\* topologies on Banach spaces, Hilbert spaces and bounded linear operators on Hilbert spaces.

#### **62-513. Functional Analysis II**

Banach algebras and spectral theory, operator theory,  $C^*$ -algebras and their representations, elementary von Neumann algebra theory.

#### **62-520. Abstract Algebra**

Elements of group theory are explored including such topics as: the Sylow Theorems, classification of groups of low order, Jordan-Holder Theorem, solvable groups, nilpotent groups, groups in terms of generators and relation, representations of groups, basic operations on representations, orthogonality relations

#### **62-521. Ring Theory and Modules**

This course is designed to introduce students to the structure theory of general rings and their modules. It will provide an appropriate foundation for more advanced graduate material in algebra at the doctoral level and will be an excellent preparation for doctoral comprehensive examinations. Topics covered will include: semisimple rings, Wedderburn-Artin Theorem, modules over a principal ideal domain, projective, injective and flat modules, introduction to homology theory.

#### **62-523. Lie Algebras**

Engel's Theorem, Lie's Theorem, criterion for semi simplicity, root space decomposition, universal enveloping algebra, PBW basis, representation theory, finite dimensional modules, Harish-Chandra's Theorem.

#### **62-525. Matrix Algebra and Analysis**

Aspects of measure theory and probability, convergence theorems for integrations and expectations, moments and inequalities, construction of Lebesgue-Stieltjes measure,

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Engineering

Civil and Environmental  
Engineering (CEE): Graduate  
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• Electrical Engineering:

Areas Of Specialization

• Electrical Engineering:

Courses

Engineering Materials:  
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Industrial and Manufacturing  
Systems Engineering (IMSE):  
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• IMSE: Courses

Mechanical, Automotive, and  
Materials Engineering  
(MAME): Graduate Faculty

• MAME: Areas of

Specialization

Riemann-Stieltjes integral, comparison of Riemann and Lebesgue integrals, introduction to complex variable, contour integration, characteristics functions, elementary theorems on linear and matrix algebra, generalized and conditional inverses, distributions of quadratic forms. This course is designed for graduate students in Statistics.

**62-530. General Topology**

Elementary concepts of topology, product and quotient spaces, continuity and homeomorphisms, nets and filters, separation and countability, compactness, connectedness.

**62-551. Advanced Linear Programming**

By presenting results and their proofs, the student will acquire a solid understanding of the theory, algorithms and applications of linear programming. This course is a prerequisite for more advanced courses on integer programming, combinatorial optimization and networks flows. Topics emphasized include: formulations of linear programming problems, convex sets and convex functions, separation theorem, Farkas' lemma, duality theory, economic interpretation of duality, optimality conditions, primal and dual simplex algorithms, cycling, sensitivity analysis, interior-point methods and central path, primal-dual methods, convergence results.

**62-552. Nonlinear Programming**

This course will provide an introduction to the field of nonlinear programming. By presenting results and their proofs, the student will acquire a solid understanding of the theory behind most algorithms for solving nonlinear optimization problems. He/she will also acquire the knowledge and skills needed to conduct research in this area. Topics covered will include: unconstrained optimization, necessary and sufficient conditions for optimality, convex sets and convex functions, steepest descent method, Newton's method, conjugate gradient methods, quasi-Newton's methods, separation theorem and Farkas' lemma, Karush-Kuhn-Tucker conditions, constraint qualification conditions, duality theory, Barrier methods, and quadratic programming.

**62-553. Integer Programming**

This course will provide the student with a rigorous introduction to the field of integer programming. Topics covered will include: modelling with integer variables, elements of computational complexity theory, elements of polyhedral theory, total unimodularity, branch and bound methods, cutting plane methods, implicit enumeration, Bender decomposition, dynamic programming, lagrangian relaxation, knapsack problems, set covering/packing/partitioning problems, heuristic methods.

**62-554 Combinatorial Optimization**

This course will provide a rigorous introduction to combinatorial optimization. The student will develop a solid understanding of the theory, algorithms and applications of these problems and their connections to integer programming, linear programming and complexity theory. Topics will include: formulation of combinatorial optimization problems, polytopes and polyhedra, elements of computational complexity theory, shortest paths, bipartite and non-bipartite matchings, max-flow min-cut theorem, multi-commodity flow problems, clique and coloring problems, perfect graphs, traveling salesman problem, spanning trees, matroids.

**62-561. Partial Differential Equations**

First-order equations, classification of second-order equations, canonical forms and general solutions of second-order equations, diffusion equations, Laplace equations, the maximum principle and uniqueness for the Dirichlet problem, wave equations, Riemann's method for linear hyperbolic equation, Green's functions and transform methods.

**62-568. Numerical Analysis I**

General error analysis, direct solution of linear algebraic equations, iterative solution of

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linear equations, algebraic eigenvalue problems, numerical solution of a system of nonlinear equations, error analysis.

**62-569. Numerical Analysis II**

Interpolation and approximation, numerical integration and differentiation, finite differences. Numerical solution of ordinary and partial differential equations using finite differences.

**62-598. Special Topics**

**62-796. Major Paper**

**62-797. Thesis (M.Sc.)**

*STATISTICS*

**65-540. Theory of Probability**

Basic probability model, random variables and their distributions, expectation, convergence of random variables and their distributions, independence and conditional dependence. Zero-one laws, characteristic functions, generating functions, Law of large numbers, Central Limit Theorem.

**65-541. Stochastic Processes**

Discrete and continuous time Markov processes, renewal theory, branching processes, Brownian motion.

**65-542. Advanced Mathematical Statistics**

A review of probability theory, transformations and expectations, common families of distributions, inequalities and identities, properties of a random sample, data reduction and best estimation strategies, asymptotic approximation.

**65-543. Statistical Inference**

Measure of performance, pure significance test and formal hypothesis testing, interval estimation, asymptotic evaluations, analysis of variance and regression, analysis of categorical data.

**65-544. Multivariate Analysis**

This course is aimed at giving theoretical and methodological background on inference procedure for the analysis of multivariate continuous data mainly under the assumption of normality.

**65-546. Statistical Data Analysis**

This course takes a computer-oriented approach to equip students with the experience of data analysis, beginning with designing of experiment to presentation of results. Depending on the background of the students, different topics will be emphasized.

**65-548. Non-parametric Statistics**

Nonparametric tests including Wilcoxon, Mann-Whitney, Smirnov, Fisher's exact test, Cox and Stuart test for trend, runs test. Estimation. Theory and applications.

**65-549. Discrete Multivariate Analysis**

This course is aimed at giving theoretical and methodological background for the analysis of discrete data mainly in the form of contingency tables. Other discrete models as part of the generalized linear models may be covered.

**65-550. Generalized Linear Models**

This course is aimed at giving theoretical and methodological background for the

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analysis of discrete or continuous data using the generalized linear models and other semi-parametric models where full distributional assumptions cannot be justified.

**65-552. Experimental Design**

Factorial designs with and without interactions, randomized block, Latin square, balanced incomplete block, nested design, confounding factorial and other designs. Fixed, random and mixed models.

**65-554. Theory of Sampling and Surveys**

Sampling methods including simple random, stratified, cluster, PPS and multistage, ratio and regression estimates. Theory and applications.

**65-555. Regression Analysis**

Simple and multiple linear regression, inference on regression parameters, residual analysis, stepwise regression, polynomial regression, diagnostics and remedial measures for multicollinearity and influential observations, weighted least squares, logistic regression, nonlinear regression.

**65-557. Large Sample Theory**

This course will present the basic large sample theory with a minimum coating of abstraction and at a level with the usual program in statistics and applied statistics. The main objective is to present the essentials of large sample theory of statistics with a view toward its application to a variety of problems that generally crop up in other areas. Topics to be covered will include: mathematical background, stochastic convergence, weak convergence and central limit theorems, asymptotic behaviour of estimators and test statistic, multivariate extensions, bootstrapping.

**65-558 Sequential Analysis**

This course will equip graduate students in Statistics and Biological Sciences with a firm knowledge of the increasingly important sequential analysis methodology. Both theoretical and practical aspects of the sequential analysis applied to medical clinical trials and to biological studies will be covered in this course. Methodologies for designing and analyzing sequential clinical trials using both fully and group sequential methods: permuted block design, sequential biased coin design, Wald's SPRT procedures, O'Brien-Fleming and Pocock group sequential procedures, alpha- and beta-spending function approach, Whitehead's triangular tests, and post-trail estimation methods. Software such as SAS and Splus will be used for analyzing real and simulated trials.

**65-559. Topics in Statistics**

Topics offered may include queueing theory, statistical quality control, statistical consulting, survival analysis, time series analysis, decision theory, and Bayesian analysis.

**65-796. Major Paper**

**65-797. Thesis (M.Sc.)**

**65-798. Dissertation (Ph.D.)**

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## FACULTY OF NURSING

### GRADUATE FACULTY

#### Professors Emeritae

Thomas, Barbara Campbell; Dip.P.H.N., B.N.Sc. (Queen's), M.Ed. (Windsor), Ed.D. (Wayne State), Reg.N.-1969.

Rosenbaum, Janet N.; B.Sc.N., M.Sc.N., Ph.D., (Wayne State), Reg.N.-1975.

#### University Professor

Cameron, W. Sheila; R.S.C.N. (Scotland), B.A. (McMaster), M.A. Nurs. Educ. (Detroit), Ed.D. (Wayne State), F.A.A.M.R., Reg.N.-1976.

#### Professors

Carty, Laurie; B.Sc.N., B.A., M.Ed. (Windsor), Ph.D. (Wayne State), Reg.N.-1980.

Duffy, M. Elaine; B.App.Sc. (Lincoln Institute of Health Sciences), MN (Phillip Institute of Technology), Ph.D. (Monash), F.R.C.N.A.-2003.

#### Associate Professors

McMahon, Sharon; B.Sc.N., B.A., M.Ed. (Windsor), Ed.D. (Wayne State), Reg.N.-1973.

Yiu, Lucia, B.Sc. (Toronto), B.Sc.N., B. A.. (Windsor), M.Sc.N. (Western), Reg.N.-1987.

Rajacich, Dale; B.Sc.N. (Windsor), M.Sc.N. (Western Ontario), Reg.N.-1987.

Snowdon, Anne; B.Sc.N. (Western, Ontario), M.Sc. (McGill), Ph.D. (Michigan), Reg.N.-1988.

Kane, Deborah; B.Sc.N. (Windsor), M.Sc.N. (Western Ontario), Ph.D. (Michigan), Reg.N.-1989.

Hernandez, Cheri; B.Sc.N., B.A., M.Ed. (Windsor), Ph.D. (Toronto), Ph.D. (Case Western Reserve)-1997.

England, Margaret; B.Sc.N. (Illinois), M.A. (Roosevelt), M.S.N. (St. Xavier), Ph.D. (Case Western Reserve), Reg.N.-2002.

Bartfay, Wally J; B.A. (McGill), B.Sc.N. (Brandon), M.N. (Manitoba), Ph.D. (Toronto), Reg.N.-2003.



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**Earth Sciences: Graduate  
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**Economics: Graduate Faculty**

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Engineering (CEE): Graduate  
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Graduate Faculty**

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**Engineering Materials:  
Graduate Faculty**

- **Engineering Materials:  
Areas of Specialization**
- **Engineering Materials:  
Courses**

**Industrial and Manufacturing  
Systems Engineering (IMSE):  
Graduate Faculty**

- **IMSE: Areas of  
Specialization**
- **IMSE: Courses**

**Mechanical, Automotive, and  
Materials Engineering  
(MAME): Graduate Faculty**

- **MAME: Areas of  
Specialization**

**Assistant Professor**

El Masri, Maher; B.Sc.N. (Alquds), M.Sc.N. (UMB), Ph.D. (UMB), Reg.N.-2002.

Patrick, Linda; Reg.N., B.Sc.N., M.A. (Central Michigan), M. Sc. (Windsor)-2001

Thrasher, Christine; Reg.N., B.Sc.N., B.A. (Windsor), M.Sc.N. (D'Youville), Primary Care Nurse Practitioner Certificate (Ryerson)-2001.

**Adjunct Professor**

Horsburgh, M. Elizabeth; B.Sc.N., B.A., M.Ed. (Windsor), M.Sc.N., Ph.D. (Wayne State), Reg.N.-1984.

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English: Graduate Faculty

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History: Graduate Faculty

- History: Programs
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Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
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Sociology: Graduate Faculty

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- Communications Studies: Programs

## **NURSING: PROGRAMS OF STUDY**

**Nursing (MSc)**  
**Nursing (MN)**

### **THE MASTER OF SCIENCE DEGREE IN NURSING**

#### **Mission Statement**

The mission of the University of Windsor Master of Science degree program in Nursing is to prepare graduates for advanced nursing practice. Graduates will address societal health needs relating to health promotion and illness prevention, or human responses and adaptations to alterations in health. Through the integration of theory, research, and practice students will advance their scientific base for practice. In addition the program supports development of leadership and advocacy skills for contributions to health care, education and research. Through faculty guidance and self-directed learning activities, students from diverse backgrounds will develop advanced professional knowledge through critical thinking, decision making, and scholarly inquiry in a multicultural society. This program is especially designed to meet the needs of employed baccalaureate prepared nurses.

#### **Admission Requirements**

- 1) All general regulations of the Faculty of Graduate Studies and Research admission requirements are applicable.
- 2) Applicants must have a Bachelor of Science in Nursing or equivalent which includes physical assessment, and courses in research and statistics. Consideration may be given to nurse applicants holding degrees in other cognate disciplines.
- 3) Applicants must have maintained an overall B average in their undergraduate nursing program.
- 4) Applicants must be eligible for a current certificate of competence as registered nurses in Ontario.
- 5) Three Faculty of Nursing confidential reports must be completed by academic/professional referees, with at least one from an academic who has taught the applicant and one from a recent employment supervisor.
- 6) An "Applicant Profile" must be completed which includes a section addressing goals in seeking graduate education (narrative statement).
- 7) Applicants whose native language is not English must submit certification of English proficiency (official TOEFL score or equivalent MELAB).

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- [IMSE: Areas of Specialization](#)
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[Mechanical, Automotive, and Materials Engineering \(MAME\): Graduate Faculty](#)

- [MAME: Areas of Specialization](#)

8) Applications for admission must be completed by January 15.

9) An interview may be required.

**Program Requirements**

1) Candidates for the Master of Science degree in Nursing will pursue studies in one of two areas of concentration:

- (a) Human responses and adaptations to alterations in health of individuals, families and groups to acute and chronic illness.
- (b) Health promotion and illness prevention in selected populations.

2) The requirements may be satisfied by pursuing a program of studies consisting of six compulsory courses and a thesis, or six compulsory courses, two elective courses and a major project/paper. Those who wish to include a thesis in their program must request approval from the Graduate Committee of the Faculty of Nursing.

Additional information concerning the procedure for theses and major papers may be obtained from the coordinator of graduate studies (see 1.6.3).

3) Compulsory courses:

- [63-581](#). Theoretical Foundations of Nursing
- [63-582](#). Advanced Statistics
- [63-583](#). Research Methods in Nursing
- [63-599](#). Clinical Judgment in Nursing

and either [63-584](#) and [63-586](#), or [63-588](#) and [63-590](#), depending on the selected area of focus.

4) Clinical Judgement in Nursing Practice will involve one term of full-time study in a setting selected in consultation with the student. Students will select individuals, families, groups, populations and/or communities in various health care facilities, and/or community settings, to develop their knowledge and skill for advanced nursing practice.

5) Major project/paper students will select two graduate electives in nursing or related disciplines. Courses will be selected according to the student's research interests.

6) All candidates' programs are subject to approval by the graduate coordinator.

7) The minimum grade required in all graduate courses is B-. Any student who does not successfully complete a course may repeat it once at the discretion of the Dean of the Faculty of Nursing and the Dean of Graduate Studies and Research. The student may not repeat more than one course.

8) The maximum time limit is five years.

9) Students of the Faculty of Nursing are required to demonstrate behaviours consistent with the "Professional Standards for Registered Nurses and Registered Practical Nurses, Standards for the Therapeutic Nurse-Client Relationship and the Ethical Framework for Nurses in Ontario" of the College of Nurses of Ontario, and "Explanation of Professional Misconduct" of the College of Nurses of Ontario," and the academic policies of the University of Windsor.

Failure of any Nursing student to conform to the principles of these documents may result in dismissal from any of the Faculty of Nursing's programs.

The Master's thesis committee is chosen in the manner described in 1.6.2 of this

- MAME: Courses

Graduate Calendar. The final examination will be conducted by the Master's committee.

English: Graduate Faculty

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Students choosing a major project/paper must have a detailed proposal approved by at least two nursing faculty members, one of whom will serve as the primary advisor. The approved proposal application form must be submitted to the Dean of the Faculty of Nursing in order to register for the major project/paper. The major project/paper committee will conduct the final oral examination.

History: Graduate Faculty

- History: Programs
- History: Courses

Each student must obtain approval of his or her program in writing, from the graduate coordinator, within three weeks of registration. Subsequent changes require written approval from the graduate coordinator.

Faculty of Human Kinetics: Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

## THE MASTER OF NURSING DEGREE

### Admission Requirements

Mathematics and Statistics: Graduate Faculty

- Mathematics and Statistics: Programs
- Mathematics and Statistics: Courses

The program admission requirements for the course-based master's program (MN) are the same as the requirements for the Master of Science Program (M.Sc.). All general regulations of Graduate Studies and Research are applicable.

### Program Requirements

Faculty of Nursing: Graduate Faculty

- Nursing: Programs
- Nursing: Courses

It should be noted that the two areas of concentration: Human responses and adaptations to alterations in health of individuals, families and groups to acute and chronic illness and Health promotion and illness prevention in selected populations are the same as the M.Sc. program.

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Total courses: Ten (10) courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Major requirements: Students in the course-based master's (MN) must take the same six (6) compulsory courses required of students in the Master of Science Program (MSc):

Political Science: Graduate Faculty

- Political Science: Programs
- Political Science: Courses

63-581. Theoretical Foundations of Nursing  
63-582. Advanced Statistics  
63-583. Research Methods in Nursing  
63-599. Clinical Judgment in Nursing

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

and either 63-584 (Human Responses and Adaptation to Alterations in Health I) and 63-586 (Human Responses and Adaptation to Alterations in Health II).

or 63-588 (Health Promotion and Illness Prevention through the Life Cycle I) and 63-590 (Health Promotion and Illness Prevention through the Life Cycle II).

Social Work: Graduate Faculty

- Social Work: Programs
- Social Work: Courses

*Other requirements:* Students are required to take four elective courses, at least two of which must be nursing. Nursing electives may be selected from any of the following six existing elective nursing courses:

Sociology: Graduate Faculty

- Sociology: Programs
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63-570. Counselling Process in Nursing  
63-572. Women and Health  
63-574. Organizational and Management Theories Relevant to Health Care Organizations  
63-576. Management of Resources in Nursing  
63-578. Seminar in Current Nursing Issues  
63-580. Selected Readings in Nursing

Visual Arts: Graduate Faculty

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Two graduate course electives from other disciplines.

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[63-581](#). Theoretical Foundations of Nursing  
[63-582](#). Advanced Statistics

### ***Winter Semester***

[63-583](#). Research Methods In Nursing  
[63-584](#). Human Responses & Adaptations to Alterations in Health I  
or  
[63-588](#). Health Promotion & Illness Prevention Through the Life Cycle I

### ***Summer Semester***

Nursing/Open Elective(s)

YEAR II

### ***Fall Semester***

Nursing/Open Elective  
[63-586](#). Health Responses & Adaptations to Alterations in Health II  
or  
[63-590](#). Health Promotion & Illness Prevention Through the Life Cycle II

### ***Winter Semester***

[63-599](#). Clinical Judgment in Nursing Practice

### ***Summer Semester***

Nursing/Open Elective(s)

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### **NURSING: COURSE DESCRIPTIONS**

Not all of the courses listed below will necessarily be offered in any one year.

#### **63-560. Pathophysiology for the Advanced Practice Nurse**

Concepts of pathophysiology as a basis for advanced nursing practice will be studied from a systems approach. Common themes that interface with pathophysiological concepts will be integrated into each system. A case study approach will provide a comprehensive overview of the etiology, pathogenesis, and clinical manifestations of diseases in adults and children in primary health care settings.

#### **63-562. Advanced Health Assessment**

This course will focus on helping students conduct a full range of health assessments towards the goal of providing comprehensive and holistic care to individuals, families, and communities. Emphasis will be placed on disease prevention within a primary care setting. (A 6.0 credit hour course, 2 semesters)

#### **63-570. Counselling Process in Nursing**

Development and refinement of counselling skills with an emphasis on human relationships and nursing strategies that facilitate health. Experiential learning will be implemented to bring a balance between counselling theory/research and applied counselling knowledge

#### **63-572. Women and Health**

An analysis of health issues of Canadian women from a holistic woman-centered perspective to include geographical, sociocultural and political variables that impact women's health

#### **63-574. Organizational and Management Theories Relevant to Health Care Organizations**

Theories and concepts relating to health care organizations will be studied. The impact of internal and external forces on health care delivery systems will be studied.

#### **63-576. Management of Human Resources in Nursing**

A study of concepts, theories, and practices that will assist nurse leaders to develop effective approaches to human resource management in nursing education and service settings.

#### **63-578. Seminar in Current Nursing Issues**

An historical and futuristic examination of the critical issues facing the nursing profession and discipline. Considering the practice orientation of nursing, students will explore issues related to education, practice, discipline, and professionalism.

#### **63-580. Selected Readings in Nursing**

Intended for students with a special interest in and knowledge of a specialty area in nursing. To explore theory and research related to human responses and adaptations to alterations in health, or health promotion and illness prevention with selected client populations. (To be taken only with permission of the School.)



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- [Electrical Engineering: Areas Of Specialization](#)
- [Electrical Engineering: Courses](#)

• [Engineering Materials: Graduate Faculty](#)

- [Engineering Materials: Areas of Specialization](#)
- [Engineering Materials: Courses](#)

• [Industrial and Manufacturing Systems Engineering \(IMSE\): Graduate Faculty](#)

- [IMSE: Areas of Specialization](#)
- [IMSE: Courses](#)

• [Mechanical, Automotive, and Materials Engineering \(MAME\): Graduate Faculty](#)

- [MAME: Areas of Specialization](#)

**63-581. Theoretical Foundations of Nursing**

The focus of this course is theory exploration in nursing. Beginning with the theoretical evolution of the discipline of nursing, students progress to issues related to development of theory in a practice discipline. Analysis, evaluation, and comparison are made of selected nursing conceptual models/theories and their major concepts. The contributions of the conceptual models to practice and research are investigated.

**63-582. Advanced Statistics**

An advanced course with a focus on multi-variate analysis. Topics include ANOVA, MANOVA, regression analyses, critique of statistical analyses of research articles, and computer data analysis.

**63-583. Research Methods in Nursing**

Students will examine diverse approaches to scientific inquiry in nursing. Within selected research paradigms, students will explore design, process, and evaluation techniques. Models for research analysis will be explored. Opportunities will be provided for students to develop a research proposal to gain solutions to nursing problems.

**63-584. Human Responses and Adaptation to Alterations in Health I**

With emphasis on nursing assessment, patterns of coping in life situations involving alterations in health will be explored. Theories, concepts, and research related to normative and situational stressors for the individual and family in interaction with the environment will be studied in relation to healthy coping.

**63-586. Human Responses and Adaptation to Alterations in Health II**

Emphasis on planning, intervening, and evaluating nursing care strategies for promotion of adaptation/coping for individuals, families, groups, and communities. Needs related to age and special populations will be examined in cultural context. Students will analyze social structure features, for example, politics, economics, values which influence resources for healthy coping and adaptation.

**63-588. Health Promotion and Illness Prevention Through the Life Cycle I**

Students will examine theories and research related to processes which result in both positive and negative changes in health and well-being for individuals within the context of families and communities. Interactional patterns of nurses and clients in promoting clients' right to health will be explored. The role of the nurse as client advocate will be emphasized.

**63-590. Health Promotion and Illness Prevention Through the Life Cycle II**

Health promotion and illness prevention for complex populations will be analyzed, with an emphasis on strategies for nursing intervention to facilitate positive health outcomes. Health issues related to gender, life-cycle, and culture will be included, with examination of related theory and research.

**63-599. Clinical Judgment in Nursing Practice**

Students will select an area of clinical interest and apply theories and research in a practice setting. Using their expanded theoretical base, students will conduct comprehensive assessments of clients (individuals, families, groups, populations and/or communities) and will implement appropriate intervention strategies and evaluation protocols. Students will validate their conceptual model of nursing care.

**63-796. Non-Thesis Option**

An expansion and extension of course work in which students working with a faculty advisor will choose a major project/paper. Students must provide evidence of synthesis of previous course work relative to a selected health issue or area such as clinical practice, teaching or administration.

- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

- Sociology: Programs
- Sociology: Courses

Visual Arts: Graduate Faculty

- Visual Arts: Programs
- Visual Arts: Courses

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### 63-797. Thesis Option

Before writing the thesis, the student must meet with the Master's committee to obtain approval of the thesis investigation. Permission will only be granted when the student has shown sufficient preparation and competence to carry out the thesis proposal. Upon completion, each candidate will be required to make a satisfactory oral presentation and defense of the thesis.

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## **PHILOSOPHY**

### **GRADUATE FACULTY**

#### **Professor Emeritus**

Pinto, Robert C; B.A., M.A., Ph.D. (Toronto)-1963.

#### **University Professors**

Johnson, Ralph Henry; B.A. (Xavier), M.A., Ph.D. (Notre Dame)-1966.

Blair, John Anthony; B.A. (McGill), M.A. (Michigan)-1967.

#### **Professors**

Cook, Deborah; B.A., M.A. (Ottawa), Doct. 3e cycle (Sorbonne)-1989.

#### **Associate Professors**

Hansen, Hans V.; B.A. (Lakehead), M.A. (Manitoba), Ph.D. (Wayne State)-2001.

Noonan, Jeffrey; B.A. (York), M.A., Ph.D. (McMaster)-2001.

#### **Assistant Professors**

Rose, Philip; B.A. (Memorial), M.A., Ph.D. (Queen's)-2002.

Guarini, Marcello; B.A. (Windsor), M.A., Ph.D. (Western Ontario)-2002.

Hundleby, Catherine Elisabeth; B.A. (Toronto), M.A. (Guelph), Ph.D. (Western Ontario)-2003.

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Engineering Materials:  
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- Engineering Materials:  
Areas of Specialization
- Engineering Materials:  
Courses

Industrial and Manufacturing  
Systems Engineering (IMSE):  
Graduate Faculty

- IMSE: Areas of  
Specialization
- IMSE: Courses

Mechanical, Automotive, and  
Materials Engineering  
(MAME): Graduate Faculty

- MAME: Areas of  
Specialization

- MAME: Courses

English: Graduate Faculty

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History: Graduate Faculty

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Physics: Graduate Faculty

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Political Science: Graduate  
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- Communications Studies: Programs

## PHILOSOPHY: PROGRAMS OF STUDY

### Philosophy (MA)

#### THE MASTER OF ARTS DEGREE

##### General Nature of the Program

The aim of the program is to give students the opportunity to deepen their philosophical understanding both by broadening their undergraduate background and/or by allowing them to concentrate their studies in one of the two specific areas of focus in our program. The first area is informal logic, the theory of argument, and the theory of critical thinking; the second is twentieth-century continental philosophy. It is expected that theses and major papers will be written in one of these two areas. The possibility of concentrating in some other area exists, but is conditional upon staffing resources, which are subject to change. The Philosophy M.A. program is structured in such a way as to encourage maximum participation by students in seminars and to allow extensive contact with professors outside of formal class time.

##### Admission Requirements

See 1.6.1 for general requirements for admission into an M.A. program at the University of Windsor. The Philosophy program normally requires the equivalent of twenty one-term courses in philosophy for admission to the one-year Master's program and the equivalent of ten one-term courses in philosophy for admission to the two-year Master's program.

##### Program Requirements

For general requirements for the Master's degree, see 1.6.2. The following are particular requirements for the M.A. in Philosophy:

- 1) The student may proceed to the degree in any one of the following ways:
  - (a) successfully complete at least four and not more than six graduate courses (the fifth and sixth courses may be in a cognate field), and satisfactorily complete a thesis on which there shall be an oral examination;
  - (b) successfully complete six courses, two of which may be in a cognate field, and satisfactorily complete a major research paper on which there shall be an oral examination;
  - (c) successfully complete eight courses, two of which may be in a cognate field.

*Note:*



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• [MAME: Areas of Specialization](#)

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• [MAME: Areas of Specialization](#)

i. Students wishing to pursue Ph.D. studies are advised to take option (a) or (b), but not (c).

ii. Students choosing option (c) should recognize that students in their candidate year normally take two graduate courses each term and that it will take more than one year to complete their program.

2) All students proceeding to the degree must:

(a) include the Departmental Seminar (Philosophy [34-590](#)) among their courses for the degree;

(b) successfully complete the Master's Examination in Philosophy.

3) M.A. Qualifying Year: Students at the I Master's level are required to take [34-491](#) (Honours Seminar) (see 4.16.3 of the Undergraduate Calendar).

4) Program Approval: Each student must have his or her projected program authorized by the Graduate Coordinator.

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English: Graduate Faculty

- English: Programs
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History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

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- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

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Philosophy: Graduate Faculty

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Physics: Graduate Faculty

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## PHILOSOPHY: COURSE DESCRIPTIONS

### *GROUP A*

In a given academic year at least one course will be offered which will deal with a certain problem or set of problems of concern to contemporary philosophers in the following areas:

**34-520. Ethical Theory**

**34-521. Political Philosophy**

**34-525. Topics in Practical and Applied Ethics**

**34-540. Philosophy of Religion**

**34-541. Philosophy of Science**

**34-544. Aesthetics**

**34-550. Epistemology**

**35-551. Metaphysics**

**34-552. Philosophy of Mind**

**34-561. Theory of Argument**

**34-562. Theory of Informal Fallacies**

**34-563. Theory and Teaching of Critical Thinking**

**34-565. to 34-569. Advanced Seminar: Selected Topics in Philosophy**

### *GROUP B*

In a given academic year there will be an intensive study of a philosopher or philosophical issue from one or more of the following periods:

**34-570. Greek Philosophy**

**34-573. Seventeenth-Century Philosophy**

**34-574. Eighteenth-Century Philosophy**

**34-575. Nineteenth-Century Philosophy**

• Communciation Studies:  
Courses

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Earth Sciences: Graduate  
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- Electrical Engineering:  
Areas Of Specialization
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Engineering Materials:  
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- Engineering Materials:  
Areas of Specialization
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Industrial and Manufacturing  
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Graduate Faculty

- IMSE: Areas of  
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- IMSE: Courses

Mechanical, Automotive, and  
Materials Engineering  
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- MAME: Areas of  
Specialization

**34-576. Foundations of Existentialism**

**34-577. Twentieth-Century Continent-Philosophy**

**34-578. Twentieth-Century Anglo-American Philosophy**

**34-580. to 34-584. Advanced Seminar: Selected Topics in the History of  
Philosophy**

*GROUP C*

The following course must be taken by all M.A. students:

**34-590. Departmental Seminar: The History of Philosophy in Perspective**

The aim of the seminar is to deepen students' sensitivity to the history of philosophy and help prepare them for the Master's examination in Philosophy. Each year a specific philosophical theme is traced through a number of key figures in the history of thought.

*GROUP D*

**34-796. Major Paper**

**34-797. Thesis**

*Note:* Students may receive credit for more than one course offered in Groups A and B provided that the emphasis is sufficiently different. Thus, for example, credit may be received for both "34-570 Greek Philosophy: Plato" and "34-570 Greek Philosophy: Aristotle" where these are entirely distinct course offerings.

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History: Graduate Faculty

- History: Programs
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Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
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Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
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## PHYSICS

### GRADUATE FACULTY

#### Professors Emeriti

Krause, Lucjan; B.Sc. (London), M.A., Ph.D. (Toronto), D.Sc. (London; Nicholas Copernicus), F.Inst.P.-1958.

Czajkowski, Mieczyslaw; M.Sc., D.Sc. (Nicholas Copernicus)-1967.

Schlesinger, Mordechai; M.Sc., Ph.D. (Jerusalem), F.Inst.P.-1968.

#### University Professors

Baylis, William Eric; B.S. (Duke), M.S. (Illinois), D.Sc. (Technical U. of Munich)-1969.

Drake, Gordon W. F.; B.Sc. (McGill), M.Sc. (Western Ontario), Ph.D. (York), F.Inst.P., F.R.S.C.-1969. (Killam Research Fellow, 1990-1992).

McConkey, John William; B.Sc., Ph.D. (Queen's University of Belfast), F.Inst.P.-1970. (Killam Research Fellow, 1986-1988)

#### Professors

Atkinson, John Brian; M.A., D.Phil. (Oxford.)-1972.

Maev, Roman G.; B.Sc. (Moscow Physical Engineering Institute), M.Sc. (Moscow Physical Technical University), Ph.D. (Lebedev)-1995.

#### Associate Professors

Reddish, Timothy John; B.Sc., Dipl. Adv.Stud.Sci., Ph.D. (Manchester)-2003.  
Assistant Professors

Maeva, Elena Yu; B.Sc., M.Sc. (Mendeleev Institute of Chemical Technology), Ph.D. (Institute of Chemical Physics, Russian Academy of Science)-2001.

Kedzierski, Wladyslaw; M.Sc., Ph.D. (Jagiellonian University), D.Sc. (Nicholas Copernicus)-2002.

Kim, Eugene Hubert; B.Sc. (Illinois), M.A., Ph.D. (California)-2003.

Rangan, Chitra; B.Sc. (Madras), M.Sc. (Indian Inst. of Technology, Madras), Ph.D. (Louisiana State U)-2003.



• Communciation Studies:  
Courses

**Adjunct Professor**

Glass, Edward N.; B.S. (Carnegie-Mellon), M.S., Ph.D. (Syracuse)-1974.

Computer Science: Graduate  
Faculty

**Cross-Appointment**

• Computer Science:  
Programs

• Computer Science: Courses

Aroca, Ricardo; B.Sc. (Chile), Ph.D. (Moscow State), D.Sc. (Leningrad)-1985.

Earth Sciences: Graduate  
Faculty

• Earth Sciences: Programs

• Earth Sciences: Courses

Economics: Graduate Faculty

• Economics: Programs

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Faculty of Education:

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Faculty of Engineering:

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Civil and Environmental

Engineering (CEE): Graduate

Faculty

• CEE: Areas of Specialization

• CEE: Courses

Electrical Engineering:

Graduate Faculty

• Electrical Engineering:

Areas Of Specialization

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Engineering Materials:

Graduate Faculty

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Areas of Specialization

• Engineering Materials:

Courses

Industrial and Manufacturing

Systems Engineering (IMSE):

Graduate Faculty

• IMSE: Areas of

Specialization

• IMSE: Courses

Mechanical, Automotive, and

Materials Engineering

(MAME): Graduate Faculty

• MAME: Areas of

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- MAME: Courses

English: Graduate Faculty

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History: Graduate Faculty

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Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

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## PHYSICS: PROGRAMS OF STUDY

[Physics \(MSc\)](#)  
[Physics \(PhD\)](#)

### Admission Requirements

The basic qualification for admission consists of a Bachelor's degree with adequate specialization in Physics, obtained with first or second class honours or an A or B average. Students with deficiencies may be required to make up these deficiencies by registering in undergraduate courses or by following a program of supervised reading.

Applicants whose academic credentials are difficult to assess may be required to write the Graduate Record Examination (GRE) administered by the Educational Testing Service. Inquiries should be made at the time of application. Details of the examination may be obtained from the Educational Testing Service, Princeton, New Jersey, U.S.A., 08540.

## THE DOCTOR OF PHILOSOPHY DEGREE

### Program Requirements

1) *Period of Study*: A minimum of three years in full-time graduate studies is required. Credit for one of the three years may be given for a Master's degree obtained in Physics at the University of Windsor or for graduate work carried out at another institution. Not more than seven years should elapse between registration and completion of the requirements for the degree; an extension of this period may be granted only on recommendation from the program coordinator and approval by the Faculty of Graduate Studies and Research.

2) *Course Work*: Candidates with Master's degrees in Physics (or equivalent) will complete a minimum of four graduate courses, including [64-610](#), and at least two other courses at the 600 level. Any additional graduate courses to fulfill the course requirement must be approved by the Department. Candidates must also take [64-550](#) and [64-551](#) if previous equivalent credit has not been obtained.

Candidates who do not have a Master's degree in Physics (or equivalent) will complete a minimum of eight graduate courses which must include [64-510](#), [64-520](#), [64-550](#), [64-551](#), [64-610](#), and at least two other courses at the 600 level. Any additional graduate courses to fulfill the course requirement must be approved by the Department.

3) *Doctoral Committee*: Within one month after registration each student will be assigned to an advisory committee consisting of a research advisor and two other faculty members in Physics.

• [Communciation Studies: Courses](#)

This committee will, from time to time, review the student's progress (see 1.5.2).

• [Computer Science: Graduate Faculty](#)

For the defense of dissertation (final oral examination) the advisory committee will be supplemented by one professor from outside Physics and an external examiner who, as an expert in the field of physics in which the candidate's research is carried out, will appraise the dissertation and ordinarily will also be present at the final oral examination.

• [Computer Science: Programs](#)

4) *Dissertation*: In order to qualify for the degree each candidate must present a dissertation embodying the results of an original investigation in a branch of physics. Graduate courses form an important but subsidiary part of the program.

• [Computer Science: Courses](#)

• [Earth Sciences: Graduate Faculty](#)

The candidate, when requested, shall submit to the chief advisor from time to time portions of the dissertation and a complete draft on a date specified by the advisor, and place four typewritten copies of the completed dissertation in the hands of the advisor at least six weeks before Convocation. Rules governing binding, quality of paper, etc., of the dissertation can be found in Procedures to Follow in Preparing a Thesis or Dissertation (see 1.5.3).

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5) *Examinations*: In addition to the examinations in the courses, all candidates must pass qualifying examinations covering the general field of physics at the level of the honours program given at this university. The examinations must be passed after the completion of the M.Sc. degree, not later than one year after registration as a graduate student proceeding to the Ph.D. Other examinations (written or oral) may be set at the discretion of the program coordinator.

• [Faculty of Engineering: Programs of Study Overview](#)

Each candidate will, on recommendation of the advisory committee, submit to a final oral examination in defense of the dissertation.

• [General Courses, Engineering](#)

• [Civil and Environmental Engineering \(CEE\): Graduate Faculty](#)

## THE MASTER OF SCIENCE DEGREE

• [CEE: Areas of Specialization](#)

### Program Requirements

• [CEE: Courses](#)

1) The requirements for the degree of Master of Science may be satisfied by pursuing a program of studies consisting of:

- (a) at least four graduate courses and a thesis; or
- (b) at least six graduate courses and a major paper; or
- (c) not less than eight graduate courses.

• [Electrical Engineering: Graduate Faculty](#)

2) [64-510](#), [64-520](#), [64-550](#) and [64-551](#) will be required of all candidates.

• [Electrical Engineering: Areas Of Specialization](#)

Candidates proceeding to the M.Sc. by either of the above options may include in their program, with the approval of the program coordinator, two undergraduate courses.

• [Electrical Engineering: Courses](#)

3) Candidates who are proceeding to the M.Sc. by course work alone may be permitted to include in their programs four courses in Mathematics.

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• [Engineering Materials: Areas of Specialization](#)

• [Engineering Materials: Courses](#)

• [Industrial and Manufacturing Systems Engineering \(IMSE\): Graduate Faculty](#)

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## PHYSICS: COURSE DESCRIPTIONS

Not all of the courses listed below will necessarily be offered in any one year.

### **64-510. Seminar for M.Sc. Students**

In order to receive credit for this course, a student should attend the weekly departmental seminar throughout M.Sc. studies and present a minimum of one seminar on a topic approved by the Seminar Coordinator.

### **64-520. Classical Electrodynamics**

Radiation by moving charges, synchrotron radiation, bremsstrahlung, scattering of radiation, multipole fields, radiation reaction.

### **64-540. Theory of Particle Scattering**

Classical theory of scattering. Formal quantum theory. The definitions of cross sections, transition probabilities and related concepts. The Born approximation, phase shifts.

### **64-542. Atomic and Molecular Processes I**

Atomic/molecular beam methods and techniques. Collision phenomena in atomic and molecular scattering, including elastic, inelastic and reactive scattering, excitation, ionization, and charge exchange. Detailed discussion of the experimental results and their interpretation in terms of interatomic/ molecular forces and potentials.

### **64-543. Atomic and Molecular Processes II**

A variety of topics in electron and photon collisions highlighting current advances in these fields and including total and differential elastic and inelastic scattering of electrons and positrons, resonances, polarization, coherence and correlation effects, post-collision interactions, photon-stimulation spectroscopy. (Prerequisite: [64-542.](#))

### **64-544. Theory of Atomic Structure and Atomic Spectra**

Rotation matrices,  $3n-j$  coefficients and graphical techniques for angular-momentum coupling, irreducible tensor operators, the Wigner-Eckart theorem and applications, the density matrix, interactions of atoms with external fields.

### **64-546. Molecular Spectroscopy**

Diatomic molecules, Born-Oppenheimer approximation, adiabatic potentials, Hund's coupling cases, rotational, vibrational, and electronic states and associated spectra. Applications of group theory to the structure and spectra of polyatomic molecules.

### **64-550. Advanced Quantum Theory I**

General principles, representations and transformation theory. Approximation methods. Many-body problems and identical particles.

### **64-551. Advanced Quantum Theory II**

Number representations and second quantization. Dirac equation. An introduction into quantum electrodynamics and the electro-weak theory. (Prerequisite: [64-550.](#))



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**64-560. Solid State Physics I**

Application of group theory to condensed matter physics: the study of point groups, Bravais lattices and space groups. Inverse lattice with applications to scattering phenomena.

**64-563. Special Topics in Physics**

Advanced topics in contemporary physics not normally covered in other courses. (May be repeated when the topic is different.) (Prerequisite: consent of instructor.)

**64-574. General Theory of Relativity**

The principle of equivalence, general co-variance. Riemann spacetime Einstein field equations.

**64-581. Theory and Applications of Thin Films**

Definition of thin films and their classification; methods of preparation; elements of high-vacuum technology; thin-film formation, structure and methods of investigation; mechanical, optical, electrical properties of thin films and their application in modern technology.

**64-584. Design and Application of Lasers**

Stimulated emission, rate equation approach to amplification and output power calculations; Gaussian beams, stable and unstable resonators; Q-switching, mode-locking and cavity-dumping; ruby, Nd:YAG and other solid state lasers; semi-conductor, gas and dye lasers.

**64-585. Atmospheric and Environmental Physics**

Physics of the atmosphere, general description and layering, interactions of incoming and outgoing radiations, greenhouse effect, atmospheric thermodynamics and stability, cloud physics, atmospheric dynamics, gravity waves and turbulence, atmospheric photochemistry, ozone layer, upper atmosphere, plasma and hydromagnetic effects, ionosphere, air glow and aurora.

**64-587. Applications of Electron, Ion and Atomic Beams**

Non-relativistic theory of charged particles in electric and magnetic fields. Review of matrix optics, electrostatic lenses, magnetic lenses, electrostatic and magnetic vector fields. Applications to energy and mass analysis. The Liouville Theorem and its consequences. Dense electron beams and applications.

**64-610. Seminar for Ph.D. Students**

In order to receive credit for this course, a student should attend the weekly departmental seminar throughout Ph.D. studies and present a minimum of two seminars on topics approved by the Seminar Coordinator.

**64-612, 64-613. Selected Topics in Theoretical and Experimental Physics**

These courses consist of two survey lecture series to be selected from among several which will be offered each year. Each lecture series lasts for approximately half a term. Credit may not be obtained for any survey courses in subjects in which the student has taken another graduate course.

**64-630. Statistical Physics I**

Review of thermodynamics; information theory. The many-body problem in quantum mechanics, particle number representation. Statistical (density) matrix. The perfect gas, real gases, dense plasma, applications.

**64-631. Statistical Physics II**

The theory of macroscopic quantum phenomena. (Prerequisite: [64-630](#).)

**64-640. Elementary Particles and Their Symmetries**

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Symmetries and conservation laws, group representations, and particle multiplets; Lie groups and algebras; generators and weights of SU(n); the quark model; quantum chromodynamics; electro-weak interaction theory; supersymmetry; path integrals and Feynman diagrams.

**64-650. Classical and Quantum Field Theory I**

Variational principles and conservation laws and applications, field equations and their solutions. (Prerequisite: [64-551](#).)

**64-651. Classical and Quantum Field Theory II**

Quantization of fields; scalar, vector, and spinor fields. Quantum electrodynamics and applications; renormalization and radiative corrections. (Prerequisite: [64-650](#).)

**64-660. Advanced Topics in Condensed Matter Physics**

Crystal field theory in the weak and strong coupling schemes. Molecular orbitals; vibronic interactions. Electronic structure and spectra of molecular complexes. (Prerequisite: [64-551](#).)

**64-796. M.Sc. Major Paper**

**64-797. M.Sc. Thesis**

**64-798. Ph.D. Dissertation**

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## **POLITICAL SCIENCE**

### **GRADUATE FACULTY**

#### **Professors**

Amore, Roy C.; B.A. (Ohio), B.D. (Drew), Ph.D. (Columbia)-1970.

Brooks, Stephen; B.A., M.A. (Windsor), Ph.D. (Carleton)-1985.

#### **Associate Professors**

Lee, Martha; B.A., M.A. (Calgary), Ph.D. (Syracuse)-1992.

MacIvor, Heather; B.A. (Dalhousie), M.A., Ph.D. (Queen's)-1992.

Najem, Tom; B.A., M.A. (Windsor), Ph.D. (Durham)-2002.

#### **Assistant Professors**

Sutcliffe, John; M.A. (Edinburgh), M.A. (Calgary), Ph.D. (Cambridge)-2000.

Miljan, Lydia; B.A., M.A., Ph.D. (Calgary)-2001.

Richter, Andrew; B.A., M.A. (Carleton), Ph.D. (York)-2001.

Lanoszka, Anna; B.A. (Carleton), M.A., Ph.D. (Dalhousie)-2002.

Kwang Johnson, Nancy; B.A. (Vassar College), M.A., M.P.A., Ph.D. (Cornell)-2003.

McIntyre, Chris; B.A., M.A. (Windsor), Ph.D. (North Texas)-2003.

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Graduate Faculty

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Areas Of Specialization
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Courses

Engineering Materials:  
Graduate Faculty

- Engineering Materials:  
Areas of Specialization
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Courses

Industrial and Manufacturing  
Systems Engineering (IMSE):  
Graduate Faculty

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Mechanical, Automotive, and  
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## **POLITICAL SCIENCE: PROGRAMS OF STUDY**

### **Political Science (MA)**

#### **THE MASTER OF ARTS DEGREE**

##### **Admission Requirements**

The normal requirement for admission to the one-year M.A. program is an honours degree or combined honours degree in Political Science, or an honours degree in a related discipline, such as International Relations, with a B+ average. Honours graduates in fields other than these will be considered on the basis of their academic background and standing. Those with less than a four-year degree, or with minor deficiencies, will be required to take additional courses, or to enter a two-year program (see 1.3.3).

##### **Program Requirements**

With the advice of the Political Science Graduate Committee, the candidate may proceed toward the degree in one of the following programs of study. While initial selection is not irreversible, students may change from one program to another only with the approval of the Graduate Committee and the Faculty of Graduate Studies and Research.

(a) A minimum of four graduate courses plus a thesis on some research subject approved by the Graduate Committee. The thesis will be written under the direction of a committee composed of two Political Science faculty members plus a member outside Political Science, but from within the University. An oral defense of the thesis will be required (see 1.6.2).

(b) Six graduate courses and a major paper on some research subject approved by the Graduate Committee. The major paper will be written under the direction of a committee normally composed of two Political Science faculty members. An oral defense of the major paper will be required.

All students in the I Master's (Qualifying) year of a two-year program must normally carry a full load of ten undergraduate courses or their equivalent.



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## POLITICAL SCIENCE: COURSE DESCRIPTIONS

All courses listed will not necessarily be offered in any given year. Courses are normally two hours a week.

### **45-500. Scope and Approaches to Political Science**

A review of the state of the discipline and a survey of approaches to research. This course is mandatory, as students will focus on their major paper/thesis research design.

### **45-513. Federalism in Canada**

Analysis of selected topics in Canadian federalism. Topics may include: federalism, federal/provincial relations, the social union, and the debate over the future of Quebec in Canada.

### **45-514. Canadian Politics: Participation and Processes**

Analysis of selected topics in Canadian politics. Topics may include: parties, elections, voting behaviour, pressure groups, representation, new social movements, Canadian political theories, ideologies, and public opinion as measured through survey research and communication surveys.

### **45-521. Canadian Public Policy**

A review of the applicability of contemporary theories of public policy-making, policy evaluation, and policy delivery within the context of the Canadian political system. May include a focus on specific areas of public policy.

### **45-530. Politics in the Developed World**

An examination of the political systems of economically developed countries. Topics may include comparative government, managing ethnic conflict, new social movements, democratic development, and the development of international political and economic institutions.

### **45-534. American Politics and Government**

Analysis of selected topics in American politics and government. Topics may be selected from the institutional or behavioural areas of the discipline, or may include a comparative analysis of Canadian and American politics.

### **45-551. Selected Topics in Contemporary Political Theory**

This course explores one or more themes in political theory through discussions and seminar presentations. While the focus is on political themes, the readings might be drawn from other disciplines, e.g., literature, psychology, religion, history, or sociology.

### **45-560. International Organizations**

A theoretical overview of International Organizations; the course will examine why these organizations exist, how they operate, and their impact on international affairs. The course may also focus on specific organizations, for example, the UN, the EU, ASEAN and/or the OAS.

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- **Education: Courses**

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Graduate Faculty**

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**Mechanical, Automotive, and  
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**45-561. International Relations Theory**

A survey of recent literature on theories and methods in the study of international politics.

**45-563. Canadian Foreign Policy**

An examination of selected issues in Canadian foreign policy, chosen for the relevance in driving the contemporary research agenda. Topics may include human security, Canadian defence policy, peacekeeping, and/or Canadian aid and development policy.

**45-565. International Security**

An examination of selected topics in security. Examples of topics may include inter- and intra-state conflict, different approaches to conflict resolution, the utility of force, the causes of war, non-traditional approaches to security and/or detailed case studies of selected conflicts.

**45-566. International Political Economy**

Study of the major theoretical perspectives in international political economy as applied to such issues as multinational corporations, trade, and international development.

**45-568. The Third World in International Relations**

An examination of the theoretical literature on such topics as the foreign policy of third world states, nonstate actors, structural dependence, North-South conflict, and regional integration.

**45-588. Selected Topics in Political Science**

Topics of current interest selected by the Political Science faculty which may vary from year to year. (May be repeated for credit if offered as a different topic with the permission of the program coordinator.)

**45-599. Readings in an Approved Special Field**

Intended for students with a special interest in and knowledge of areas not covered in sufficient depth by other courses. (To be taken only with the permission of the program coordinator.)

**45-796. Major Paper**

**45-797. Thesis**

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## PSYCHOLOGY

### GRADUATE FACULTY

#### University Professor

Page, Stewart; B.A., M.A. (Western Ontario), Ph.D. (Toronto)-1981.

#### Professors

Schneider, Frank W.; B.A. (Ohio Wesleyan), M.S. (Ohio), Ph.D. (Florida)-1968.

Cohen, Jerome S.; B.A. (Michigan State), M.A., Ph.D. (Wayne State)-1968.

Frisch, Giora Ron; B.A. (City University, N.Y.), Ph.D. (Tennessee)-1969.

Lafreniere, Kathryn D.; B.A. (Windsor), M.A., Ph.D. (York)-1991.

Senn, Charlene Y.; B.Sc., M.Sc. (Calgary), Ph.D. (York)-1992.

#### Associate Professors

Porter, James E.; B.A. (Toronto), M.A. (Roosevelt), Ph.D. (Windsor)-1980.

Voelker, Sylvia L.; B.A. (Indiana), M.A., Ph.D. (Wayne State)-1984.

Shore, Douglas L.; B.A., M.A., Ph.D. (Wayne State)-1985.

Hakim-Larson, Julie A.; B.S. (Michigan State), M.S. (Eastern Michigan), Ph.D. (Wayne State)-1991.

Cramer, Kenneth M.; B.A., M.A., Ph.D. (Manitoba)-1998.

Menna, Rosanne; B.A. (Brock), M.A., Ph.D. (Toronto)-1998.

Paivio, Sandra C.; B.A., M.Ed. (Western Ontario), Ph.D. (York)-1998.

Buchanan, Lori; B.A. (Wilfrid Laurier), M.A., Ph.D. (Waterloo)-2001.

Baird, Anne; B.Sc. (Duke), M.A., Ph.D. (Wayne State)-2003.

#### Assistant Professors

Casey, Joseph; B.A. (Windsor), M.A. (Carleton), Ph.D. (Windsor)-2000.

Coutts, Larry M.; B.A. (Winnipeg), M.A., Ph.D. (Windsor)-2000.



• **Communciation Studies:**  
Courses

Hibbard, Stephen; B.A. (Santa Clara), M.A. (California State), Ph.D. (Tennessee)-2000.

**Computer Science: Graduate**  
Faculty

Jarry, Josee L.; B.A. (Sherbrooke), M.Ps. (Montreal), Ph.D. (Toronto)-2001.

• **Computer Science:**  
Programs

Kwantes, Catherine; B.A. (Calvin College), M.Sc. (Eastern Michigan), M.A., Ph.D. (Wayne State)-2002.

• **Computer Science: Courses**

**Earth Sciences: Graduate**  
Faculty

Bartfay, Emma; B.Sc. (Brandon), M.Sc. (Waterloo), Ph.D. (Western Ontario)-2003.

• **Earth Sciences: Programs**  
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Jackson, Dennis L.; B.A., M.A., Ph.D. (Wichita State)-2003.

**Economics: Graduate Faculty**

Sirois, Fuschia M.; B.Sc. (Hons.), B.A. (Hons.) (Ottawa), M.A., Ph.D. (Carleton)-2003.

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Courses

Faculty of Nursing: Graduate  
Faculty

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Philosophy: Graduate Faculty

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Physics: Graduate Faculty

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Political Science: Graduate  
Faculty

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## PSYCHOLOGY: PROGRAMS OF STUDY

**Psychology (MA)**

**Psychology (PhD)**

**Adult Clinical Psychology (Postdoctoral Certificate)**

The graduate programs of study are Adult Clinical Psychology, Child Clinical Psychology, Clinical Neuropsychology, and Applied Social Psychology. All graduate students in Psychology are required to comply with the most recent ethical principles, values, and standards of the Canadian Psychological Association and the American Psychological Association, and with the current standards for research with human subjects adopted by the University of Windsor.

Failure of a student to adhere to the principles, values, and standards defined above will constitute sufficient cause to warrant dismissal from the graduate program in Psychology.

### THE DOCTOR OF PHILOSOPHY DEGREE

In addition to the general requirements listed in 1.5, the following requirements must be met by all students proceeding to the Ph.D. degree.

#### Admission Requirements

Applicants with a four year undergraduate psychology degree or its equivalent will be considered for admission.

Applicants will be assessed with respect to their academic qualifications including grades, Graduate Record Examination (GREE) scores, letters of recommendation, and career-related achievements. GREE scores (Verbal, Quantitative, Analytical, and Advanced Test in Psychology) are required of all students seeking admission to the Department of Psychology. Possession of the minimum academic requirements does not ensure acceptance. Applications for admission must be completed by January 15.

#### Program Requirements

1) *Master's degree*: The first phase of the doctoral program involves the completion of the Master's degree in the first two years of the program, the requirements for which include a thesis. Further advancement in the doctoral program depends on the quality of performance in fulfilling the requirements for the Master's degree.

2) *Course Work*: Students must complete successfully a minimum of twelve graduate courses after the honours B.A. or its equivalent. Requirements vary, however, according to areas of specialization. Up to six courses may be accepted for credit from

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another university. The course work includes a core curriculum involving a general statistical methodology course, a methodology course in the student's area of specialization, and a course in ethical and professional issues in psychology. All students are required to take at least one course that places considerable emphasis on cultural, cross-cultural, or multicultural issues. All students in the Clinical Program, and students in the Applied Social Program who are planning to become registered psychologists with the College of Psychologists of Ontario, must demonstrate competence in the four core areas of biological bases of behaviour, cognitive bases of behaviour, (or in the case of students in the Applied Social program, cultural bases of behaviour) social bases of behaviour, and the historical and philosophical foundations of psychology. The minimum passing grade in graduate courses is "B-". A student who fails one course may repeat it once at the discretion of the Head of the Department and the Dean of Graduate Studies and Research. The student may not repeat more than one course. If a student has failed two courses, a recommendation will normally be made to the Dean of Graduate Studies and Research that the student be required to withdraw from the program. Together with the above requirements, students must complete an internship. The clinical internship is approximately 2000 hours and the applied social internship is approximately 1000 hours.

3) *Academic Advisor:* Each student is assigned an academic advisor at the beginning of his or her first year of graduate studies.

4) *Doctoral Committee:* Research undertaken as part of a doctoral program is directed by a doctoral committee. The membership of the doctoral committee must be appointed by the Head of the Department and approved by the Executive Committee of the Faculty Council of Graduate Studies and Research. When the student is deemed ready to undertake such research, he or she proposes the name of a research advisor and, in consultation with the proposed advisor, the names of other members of the committee consisting of at least two other members of the Psychology Department and one extra-departmental member of faculty. For the defense of the dissertation, an external examiner will be selected by the doctoral committee, subject to the approval of the Department Head and the Dean of Graduate Studies and Research. The external examiner is from outside of the University of Windsor and is nationally or internationally recognized as having expertise in the area of psychology in which the candidate's research is carried out. The external examiner shall not participate in the direction of the research project, but will appraise the dissertation and ordinarily will be present at the final oral examination (see below, 6).

5) *Dissertation:* The principal requirement for the Ph.D. degree in Psychology is the presentation of a dissertation which embodies the results of an original investigation. The results so presented should constitute a significant and original contribution to knowledge.

6) *Examinations:* In addition to examinations in courses, the student must meet the following requirements:

(a) *Comprehensive Examination:* After completion of all course requirements (with the exception of internship courses), the student must pass a comprehensive examination in his or her area of specialization. Successful completion of the examination admits the student to candidacy for the Ph.D. degree. If a student fails the comprehensive examination, he or she may retake the examination once only at the discretion of the Head of the Department and the Dean of Graduate Studies and Research.

(b) *Final Examination:* Each candidate will, on the recommendation of his or her doctoral committee, submit to a final oral examination in defense of the dissertation.

## **POSTDOCTORAL CERTIFICATION IN ADULT CLINICAL PSYCHOLOGY**

Psychology offers a postdoctoral certification in Adult Clinical Psychology. (Note that

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postdoctoral certification programs in Child Clinical Psychology or in Clinical Neuropsychology are not offered.) The Postdoctoral Certification Program in Adult Clinical Psychology is designed for psychologists who: a) hold a Doctor of Philosophy degree in Psychology in areas other than clinical psychology; b) have had a minimum of three years of postdoctoral experience; and c) wish to retrain as clinical practitioners.

### Admission Procedures

A committee of three faculty members (including the Adult Clinical Coordinator and the Postdoctoral Certification Program Coordinator) will constitute the admissions committee. Inquiries and requests for application forms should be addressed as follows: Postdoctoral Certification Program Coordinator, Department of Psychology, University of Windsor, Windsor, Ontario N9B 3P4.

### Program Requirements

The following courses are required and will be used by the advisory committee as the basis for designing the trainee's program:

- 46-580. Psychopathology
- 46-581. Ethical and Professional Issues in Psychology
- 46-582. Clinical Assessment I
- 46-583. Clinical Assessment II
- 46-589. Advanced Adult Assessment
- 46-674. Introduction to Psychotherapy

and two two-term course sequences in psychotherapy.

In addition to required courses, the Post-doctoral Certification Program requires completion of a 2000-hour clinical internship. Trainees should not expect to complete the program in less than two to three years.

The advisory committee will be composed of three faculty members, including the Adult Clinical Coordinator. The committee will evaluate the specific needs of the trainee and modify the program as necessary to meet individual training needs. The advisory committee is also responsible for guiding the trainee through the program, evaluating the trainee's progress and, ultimately, verifying that the trainee has successfully completed the certification program.

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### **PSYCHOLOGY: COURSE DESCRIPTIONS**

All courses listed will not necessarily be offered in any given year. Some courses are restricted to students in the Clinical Program.

#### **46-501. Historical and Philosophical Foundations of Psychology**

The origin of modern psychology as a science and profession and the philosophy of science underlying psychology. (3 hours a week.)

#### **46-503. Biological Bases of Behaviour**

Basic brain/behaviour relationships are explored in the context of neuro-anatomical and neurotransmitter systems. Traditional theories of brain function are reviewed and current brain modelling techniques are introduced. Individual student presentations or projects based on reviews of specialized brain systems are required. (3 hours a week.)

#### **46-505. Cognitive Bases of Behaviour**

Systems and methodologies in areas such as attention, perception, learning, memory and thinking. (3 hours a week.)

#### **46-512. Statistics for Graduate Study in Psychology**

Topics covered: analysis of variance, including repeated measures and mixed designs (review); multiple regression, including vector coding and continuous variable interactions; exploratory factor analysis. Other topics may include: structural equation modeling, including confirmatory factor analysis, and logistic regression. Students will also learn how to use statistical software. (3 hours a week.)

#### **46-513. Advanced Multivariate Analysis**

Topics covered: path analysis; structural equation modeling, including confirmatory analysis; and, clustering methods. Other topics may include hierarchical linear modeling and latent growth modeling; multidimensional scaling, latent partition analysis and other related nonparametric techniques. (3 hours a week.)

#### **46-514. Research Methods in Clinical Psychology**

Review of research values and issues in clinical psychology; survey and evaluation of common research designs and strategies in psychopathology, personality, and psychotherapy. (Prerequisite: [46-512.](#)) (3 hours a week.)

#### **46-516. Applied Psychological Measurement**

The basic principles of measurement and how they are applied in the construction and evaluation of surveys, tests, and scales will be covered. Also examined will be special problems characteristic of various approaches to measurement, such as the role of sampling in survey work. (Prerequisite: [46-512.](#)) (3 hours a week.)

#### **46-517. Qualitative Methods**

An examination of theory, methods, and inference related to qualitative methodologies. Approaches to be covered include topics such as interviewing, case studies, ethnography, semiotics, narrative inquiry, discourse analysis, archival research, projective techniques, and hermeneutics. (3 hours a week.)



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**46-519. Advanced Developmental Theory and Research Methods**

Provides an overview of research designs and methodological issues in the context of contemporary child psychology research and developmental theories. Students conduct a literature review and design a research project in preparation for fulfilling the programs's thesis and dissertation requirements (Prerequisite: enrollment in the Clinical Program.) (3 hours a week.)

**46-528. Advanced Topics in Neuroscience**

Structure and function of the central nervous system. Selective study of neurosciences related to arousal, motivation, and cognition. (3 hours a week, combined laboratory and lectures.)

**46-529. Structure and Function of the Brain**

An in-depth study of selected neuro-anatomical and biochemical systems. (Prerequisites: [46-336](#), [46-337](#), or equivalent.) (2 lecture, 2 laboratory hours a week.)

**46-530. Neuropathology and Neurological Diagnosis**

A critical survey of research findings in neuropathology, emphasizing the diagnostic significance of such data. (Prerequisite: [46-529](#).) (3 hours a week.)

**46-540. Developmental Psychopathology**

Review and analysis of developmental theories and research describing normal and abnormal development as pathways to adult outcome. (3 hours a week.)

**46-541. Cognitive Development**

Review and comparison of major theoretical positions in cognitive development and a consideration of research generated from these theories. (3 hours a week.)

**46-542. Emotion and Motivation in Human Development**

An overview of contemporary theories of emotion and motivation with emphasis on various phases of the life span. (3 hours a week.)

**46-543. Social Development**

An examination of theories of the socialization process and research findings concerning social development in children. (3 hours a week.)

**46-544. Language Development**

A review of current theories and research in the area of children's language acquisition and use. (3 hours a week.)

**46-546. Psychology of the Family**

Review and analysis of theory and research examining the impact of family context on individual development. (3 hours a week.)

**46-560. Research Designs in Social Psychology**

Review of experimental and quasi experimental methodology and issues. Focuses on the critical examination of current published research in social psychology and on the design of research studies. (3 hours a week.)

**46-563. Theories of Social Psychology**

A critical analysis of theories and principles of social psychology. (3 hours a week.)

**46-566. Program Evaluation**

An examination of theory, research, and analytical methods appropriate to the planning, design, implementation, and utilization of program evaluation in education, social, business and other organizational settings. (3 hours a week.)

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### **46-572. Personality and Individual Differences**

Survey of historical and theoretical perspectives, recent developments, and empirical contributions in the field. General topics include issues of personality measurement, structure, consistency, genetic vs. environmental antecedents, and the impact of personality variables on social, occupational, psychological, and physical well-being. (3 hours a week.)

### **46-575. Psychology of Women**

A survey of psychological research and theoretical approaches to the study of women past and present. The course will focus on one topic within the field in considerable detail (e.g., violence against women, women and "mental health"), or will cover feminist research and theory in psychology more generally, using a number of topics as exemplars. Inclusion of the perspectives of diverse groups of women is ensured through the course material and discussion. (3 hours a week.)

### **46-580. Psychopathology**

Seminar on issues, diagnostic categories, etiological perspectives, and research in psychopathology in adults, adolescents, and children. The laboratory section involves training and role playing in diagnostic interviewing. Issues relevant to the clinical understanding of different groups will be discussed. (3 seminar, 2 laboratory hours a week.)

### **46-581. Ethical and Professional Issues in Psychology**

Ethics and standards of psychological practice and research are reviewed. Legislation, privileged communication, confidentiality, informed consent, private practice, patient rights and sexism are among the topics discussed. (3 hours a week.)

### **46-582. Clinical Assessment I**

An introduction to clinical psychological assessment. Emphasis is on the cognitive, achievement, and adaptive functioning of children, adolescents, and adults. Topics and activities include: basic psychometrics; interviewing; the construction, selection, evaluation, and use of ability tests; behavioural observations; case formulation; report writing; and an introduction to neuropsychological assessment. Attention is given to the assessment of individuals from cultural and linguistic minority backgrounds and to the assessment of those with disabilities. Students practice the administration, scoring, and interpretation of tests; practice interviewing; develop basic report writing skills; and conduct at least one cognitive assessment of an adult and a child. (Prerequisite: enrollment in Clinical Psychology program.) (3 seminar, 3 laboratory/practicum hours a week.)

### **46-583. Clinical Assessment II**

Development of knowledge and skills in the assessment of psychopathology and personality in children, adolescents, and adults; evaluation of the clinical utility and psychometric properties of major personality instruments. The focus is on objective personality assessment, with an introduction to projective techniques. Students build on the skills developed in 46-582; practice the administration, scoring, and interpretation of tests, case formulation, and report writing; and conduct at least one clinical evaluation. Attention is given to non-normative aspects of personality and psychopathology assessment of individuals from cultural and linguistic minority backgrounds and to assessment of those with disabilities. (Prerequisite: 46-582.) (3 seminar, 3 laboratory/practicum hours a week.)

### **46-586. Behavioural Pharmacology**

A review and comparison of the major pharmacological agents utilized clinically to affect changes in human behaviour. (3 hours a week.)

### **46-587. Sexual Attitudes and Professional Practice**

A one- or two-day workshop involving films and small group discussions on topics

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concerning human sexuality. Sexual issues will be covered in the context of professional practice and ethical responsibilities. (A 1 credit course.)

**46-588. Multicultural Issues in Clinical Practice**

Ethnicity and culture in both psychotherapy/counselling and clinical assessment will be covered, and topics will include theory, practice, ethics, fairness, culture, and globalization.(3 hours a week.)

**46-589. Advanced Adult Assessment**

Advanced training in the clinical assessment of adults, with an emphasis on projective techniques, assessment integration, case formulation. and evaluation for specific needs (eg., psychotherapy, pharmacological referrals, differential diagnosis, employee assistance, and general consultation and referral). Attention is given to the assessment of individuals from cultural and linguistic minority backgrounds and of those with disabilities. Students develop and discuss comprehensive clinical presentations based on case samples. (Prerequisite: [46-583](#); Co-requisite: [46-701](#).)

**46-602. Selective Readings in Psychology**

(3 hours a week.)

**46-604. Special Projects in Psychological Research**

(3 hours a week.)

**46-606. Seminar**

(3 hours a week.)

**46-630. Advanced Clinical Seminar**

A team-taught seminar comprised of modules covering topics in clinical psychology. These topics include, but are not limited to, forensic psychology, child custody and access, clinical health psychology, consultation, program evaluation, private practice, geriatric clinical psychology, and suicide. (3 hours a week.)

**46-640. Child-Clinical Neuropsychology (Theory and Research)**

A survey of the literature dealing with brain-behaviour relationships in children. Topics emphasized include the following: the effect of brain dysfunction on perception, learning, memory, language and thinking; learning disabilities; mental subnormality. (Prerequisites: [46-336](#) and [46-337](#), or equivalent.) (3 hours a week.)

**46-641. Child-Clinical Neuropsychology (Assessment)**

An examination of neuropsychological tests currently in use for the assessment of brain-behaviour relationships in children. Topics emphasized include the following: strategies and techniques of assessment; rationales underlying the use of various measures; modes of interpretation; approaches to habilitation and rehabilitation. (Limited to Clinical Program students.) (Prerequisites: [46-336](#) and [46-337](#), or equivalent.) (3 hours a week.)

**46-642. Adult Clinical Neuropsychology (Theory and Research)**

A survey of the literature dealing with brain-behaviour relationships in adults. Topics emphasized include the following: the effect of brain dysfunction on perception, learning, and thinking, memory disorders; personality disorders associated with cerebral dysfunction. (Prerequisites: [46-336](#) and [46-337](#), or equivalent.) (3 hours a week.)

**46-643. Adult Clinical Neuropsychology Assessment)**

An examination of neuropsychological test batteries currently in use for the assessment of brain-behaviour relationships in adults. Topics emphasized include the following: strategies and techniques of assessment; rationales underlying the use of various measures; modes of interpretation; approaches to rehabilitation. (Limited to Clinical Program students.) (Prerequisite: [46-642](#).) (3 hours a week.)

**46-644. Neuropsychology of Learning Disabilities**

An examination of neuropsychological approaches to the understanding, assessment and treatment of reading, spelling, arithmetic and social learning disabilities in children and adults. (Prerequisites: [46-336](#) and [46-337](#), or equivalent.) (3 hours a week.)

**46-645. Neuropsychological Aspects of Rehabilitation**

A study of the literature and the methods currently employed in the treatment of brain-injured adults. Topics to be stressed include epidemiology and societal impact, pathophysiology, clinical presentation and both the theories and practices of rehabilitation. (3 hours a week.)

**46-646. Developmental Pediatrics**

An examination of neurological, genetic, and other medical/developmental issues in infancy and early childhood. (3 hours a week.)

**46-648. Neuropsychology of Aging**

A survey of the literature dealing with brain-behaviour relationships across the older adult life span. Emphasis is given to the understanding and assessment of normal and dysfunctional aspects of cognitive and affective development in adulthood and aging. (3 hours a week.)

**46-649. Psychology of Addictive Behaviours**

This course will demonstrate the value of a psychology of addiction to understanding and treating a variety of social problems linked to addiction with emphasis on alcohol misuse. The course examines psychological approaches to understanding the origins of addictive behaviours and their psychological treatment. In-class presentations of research proposals will provide students with the opportunity to apply their understanding of behavioural science methodology and theories to the problem of addictive behaviour. (3 hours a week.)

**46-650. Advanced Child Psychopathology**

A survey of the literature dealing with child psychopathology. Current theory and research and their implications for clinical practice. Issues relevant to the clinical understanding of different groups will be discussed. (3 hours a week.)

**46-651. Survey of Child Psychotherapies**

Introduction to psychotherapy with children with an emphasis on fundamental principles and empirical foundations of effective psychotherapy. Several treatment approaches are studied. (Prerequisite: [46-650](#).) (3 hours a week.)

**46-652. Child-Clinical Assessment I**

Investigation of the construction, selection, evaluation and use of ability tests. Practicum in assessment of children's intelligence and achievement. (Limited to Clinical Program students.) (Prerequisite: [46-582](#) or consent of instructor.) (2 lecture hours a week, plus laboratory and practicum.)

**46-653. Child-Clinical Assessment II**

Investigation of the construction, selection, evaluation, and use of tests designed for the assessment of children's personality and behaviour. Practicum in administration, interpretation, and communication of results of comprehensive test batteries. (Limited to Clinical Program students.) (Prerequisites: [46-583](#) and [46-652](#).) (2 lecture hours a week, plus laboratory and practicum.)

**46-654. Adolescent Psychopathology**

A survey of the literature dealing with adolescent psychopathology. Emphasis is given to current theory and research and their implications for intervention and prevention. Issues relevant to the clinical understanding of different groups will be discussed. (3 hours a week.)

**46-657. Issues in Cultural Diversity**

An examination of issues associated with the negotiation of individual and intergroup relations in a culturally pluralist society, from an explicitly intercultural psychological perspective that focuses primarily upon the social processes occurring when members of different cultural groups interact with one another. Groups considered include, but are not restricted to, those based on ethnicity, gender, and class. Issues to be covered include the search for universals of social behaviour, the determinants, characteristics, and consequences of acculturative stress, and cultural value differences in the definition of self, inter-personal, and inter-group relations. (3 hours a week.)

**46-660. Community Psychology**

An overview of the field of community psychology, with emphasis on societal and cultural approaches to community well being, social problems, and effecting social change. Issues in theory, research, and practice in community psychology will be presented and discussed. (3 hours a week.)

**46-662. Health Psychology**

An overview of health psychology, with emphasis on contributions made by psychology to the areas of health promotion, prevention and treatment of illness, modification of unhealthy behaviours, and improvement of health delivery. Application of the biopsychological model to health-related research and practice will be examined. (3 hours a week.)

**46-665. Organizational Psychology**

The social psychology of behaviour in organizations. Topics include models for conceptualizing organizations and identifying problems and methods for analyzing and solving problems in areas such as motivation, leadership, satisfaction and communication. (3 hours a week.)

**46-667. Organization Development**

The organization development approach: the consultant and organizational change; consultation techniques (survey feedback, team building, experiential groups); participative management and leadership style. (3 hours a week.)

**46-668. Personnel Selection**

An investigation of the context within which assessment-based personnel decisions are made. Such decisions may include selection, transfer, promotion, assignment to special training, performance appraisal, and termination. Topics will address a variety of personnel decisions based on the assessment of performance or the prediction of future performance, the goals to be achieved through assessment and prediction, and the goals and processes in terms of constructs to be predicted or to be used as predictors. (3 hours a week)

**46-670. Applied Social Psychology**

A survey of theory and research in applied social psychology, with an emphasis on applied research methods. Topics will be chosen from substantive areas such as organizational, health and community psychology, and areas of application such as social change issues, business, education, environment and law. (3 hours a week.)

**46-673. Cultural Psychology**

A survey of the emerging and interdisciplinary field of cultural psychology, covering topics of the self, emotion, cognition, motivation, development, social relations, research methods, and other psychological constructs within the framework of meaning-making and the cultural embeddedness of identity. Similarities and distinctions will be examined between cultural psychology and cross-cultural psychology, multicultural psychology, psychological and cognitive anthropology, ethnopsychology, and folk psychology. (3 hours a week.)

**46-674. Introduction to Psychotherapy**

Comparative analysis of major contemporary models of psychotherapy with an emphasis on psychodynamic, behavioural, and experiential traditions. The practicum portion of the course focuses on the development of basic interviewing and therapeutic relationship skills. (Limited to Clinical Program students.) (3 seminar, 3 laboratory/practicum hours a week.)

### *THERAPY COURSES*

Therapy courses consist of courses numbered [46-675](#) through [46-697](#) as listed below. enrollment in the Clinical Program, [46-674](#), and consent of the instructor are prerequisites for all therapy courses.

Therapy courses are taught over two terms. Seminars involve readings, discussion, and presentations on the theory, relevant research, techniques, and processes that are specific to the therapeutic approach under consideration. Practica involve supervised experience appropriate to the therapeutic modality.

At least three different therapy course sequences will be offered in each academic year, but offerings will vary from year to year depending upon demand and the availability of qualified instructors.

#### **46-675. Child Psychotherapy I**

Examination of the theory, research, and practice of clinical interventions with children and their families with an emphasis on fundamental principles and empirical foundations of effective psychotherapy. Issues relevant to the practice of psychotherapy with different groups will be discussed. (Prerequisite: [46-674](#), and consent of the Director of Clinical Training and course instructor; Co-requisite or Prerequisite: [46-581](#).) (3 hours a week.)

#### **46-676. Child Psychotherapy II**

Supervised practice in clinical interventions with children and their families (Prerequisite: [46-675](#).)

#### **46-677. Adolescent Clinical Interventions I**

Examination of the theory, research, and practice of clinical interventions with adolescents with an emphasis on fundamental principles and empirical foundations of effective psychotherapy. Issues relevant to the practice of psychotherapy with different groups will be discussed. Supervised practicum included. (Prerequisites: [46-674](#); consent of instructor and Director of Clinical Training; Corequisite or prerequisite: [46-581](#).)

#### **46-678. Adolescent Clinical Interventions II**

Continuation of [46-677](#).

#### **46-679. Short Term and Crisis Intervention I**

Theory and practice of time-limited psychotherapy and crisis intervention. Lectures, reviews of major dynamic schools and role playing. Issues relevant to the practice of crisis intervention and short-term therapy with different groups will be discussed. (Prerequisites: one previous therapy course sequence; consent of instructor and Director of Clinical Training.)

#### **46-680. Short Term and Crisis Intervention II**

Supervised practicum in time-limited psychotherapy and crisis intervention. Clinical Students will carry two therapy clients at any given time under supervision (Prerequisite: [46-679](#).)

#### **46-681. Behaviour Therapy I**

Examination of the theory, research, and practice of learning based behaviour change strategies with the emphasis on respondent and operant-based procedures and

inclusion of social learning. Issues relevant to the practice of psychotherapy with different groups will be discussed. (Prerequisite: [46-674](#), and consent of the Director of Clinical Training and course instructor; Co-requisite or Prerequisite: [46-581](#).) (3 hours a week.)

#### **46-682. Behaviour Therapy II**

Students will have the opportunity to apply behavioural techniques and change processes to selected clients. Emphasis will be placed on behavioural assessment and the systematic remediation of clinical problems through the application of respondent and operant techniques. (Prerequisite: [46-681](#).)

#### **46-685. Psychodynamic Therapy I**

This course focuses on the acquisition of the knowledge and skills necessary to practice brief psychodynamic therapy. Students will be instructed in the Core Conflictual Relationship Theme method (CCRT). Readings include elements of classical theory, object relations, and self-psychology. Each student leads one seminar and one class discussion on a selection of texts, and initiates supervised psychotherapy according to the CCRT method with one or two clients. Issues relevant to the practice of psychotherapy with different groups will be discussed. (Prerequisites: [46-674](#); consent of instructor and Director of Clinical Training; Prerequisite or Corequisite: [46-581](#).) (3 hours a week.)

#### **46-686. Psychodynamic Therapy II**

Continuation of [46-685](#). Students continue supervised practice according to the Core Conflictual Relationship Theme method with one or two clients. Readings focus on the utilization of interpretations in the therapy process. Issues relevant to the practice of psychotherapy with different groups will be discussed. (Prerequisites: [46-686](#).) (3 hours a week.)

#### **46-687. Group Therapy I**

An introduction to the theory and practice of group therapy. Issues relevant to the practice of psychotherapy with different groups will be discussed. Supervised practica included.

#### **46-688. Group Therapy II**

This is the second course of a two course sequence and will include supervised practica.(Continuation of [46-687](#).)

#### **46-690. Family Therapy I**

This seminar is the first course in a two-course sequence that covers the background theory, research, and therapeutic techniques of the major approaches to family therapy. Issues relevant to the practice of psychotherapy with different groups will be discussed. Supervised practica will be arranged with families and/or couples. (Prerequisites: one previous therapy course sequence; consent of the instructor and Director of Clinical Training.)

#### **46-691. Family Therapy II**

Continuation of [46-690](#). Supervised practice in family therapy (Prerequisite: [46-690](#).)

#### **46-692. Cognitive Behaviour Therapy I**

This is the first course in a two-course series that is designed to provide a reasonably comprehensive and practical overview of cognitive-behavioural therapy (CBT). The focus in this course is on understanding the basic premises of CBT and on developing assessment, case conceptualization, and basic intervention skills. During the associated practicum, student therapists provide therapy to two clients and attend weekly supervision meetings during which videotaped sessions are reviewed and discussed. (Prerequisites: [46-674](#); consent of instructor and Director of Clinical Training; Prerequisite or corequisite: [46-581](#).)

#### **46-693. Cognitive Behaviour Therapy II**

This is the second course in a two-course series that is designed to provide a reasonably comprehensive and practical overview of cognitive-behavioural therapy. This course focuses on how CBT is applied to a range of common clinical problems, on how CBT may be adapted and modified to meet the needs of diverse populations (e.g., clients from different ethnic and cultural groups), and on reviewing empirical support for the use of CBT. Issues related to therapist training and supervision are addressed. Associated course practicum as described under [46-692](#) continues. (Prerequisite: [46-692](#).)

#### **46-694. Experiential Psychotherapy I**

An introduction to humanistic/experiential psychotherapy (an introduction of the person-centered, gestalt, experiential, and existential perspectives), with an emphasis on developing one's talents in the nonspecific relationship factors central to all modes of psychotherapy. The humanistic/experiential approach emphasizes the development and use of therapist, as well as client, self-awareness, and is presented through didactic and experiential seminars. (Prerequisite: consent of instructor.) (4 hours a week.)

#### **46-695. Experiential Psychotherapy II**

Further development of the humanistic experiential approach to psychotherapy, with emphasis on its methods and on its application to particular syndromes, situations, and populations. Focus is placed on therapist understanding and experience of issues relevant to childhood abuse, spirituality, substance abuse, vicarious traumatization, gender, and race. (Prerequisite: [46-694](#).) (4 hours a week.)

#### **46-696. Emotion Focused Therapy I**

EFT is based on current emotion theory and experiential therapy theory and research emphasizing the central role of emotion in functioning and therapeutic change. This course covers the theory, research, and therapeutic techniques used in this treatment model. Students will participate in class discussions, role play exercises, and view videotapes of expert therapists. Supervised practica will begin the end of the first semester. (Prerequisite: one previous therapy course and consent of instructor.)

#### **46-697. Emotion Focused Therapy II**

This is the second course of a two course sequence. Special topics related to emotional processes in psychotherapy include the therapeutic relationship, problems with emotion regulation; empathy; emotional processing of trauma memories. Students will present seminars on relevant topics and supervised practica will be arranged. (Continuation of [46-696](#).)

#### **46-699. Supervised Therapy Practice**

Under this course number, advanced clinical students are permitted to carry one or two therapy cases under the close supervision of a clinical faculty member or associate. (Students may register in [46-699](#) for more than one term.)

#### **46-701. Clinical Assessment Practicum**

Supervised experience in an approved clinical setting with a focus on the development of skills related to interviewing, use of clinical assessment instruments, case formulation, and report writing. The student completes a minimum of 8 assessments. (Prerequisite: [46-583](#).)

#### **46-702. Clinical Practicum**

Supervised experience in an approved clinical setting with a focus on the development of basic clinical skills in preparation for practice and/or research. Students register for this course for each semester in which they attend a practicum placement. (Prerequisite: consent of the Director of Clinical Training; Prerequisite or Corequisite: [46-581](#) and [46-701](#).)



**46-706. Predoctoral Clinical Internship**

A one-year, full-time (or two-year, half-time) internship in a CPA- or APA-accredited clinical setting. (Prerequisites: completion of all doctoral requirements except for 46-798; acceptance of dissertation proposal at time of application for internship; consent of Director of Clinical Training.)

**46-707. Clinical Supervision**

A review of the purposes, models, and ethics of clinical supervision. Under the supervision of faculty, students will gain experience supervising more junior students conducting clinical interviews, therapy, and/or assessment. This course will include didactic, discussion, and experiential components.

**46-711. Supervised Field Work I**

(250 hours of supervised practice.)

**46-712. Supervised Field Work II**

(250 hours of supervised practice.)

**46-715. Psychological Services Centre Predoctoral Internship I**

A one-term, half-time internship at the Psychological Services Centre. (Prerequisites: with the consent of the Director of Clinical Training and in accordance with guidelines established by the Clinical Training Committee.) (350 hours of supervised internship.)

**46-716. Psychological Services Centre Predoctoral Internship II**

A one-term, half-time internship at the Psychological Services Centre. (Prerequisites: with the consent of the Director of Clinical Training and in accordance with guidelines established by the Clinical Training Committee.) (350 hours of supervised internship.)

**46-717. Psychological Services Centre Predoctoral Internship III**

A one-term, half-time internship at the Psychological Services Centre. (Prerequisites: with the consent of the Director of Clinical Training and in accordance with guidelines established by the Clinical Training Committee.) (350 hours of supervised internship.)

**46-721. Applied Social Psychology Practicum**

Problem solving in work settings, applying methods of community psychology, organizational psychology, and other fields of applied psychology. Students consult and work directly with a group or organization on a project selected for value to the organization and to the student. (2 class hours biweekly over 2 terms; 100 practicum hours.)

**46-722. Organizational Consulting and Intervention Skills**

This course provides students with skills for intervention in groups and organizations in community and business settings. Students will develop their consulting and intervention skills through a combination of consulting/ intervention projects, selected readings, and class seminars. Each student will be responsible for undertaking a small, circumscribed consulting project in a community-based, public-sector, or private-sector organizational setting. (3 hours a week.)

**46-731. Applied Social Doctoral Internship I**

(250 hours of supervised internship.)

**46-732. Applied Social Doctoral Internship II**

(250 hours of supervised internship.)

**46-733. Applied Social Doctoral Internship III**

(250 hours of supervised internship.)

**46-734. Applied Social Doctoral Internship IV**

(250 hours of supervised internship.)

**46-741. Comprehensive Examination**

Preparation through independent study for the written Comprehensive Examination. Students may register in [46-741](#) for a maximum of three consecutive terms. (Prerequisite: completion of M.A. requirements.)

**46-742. Clinical Proficiency Examinations**

Preparation through independent study for written and oral Clinical Proficiency Examinations. Students may register in [46-742](#) for a maximum of three consecutive terms. (Prerequisite: completion of at least 75% of [46-706](#).)

**46-743. Teaching and Learning in Psychology**

General overview of university instruction in the context of a large introductory psychology course. Seminar time is divided between theoretical review/ discussion (1 hour) and practical in-class application (2 hours). Topics include preparing a syllabus, performance evaluation, effective lecturing, facilitating discussions, problem situations, experiential work, collaborative and cooperative learning, problem-based learning, student diversity, ethics. (Prerequisite: consent of instructor.) (This is a non-credit course, and is given over two semesters.)

**46-797. M.A. Thesis Research**

**46-798. Doctoral Dissertation Research**

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## **SOCIAL WORK**

### **GRADUATE FACULTY**

#### **Professors**

Holosko, Michael J.; B.A.(Hons.) (York), M.S.W. (Toronto), Ph.D. (Pittsburgh)-1985.

Gorey, Kevin M.; B.A., M.S.W., Ph.D. (S.U.N.Y. Buffalo)-1994.

#### **Associate Professors**

Gallant, Wilfred A.; B.A. (St. Francis X.), M.S.W. (Maritime School of Social Work), Ed. D. (Wayne State), C.S.W.-1973.

Cassano, D. Rosemary; B.A., B.S.W., M.S.W., Ph.D. (Toronto), C.S.W.-1979.

Leslie, Donald R.; B.A. (Guelph), M.S.W. (British Columbia), Ph.D. (Georgia)-1994.

Angell, G. Brent; B.A. (Trent), M.S.W. (Wilfrid Laurier), Ph.D. (Case Western Reserve)-2003.

#### **Assistant Professors**

Taylor, Laura E.; B.A. (McMaster), M.S.W. (Wilfrid Laurier), Ph.D. (Toronto)-2001.

Dunlop, Judith M.; B.S.W. (Regina), M.S.W. (Windsor), Ph.D. (Memorial), R.S.W.-2002

Calderwood, Kim; B.A. (Waterloo), M.S.W. (Wilfrid Laurier), Ph.D. (Toronto), R.S.W.-2003.

Harper, Kim; B.A. (York), M.S.W., Ph.D. (Wilfrid Laurier)-2003.

#### **Field Administrator**

Medcalf, Mary; B.S.W., M.S.W. (Windsor)-2002.

#### **List of Community Service Organizations**

Alzheimer Society of Windsor & Essex County  
Big Brother's of Windsor-Essex County  
Big Sisters Association of Greater Windsor  
Brentwood Recovery Home  
Bulimia Anorexia Nervosa Association  
Can-Am Indian Friendship Centre  
Canadian Mental Health Association

• <b>Communciation Studies: Courses</b>	Canadian Mental Health Association, Bereavement Program Catholic Family Services Windsor-Essex County Chatham-Kent Health Alliance, St. Joseph Campus Chatham-Kent Health Alliance, Public General Hospital Chatham-Kent Integrated Children's Services, Child Protection Program Children's Achievement Centre Children's Aid Society, Leamington Children's Crisis Service Children's Achievement Centre Citizen Advocacy Windsor-Essex Citizen Advocacy Windsor-Essex, Best Buddies Program Communities in School, Harms School, Michigan Community Crisis Centre of Windsor-Essex County, Hotel-Dieu Hospital Community Care Access Centre, Chatham Conseil Scolaire de District des Écoles Catholiques du Sud-Quest Council for the Prevention of Child Abuse of Windsor & Essex County Drouillard Place Essex County Association for Community Living Extendicare, Southwood Lakes Glengarda Child & Family Services Help Link Central Access Services for Children, Youth and Families Hiatus House Hotel-Dieu Grace Hospital House of Sophrosyne Huron Lodge Municipal Home for Seniors Kid's Alliance Kingsville Youth Association Legal Assistance of Windsor Ministry of Community, Family & Children's Services Multicultural Council of Windsor & Essex County Multiple Sclerosis Society of Canada New Canadian's Centre of Excellence, Windsor-Essex County Family YMCA Regional Mental Health Care, St. Thomas, Program of Assertive Community Treatment (Essex Pact Teams) Richmond Terrace Nursing Home Sexual Assault Crisis Centre St. Leonard's House Teen Health Centre Thamesville Lodge The Inn of Windsor United Way/Centraide, Windsor-Essex County Veteran's Affairs Well-Come Centre for Human Potential Windsor Jewish Community Centre Windsor Regional Cancer Centre Windsor Regional Hospital Metropolitan Campus Windsor Regional Hospital Western Campus, Community Mental Health Clinic Windsor Regional Hospital Western Campus, Continuing Complex Care Windsor Regional Hospital Western Campus, Mental Health Program For Older Adults Windsor Women's Incentive Centre Windsor Women Working with Immigrant Women Windsor-Essex Children's Aid Society Windsor-Essex County Housing Corporation
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Mathematics and Statistics:  
Graduate Faculty

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Psychology: Graduate Faculty

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## **SOCIAL WORK: PROGRAMS OF STUDY**

### **Social Work (MSW)**

#### **THE MASTER OF SOCIAL WORK DEGREE**

##### **Admission Requirements**

- 1) Applicants to the Master of Social Work program should apply for admission by March 1 for a September commencement of studies in the same year.
- 2) Applicants to the Master of Social Work program must have:
  - (a) satisfactorily completed a B.S.W. or an equivalent social work professional degree program;
  - (b) submitted a preliminary outline of an educational plan that will provide direction for research and study;
  - (c) successfully completed one undergraduate course in statistics and one in research methods;
  - (d) maintained an average of B+ in the final year of undergraduate work and obtained a cumulative average of B.

##### **Program Requirements**

All students are required to complete a total of eight (8) courses including either a thesis option (2 course credits) plus a thesis seminar (1 course credit) or an advanced practice internship (2 course credits) plus an internship seminar (1 course credit). Unless otherwise specified, classes in each course are three hours per week for 13 weeks.

##### **Course Sequencing**

**Part-time Studies** - Students are expected to complete their program of study in two consecutive years. In either Year I or II, students must register in three consecutive semesters to complete their program of study. Due to the extensiveness of the Thesis or Advanced Practice Internship requirement, it is expected that students both define their vulnerable population of study early on and work on their requirements in semesters in which they may not be registered for actual courses. All students must commit to either the Thesis or Advanced Practice Internship option by the end of the second semester in Year I.

• [Communciation Studies: Courses](#)

[Computer Science: Graduate Faculty](#)

- [Computer Science: Programs](#)
- [Computer Science: Courses](#)

[Earth Sciences: Graduate Faculty](#)

- [Earth Sciences: Programs](#)
- [Earth Sciences: Courses](#)

[Economics: Graduate Faculty](#)

- [Economics: Programs](#)
- [Economics: Courses](#)

[Faculty of Education: Graduate Faculty](#)

- [Education: Programs](#)
- [Education: Courses](#)

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- [General Courses, Engineering](#)

[Civil and Environmental Engineering \(CEE\): Graduate Faculty](#)

- [CEE: Areas of Specialization](#)
- [CEE: Courses](#)

[Electrical Engineering: Graduate Faculty](#)

- [Electrical Engineering: Areas Of Specialization](#)
- [Electrical Engineering: Courses](#)

[Engineering Materials: Graduate Faculty](#)

- [Engineering Materials: Areas of Specialization](#)
- [Engineering Materials: Courses](#)

[Industrial and Manufacturing Systems Engineering \(IMSE\): Graduate Faculty](#)

- [IMSE: Areas of Specialization](#)
- [IMSE: Courses](#)

[Mechanical, Automotive, and Materials Engineering \(MAME\): Graduate Faculty](#)

- [MAME: Areas of Specialization](#)

**Full-time Studies:** Full-time studies involves two options.

*Option 1* is for students who possess a B.S.W. degree from an accredited program. Students are expected to complete their program of study in three consecutive semesters over a one year period. It is expected that students define their vulnerable population of study early on and commit to either the Thesis or Advanced Practice Internship by the end of the first semester with the approval of their Academic Advisor.

*Option 2* is for students who possess a four year degree in a related discipline or field of study, e.g., Nursing, Psychology, Sociology, Women's Studies, Criminology, Public Administration, Law, Education, etc. This program takes two years to complete and includes a required field practice component. It is expected that students define their vulnerable population of study early on and commit to either the Thesis or Advanced Practice Internship by the end of the first year with the approval of their Academic Advisor.



- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

- Sociology: Programs
- Sociology: Courses

Visual Arts: Graduate Faculty

- Visual Arts: Programs
- Visual Arts: Courses

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- [Communications Studies: Programs](#)

### **SOCIAL WORK: COURSE DESCRIPTIONS**

#### **47-520. Leadership and the Organizational Context of Practice**

This course examines the organizational context of social work practice. Focus of analysis will be organizational development and leadership roles at all levels in the organizational hierarchy. Issues of program evaluation, administrative functions, supervision, conflict resolution, interorganizational relations, and organizational change will be addressed in relation to organization vision, quality improvement and strategic planning. Topics will be adapted to the specific needs of students within the context of their areas of interest in work with specific vulnerable populations.

#### **47-521. Social Justice and Vulnerable Populations**

This seminar focuses on the history, meaning, and dynamics of barriers that threaten, preclude or compromise the normal participation of selected vulnerable groups in Canadian social, economic and political institutions. Using a framework of social justice, it employs concepts such as deviance, dependence, need, social control, and oppression.

#### **47-522. Social Policy Analysis and Development**

This course focuses on the processes involved in policy formulation, implementation, social change, and advocacy. It applies specific analytic frameworks and theories to issues of Canadian social policy and social justice in relation to vulnerable populations. These frameworks are: problem analysis, policy analysis and program analysis.

#### **47-530. Advanced Generalist Practice Course**

This course provides students with an understanding of the theory and use of advanced generalist practice. Students learn to assess the multiple systems within which client systems interact, to identify the locus of the problem within the ecological system and select interventions appropriate to points of entry. It provides the multi-system practice framework where students integrate their field of study, selected vulnerable population and evidenced-based knowledge and skills.

#### **47-540. Advanced Practice Research Methods**

This course prepares students in using the evidence based practitioner-researcher model including problem formulation, qualitative and quantitative designs, data analysis, interpretation and dissemination of findings. Students will develop their thesis or Formal Internship Report (FIR) proposals for the evaluation of policies, practice interventions or programs relevant to vulnerable populations.

#### **47-580. Internship Seminar**

This course provides an opportunity for students to develop a formal internship proposal related to their practice-research interests. Students select a community field education setting in which advanced generalist practice skills are developed and research or evaluation is conducted. Students are expected to produce an internship proposal and learning contract based upon a comprehensive review of the literature and a research or evaluation strategy for advanced generalist social work practice with a particular vulnerable population. The internship proposal may require formal ethics review for approval by the University and the field of education setting.

• [Communciation Studies: Courses](#)

[Computer Science: Graduate Faculty](#)

- [Computer Science: Programs](#)
- [Computer Science: Courses](#)

[Earth Sciences: Graduate Faculty](#)

- [Earth Sciences: Programs](#)
- [Earth Sciences: Courses](#)

[Economics: Graduate Faculty](#)

- [Economics: Programs](#)
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[Electrical Engineering: Graduate Faculty](#)

- [Electrical Engineering: Areas Of Specialization](#)
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[Engineering Materials: Graduate Faculty](#)

- [Engineering Materials: Areas of Specialization](#)
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[Industrial and Manufacturing Systems Engineering \(IMSE\): Graduate Faculty](#)

- [IMSE: Areas of Specialization](#)
- [IMSE: Courses](#)

[Mechanical, Automotive, and Materials Engineering \(MAME\): Graduate Faculty](#)

- [MAME: Areas of Specialization](#)

**47-581. Advanced Practice Internship**

This course is offered in a community field education setting. Students develop practice and research or evaluation skills which will equip them for leadership in advanced generalist social work practice. Students are expected to produce a Formal Internship Report (FIR) which will include an assessment of their individualized learning and skill acquisition and a dissemination plan of their evidence-based practice with a vulnerable population.

**47-596. Thesis Seminar**

This seminar provides students an opportunity to write a formal thesis proposal. This includes developing a plan of study for presentation to a thesis committee.

**47-797. Thesis**

The thesis will integrate knowledge of research and evaluation methods to promote the acquisition of evidence-based practice to specific vulnerable populations. The thesis is supervised by the student's thesis committee.

- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

- Sociology: Programs
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Visual Arts: Graduate Faculty

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- [Chemistry and Biochemistry: Programs](#)
- [Chemistry and Biochemistry: Courses](#)

[Communication Studies: Graduate Faculty](#)

- [Communications Studies: Programs](#)

## **SOCIOLOGY**

### **GRADUATE FACULTY**

#### **University Professors**

Adam, Barry D.; B.A. (Simon Fraser), M.A., Ph.D. (Toronto)-1976.

Maticka-Tyndale, Eleanor; B.A. (State U. of New York, Binghamton), M.A. (McGill), Ph.D. (Calgary)-1993.

#### **Professors**

Ramcharan, Subhas; B.A., M.Sc. (West Indies); Ph.D. (York)-1971.

Phipps, Alan G.; B.A. (Manchester), M.A. (Queen's), Ph.D. (Iowa), M.C.I.P.-1988.

Basok, Tanya; B.A., M.A., Ph.D. (York)-1989.

Phillips, Lynne; B.A. (British Columbia), M.A., Ph.D. (Toronto)-1989.

Ilcan, Suzan M.; B.A. (Saint Mary's), M.A. (Dalhousie), Ph.D. (Carleton)-1994.

#### **Associate Professors**

Shuraydi, Muhammad; B.A. (American U. of Beirut), Ph.D. (Alberta)-1973.

Mogyorody, Veronika; B.A. (Windsor), M.A. (Wayne State), B.Arch. (Detroit), Ph.D. (Rensselaer)-1976.

Sears, Alan; B.A., M.A. (Carleton), Ph.D. (Warwick)-1992.

Hall, Alan; B.A. (Bishop's), M.A. (Guelph), Ph.D. (Toronto)-1994.

Lewis, Jacqueline; B.A., M.A., Ph.D. (Toronto)-1994.

Nakhaie, M. Reza; B.A. (National University of Iran), M.A. (Guelph), Ph.D. (Waterloo)-1997.

Lippert, Randy; B.A. (Lethbridge), M.A. (Ottawa), Ph.D. (British Columbia)-2000.

deLint, Willem; B.A., M.A., Ph.D. (Toronto)- 2002.

#### **Assistant Professors**

George, Glynis; B.A., M.A., Ph.D. (Toronto)-2000.

• **Communciation Studies:**  
Courses

Mann, Ruth M.; B.A. (York), M.A., Ph.D. (Toronto)-2000.

**Computer Science: Graduate**  
Faculty

O'Connor, Daniel; B.A., M.A. (Manitoba), Ph.D. (Carleton)-2000.

• **Computer Science:**  
Programs

Arnold, Robert; B.A., M.A. (Saskatchewan), Ph.D. (McMaster)-2001.

• **Computer Science: Courses**

Omorodion, Francisca Isi; B.A. (McMaster), M.A. (Toronto), M.A. (Exeter), Ph.D. (Benin)-2003.

**Earth Sciences: Graduate**  
Faculty

**Limited-Term Appointments**

• **Earth Sciences: Programs**  
• **Earth Sciences: Courses**

Cassidy, Tanya; B.A., M.A. (Windsor), Ph.D. (Chicago)-2003-2005.

**Economics: Graduate Faculty**

Guan, Jian; B.A. (Central National U), M.A. (China), M.A. (Hull), Ph.D. (Oklahoma State)-2003-2006.

• **Economics: Programs**  
• **Economics: Courses**

**Faculty of Education:**  
Graduate Faculty

• **Education: Programs**  
• **Education: Courses**

**Faculty of Engineering:**  
Programs of Study Overview

• **General Courses,**  
**Engineering**

**Civil and Environmental**  
**Engineering (CEE): Graduate**  
Faculty

• **CEE: Areas of Specialization**  
• **CEE: Courses**

**Electrical Engineering:**  
Graduate Faculty

• **Electrical Engineering:**  
**Areas Of Specialization**  
• **Electrical Engineering:**  
**Courses**

**Engineering Materials:**  
Graduate Faculty

• **Engineering Materials:**  
**Areas of Specialization**  
• **Engineering Materials:**  
**Courses**

**Industrial and Manufacturing**  
**Systems Engineering (IMSE):**  
Graduate Faculty

• **IMSE: Areas of**  
**Specialization**  
• **IMSE: Courses**

**Mechanical, Automotive, and**  
**Materials Engineering**  
**(MAME): Graduate Faculty**

• **MAME: Areas of**  
**Specialization**



- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
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- Mathematics and Statistics:  
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Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
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Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
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Sociology: Graduate Faculty

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- Business: Programs
- Business: Courses

[Chemistry and Biochemistry: Graduate Faculty](#)

- Chemistry and Biochemistry: Programs
- Chemistry and Biochemistry: Courses

[Communication Studies: Graduate Faculty](#)

- Communications Studies: Programs

## **SOCIOLOGY: PROGRAMS OF STUDY**

**Sociology (Social Justice) (MA)**  
**Sociology (Social Justice) (PhD)**

### **THE DOCTOR OF PHILOSOPHY DEGREE**

In addition to the general requirements listed in 1.5, the following requirements must be met by all students proceeding to the Ph.D. degree in Sociology.

#### **Admission Requirements**

For admission to the PhD program in Sociology applicants must hold a Master's degree in Sociology (or equivalent) from a recognized university. Possession of the minimum academic requirements does not ensure acceptance.

Applicants who wish to be considered for funding must apply by January 31. The closing date for all applications is February 28.

Applicants must include the following:

(a) transcripts from all post-secondary institutions attended. (Transcripts must be sent directly from the institution);

(b) a statement (up to 500 words) addressing the two following questions: (i) How have you been involved in social justice issues through research, work, or community activity; And (ii) How do you envision your research contributing to social justice;

(c) a statement of a proposed area for dissertation research;

(d) a sample of written work (e.g., a term paper, thesis proposal, published work);

(e) three letters of reference in sealed envelopes with the referee's signature across the seal. At least two should be academic references. One letter should be from the MA supervisor; one can be from a non-academic referee who has been in a supervisory or mentor role. These may be sent by the applicant or under separate cover by the referees.

In addition to assessing the submissions made by the applicant to determine admissibility, the Graduate Committee takes into account (i) the availability of faculty to advise, supervise, and provide funding and research training in conjunction with their own research projects, and (ii) the diversity of subject areas represented in the applicant pool.

#### **Program Overview**

• [Communciation Studies: Courses](#)

*Doctoral Committee*

• [Computer Science: Graduate Faculty](#)

- [Computer Science: Programs](#)
- [Computer Science: Courses](#)

Upon admission to the Ph.D. program, the Graduate Committee will assign an interim faculty advisor whose research and teaching coincide with the applicant's area of interest. Students may submit a request to the Graduate Committee for a particular advisor.

• [Earth Sciences: Graduate Faculty](#)

- [Earth Sciences: Programs](#)
- [Earth Sciences: Courses](#)

Research undertaken as part of the doctoral program is directed by a doctoral committee consisting of an advisor from the graduate faculty of the Department of Sociology and Anthropology, two other faculty members from inside the department, and one faculty member from outside the department. The student should select the doctoral committee by the end of the first academic year. The membership of the doctoral committee must be approved by the Faculty of Graduate Studies and Research.

• [Economics: Graduate Faculty](#)

- [Economics: Programs](#)
- [Economics: Courses](#)

*Course work*

• [Faculty of Education: Graduate Faculty](#)

- [Education: Programs](#)
- [Education: Courses](#)

Ph.D. students are required to complete six graduate courses, including [48-600](#) and either [48-605](#) or [48-606](#). Proficiency in both quantitative and qualitative methods is required through completion of course work at the M.A. or Ph.D. level. Those without evidence of prior preparation may be required to take additional courses. Acceptable course grades are outlined in Section 1.5 of the Graduate Calendar.

• [Faculty of Engineering: Programs of Study Overview](#)

- [General Courses, Engineering](#)

One course from the following list of social justice courses may be included to complete the course work requirement\*:

• [Civil and Environmental Engineering \(CEE\): Graduate Faculty](#)

- [CEE: Areas of Specialization](#)
- [CEE: Courses](#)

*Humanities Research Group: [09-599](#)*  
*Communication Studies: [40-501](#), [40-512](#), [40-515](#)*  
*History: [43-505](#), [43-506](#), [43-507](#), [43-508](#), [43-509](#), [43-510](#)*  
*Psychology: [46-657](#), [46-660](#)*  
*Social Work: [47-520](#), [47-521](#), [47-522](#) and [47-540](#)*  
*Nursing: [63-588](#)*  
*Business: [71-647](#)*

• [Electrical Engineering: Graduate Faculty](#)

- [Electrical Engineering: Areas Of Specialization](#)
- [Electrical Engineering: Courses](#)

\*Permission may be required from the department offering the course. Advance permission from the departmental Graduate Committee is required in order to take any additional courses outside of the Sociology program.

• [Engineering Materials: Graduate Faculty](#)

- [Engineering Materials: Areas of Specialization](#)
- [Engineering Materials: Courses](#)

**Comprehensive Examinations and Dissertation Proposal**

After completion of all course requirements, students must demonstrate mastery of two established and distinct fields of sociological inquiry through satisfactory completion of two comprehensive examinations. Comprehensive examinations serve as preparatory work for the dissertation and enable students to develop recognized areas of expertise for teaching and career purposes.

• [Industrial and Manufacturing Systems Engineering \(IMSE\): Graduate Faculty](#)

- [IMSE: Areas of Specialization](#)
- [IMSE: Courses](#)

*Comprehensive Exams:*

(a) Comprehensive exams may be taken in any two of the following areas: Social Inequality, Social Change, Crime and Regulation, Research Methods, or Social Theory.

• [Mechanical, Automotive, and Materials Engineering \(MAME\): Graduate Faculty](#)

- [MAME: Areas of Specialization](#)

(b) Students may nominate a Comprehensive Examination Committee of three faculty members for each area in which they will be examined from a list of graduate faculty in that area of competence. The Graduate Committee must approve the composition of each committee.

(c) Responsibility for setting each exam rests with the Comprehensive Examination Committee. It is the responsibility of the committee to ensure that the questions for a student's two comprehensive exams are distinct and without duplication. These exams

• MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
- Social Work: Courses

Sociology: Graduate Faculty

- Sociology: Programs
- Sociology: Courses

Visual Arts: Graduate Faculty

- Visual Arts: Programs
- Visual Arts: Courses

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and committees will be monitored by the Graduate Committee.

(d) The comprehensive examinations will have a take-home format. The exam will be given to the student seven (7) days before it is due. The students will be given three (3) questions and must answer two (2) of the questions.

(e) Once a written comprehensive examination is submitted to the Comprehensive Examination Committee, the Committee has up to four weeks to schedule an oral defense meeting. At the end of the oral defense, a grade of pass or fail will be assigned by the Committee based on both components. Individual Committee members may submit written feedback to the student. In the event that a student fails the comprehensive examination, the Committee is required to provide a written explanation within five (5) working days.

(f) If a student fails a comprehensive examination, he or she may retake the examination once only at the discretion of the Head of the Department and the Dean of Graduate Studies and Research.

(g) Students failing a comprehensive exam after a second attempt will be required to withdraw from the program.

(h) Students cannot move on to another comprehensive exam until one comprehensive exam has been successfully completed.

(i) The student has a right to appeal a failed comprehensive exam by sending a written letter to the Graduate Committee, detailing the reason(s) for the appeal.

#### *Dissertation Proposal*

The dissertation proposal should be a concise document of no more than 20 pages that discusses: the central research topic of the dissertation; the significance and advancement research literature; the theoretical framework guiding the research; proposed research methods; a plan and schedule for completion of the thesis; the feasibility of the research project; and ethical issues raised by the research. The grant proposal format mandated by such major funding agencies as the Social Sciences and Humanities Research Council or the Canadian Institutes for Health Research can be used as a standard format for the proposal.

The dissertation proposal must be approved at a meeting of the doctoral committee before the research can proceed. The purpose of the meeting is to reach an agreement that the research is well-designed, feasible, and appropriately grounded in the relevant research literature. All doctoral students are required to comply with the ethical principles, values, and standards of the Canadian Sociology and Anthropology Association's Code of Ethics. A proposal for doctoral research involving human subjects must be approved by the University of Windsor Ethics Review Board before dissertation research can begin.

#### *Dissertation Research*

The dissertation is normally a book-length manuscript that makes an original contribution to knowledge. The dissertation should display a sophisticated awareness of the theoretical, methodological, and practical choices made during the research process and the implications of the research.

Dissertation research and writing processes vary significantly, depending on the methods used and preferences in working style. The student and supervisor should meet often during the research process, reviewing written work at regular intervals. The full doctoral committee shall meet for an assessment of progress at least twice a year.

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The dissertation research process culminates with an oral defence. The doctoral committee will recommend to the candidate when the thesis is ready to defend. An examiner from outside the university will be selected by the doctoral committee for the final defence of the dissertation, subject to the approval of the Department Head and the Dean of Graduate Studies and Research. The external examiner must be a nationally or internationally recognized expert in the area of the candidate's research. The external examiner does not participate in the direction of the research project, but appraises the dissertation and participates in the final oral examination.

## THE MASTER OF ARTS DEGREE

### Admission Requirements

1) Applicants with an honours degree in Sociology or a related field may be admitted into the candidate year of the M.A. program provided they have an adequate background in social theory and methodology. Students will be expected to comply with the general University requirements for the Master's degree. (See 1.6.2)

2) Applicants without an honours degree in Sociology may be required to take additional courses. Besides meeting all the requirements for the Master's program in their second year, students will be expected to comply with the general University requirements. (see 1.6.2)

3) Students transferring into Sociology from another discipline and those with insufficient preparatory background may be required to take up to ten additional courses before proceeding into the candidate year. These may include: [48-210](#) or [48-310](#); two courses from [48-403](#), [48-404](#), [48-405](#), [48-406](#), [48-408](#) or [48-415](#) and six other courses at the 300 or 400 level, two of which may be outside the program. At least an overall B average must be maintained.

4) Applicants with a three-year degree in Sociology or a related discipline may be admitted into a two-year Master's program. Besides meeting all the requirements of the minimum one-year Master's program in their second or further years, students will be expected to comply with the general University requirements (see 1.6.2).

The Department's current admission criteria are as follows:

(a) B+/A- minimum grade point average;

(b) strong recommendations based on faculty observation of student's performance, work experience, or community involvement demonstrating clear commitment to and understanding of sociological concerns;

(c) applicant's background preparation and graduate faculty resources available in the area of specialization indicated on the application.

Students with an honours degree in Anthropology must take [02-250](#), [48-302](#), [48-308](#), and one course from [48-403](#), [48-404](#), [48-405](#), [48-406](#), [48-408](#) or [48-415](#), or the equivalent. At least an overall B average must be maintained. Students with an honours degree in Criminology must take one course from [48-403](#), [48-404](#), [48-405](#), [48-406](#), [48-408](#) or [48-415](#), or the equivalent. At least an overall B average must be maintained. Students with an honours degree in Family and Social Relations must take one course from [48-403](#), [48-404](#), [48-405](#), [48-406](#), [48-408](#) or [48-415](#), or the equivalent. Students not having a sufficient background in statistics and/or social theory may be required to take [02-250](#) and [48-308](#) and/or [48-202](#) and [48-302](#). At least an overall B average must be maintained.

### Program Requirements

### *MASTER OF ARTS - THESIS OPTION*

The essential components of the Master of Arts degree in sociology are course work and a thesis. Students are expected to complete all 5 courses in two (2) consecutive semesters, [48-590](#) should be taken during the 3rd semester (i.e., Intersession/Summer Session).

Graduate students in the M.A. program will be expected to specialize in one of the five areas: Criminology; Family, Sex, and Gender; International Development; Migration, Racialization and Ethnicity; or Work. Course selections and course changes must be made in consultation with a faculty advisor (temporary or permanent).

Students accepted directly into the candidate year will proceed towards the degree by achieving at least a B average in all six courses. The required courses are: [48-500](#) (Sociology Theory); either [48-505](#) (Quantitative Methods and Statistics) or [48-506](#) (Qualitative Methodology I), and [48-590](#) (Development of the Thesis Proposal). The other three courses must include at least one in the student's area of specialization. Faculty advisors may recommend particular courses to develop the skills necessary for thesis work. After completion of the courses, the focus shifts to the thesis which is an independent research project conducted in consultation with an advisor and thesis committee.

### *MASTER OF ARTS - COURSE STREAM OPTION*

The essential component of the Master of Arts degree in sociology involves course work only. Students are expected to complete the program (8 courses) in two (2) consecutive terms.

Graduate students in the M.A. program will be expected to specialize in one of the five areas: Criminology; Family, Sex, and Gender; International Development; Migration, Racialization and Ethnicity; or Work. Course selections and course changes must be made in consultation with a temporary faculty advisor.

Students accepted directly into the candidate year will proceed towards the degree by achieving at least a B average in all eight courses. The two required courses are: [48-500](#) (Sociological Theory), and either [48-505](#) (Quantitative Methods and Statistics) or [48-506](#) (Qualitative Methodology I). Six additional graduate courses are required including at least one (1) course in a declared area of specialization. Students have the option of taking one graduate course outside the department.

#### *Notes:*

- 1) Students not having a sufficient background in statistics and/or social theory may be required to take [02-250](#) and [48-308](#) and/or [48-202](#) and [48-302](#).
- 2) Seminar classes require active class participation. Instructors may therefore take into account class participation in grading students, in accordance with Senate regulations.
- 3) To change from one program to the other requires approval of the Graduate Committee.

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- Communications Studies: Programs

## **SOCIOLOGY: COURSE DESCRIPTIONS**

All courses listed will not necessarily be offered in any given year.

All courses are taught as seminars.

### **48-500. Sociological Theory**

A seminar on current and emerging trends in social theory from social constructionism to world systems theory, including contemporary debates on impacts of globalization, modernity and postmodernity, and the recovery of neglected voices in sociological theory.

### **48-505. Quantitative Methods and Statistics**

Construction and testing of regression and logit models, sampling and questionnaire construction. Additional topics may be selected in view of the needs and interests of students.

### **48-506. Qualitative Methodology I**

An examination of the ethics and politics of research. An emphasis will be placed on interviews and life histories, discourse analysis, and select approaches to historical sociology. The course is designed to provide students with an opportunity to engage in various research activities and debates.

### **48-520. Social Movements and Popular Mobilization**

Seminar on the theory and research of large-scale transformations through historical and cross-cultural examinations of such topics as the development and impact of social movements, states and social revolutions, and the mobilization of people around issues concerning human rights, working conditions, racism, gender, sexuality, environment, peace, poverty, and globalization.

### **48-521. Social Inequality and the State**

Seminar on the theory and research of structured inequality in the national and international context. The focus will be on the role of the state in creating, sustaining and altering different aspects of inequality in terms of resource attainment, political ideology and behaviour. Policy related issues may include globalization, family, sexuality, multiculturalism, immigration, employment, crime, education, health and welfare.

### **48-525. International Development and its Discontents**

Seminar on the central theoretical and empirical issues raised in understanding the ways in which national and global processes of socio-economic development are experienced locally.

### **48-530. Work and Social Change**

This course examines current research and theoretical approaches in the sociology of work with an emphasis on understanding the relationship between the transformation of work and broader social change in class, gender and ethnic relations. Areas of



• **Communciation Studies:  
Courses**

concentration may include the organization of production, worker control and resistance, state labour policies and legislation, unemployment, labour market segregation, and globalization.

**Computer Science: Graduate  
Faculty**

- **Computer Science:  
Programs**
- **Computer Science: Courses**

**48-540. Race and Ethnic Relations**

A comparative analysis of race and ethnic relations focussing on such issues as ethnic stratification and mobility patterns, assimilation and cultural pluralism, and policies and legislation governing multiculturalism, employment equity and collective rights.

**Earth Sciences: Graduate  
Faculty**

- **Earth Sciences: Programs**
- **Earth Sciences: Courses**

**48-550. Family Relations and Gender Politics**

An examination of historical and contemporary debates on gender politics within the context of family formation and social change in Canada. Special attention will be given to the gender division of labour, sexuality, economy and class, and to related social justice issues such as state regulation of marriage, divorce, child care and procreation, reproductive engineering and rights, and ideological power structures and practices that construct family members in particular social and cultural contexts.

**Economics: Graduate Faculty**

- **Economics: Programs**
- **Economics: Courses**

**48-555. Sexualities and Social Justice**

This course will investigate the relationship between sexuality, power inequalities and social change. This may include an examination of the impact of globalization processes on sexualities, the development of lesbian, gay, bisexual, transgender and queer identities and movements, the racialization and gendering of sexual identity (and the sexualization of racial, ethnic and gender relations), the criminalization of sexualities, and the construction of sexual 'health'.

**Faculty of Education:  
Graduate Faculty**

- **Education: Programs**
- **Education: Courses**

**48-561. Crime and Exclusion**

An exploration of research and theory on the conception, construction, and production of crime and other exclusionary processes. Substantive topics may include violence, victimization and the impact of culture, borders, inequalities, and regulatory agencies on crime and deviance.

**Faculty of Engineering:  
Programs of Study Overview**

- **General Courses,  
Engineering**

**48-562. Security and Regulation**

An examination of research and theory on the regulatory agencies of criminal law and social policy (e.g. courts, police, corrections, social service agencies), modes of regulation (e.g. discipline, surveillance, detention) and their application (e.g. to bodies, spaces, borders and subjectivities).

**Civil and Environmental  
Engineering (CEE): Graduate  
Faculty**

- **CEE: Areas of Specialization**
- **CEE: Courses**

**48-565. Law and Governance**

This course examines perspectives on moral regulation, the social construction of law and law as governance. The focus will be the analysis of various forms of law, policy and regulation. Substantive issues to be covered may include sexuality, immigration and exclusion, labour and economic policies, drug policies and communication, or cultural policies.

**Electrical Engineering:  
Graduate Faculty**

- **Electrical Engineering:  
Areas Of Specialization**
- **Electrical Engineering:  
Courses**

**48-569. Culture and Globalization**

This seminar course uses cultural perspectives to explore processes of globalization. Topics may include migration, mass mediated practices, transnational organizations, work and employment, and human rights.

**Engineering Materials:  
Graduate Faculty**

- **Engineering Materials:  
Areas of Specialization**
- **Engineering Materials:  
Courses**

**48-574. Health and Social Justice**

Examines the social construction, production, and subjectivities of health and illness with reference to a variety of social justice developments and policy issues.

**Industrial and Manufacturing  
Systems Engineering (IMSE):  
Graduate Faculty**

- **IMSE: Areas of  
Specialization**
- **IMSE: Courses**

**48-580. Subordination, Identity and Empowerment**

A micro level examination of the effects of subordination on everyday life in the generation of acquiescence and resistance, including the use of discourse in identity formation and popular ideologies.

**Mechanical, Automotive, and  
Materials Engineering  
(MAME): Graduate Faculty**

- **MAME: Areas of  
Specialization**

**48-590. Directed Readings: Development of the Thesis Proposal**

- [MAME: Courses](#)

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- [English: Programs](#)
- [English: Courses](#)

[History: Graduate Faculty](#)

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Faculty](#)

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[Philosophy: Graduate Faculty](#)

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[Physics: Graduate Faculty](#)

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[Political Science: Graduate  
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Students will register for this course with a faculty advisor in their declared area of specialization with the purpose of developing a thesis proposal. (Available for credit only in the MA program by thesis.)

**48-600. Social Theory and Social Justice**

A seminar to develop the theoretical foundations of doctoral research by critically examining the location of research and researchers in the global system, presumptions concerning human subjectivity and empowerment, and the conceptualization and practice of social justice. (Prerequisite: [48-500](#) or permission of instructor.)

**48-605. Statistics and Quantitative Methods**

Sociological applications of structural equation modeling, hierarchical modeling, log-linear models, multinomial and ordinal logits, consideration of the strengths and limitations of quantitative sociology and political issues in its exercise. (Prerequisite: [48-505](#) or permission of instructor.)

**48-606. Qualitative Methodology II**

A critical exploration of the epistemological assumptions and analytical tools associated with qualitative methodologies. Students will be exposed to a variety of research issues in the areas of sociological field work, select ethnographic techniques, the analysis of documents, and participatory action research. The course is designed to assist students in developing the methodological component of their PhD proposal. (Prerequisite: [48-506](#) or permission of instructor.)

**48-797. MA Thesis**

**48-798. Doctoral Dissertation**

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## **VISUAL ARTS**

### **GRADUATE FACULTY**

#### **Professor Emeritus**

Baxter, Iain; B.Sc., M.Ed. (Idaho), M.F.A. (Washington State), R.C.A.-1988.

#### **Professors**

Gold/Smith, Susan; B.A., M.A. (Wayne State)-1970.

Dingler, Daniel W.; B.F.A. (Layton School of Art), M.F.A. (Cranbrook Academy of Art)-1971.

#### **Associate Professors**

Francis Pelkey, Brenda; M.F.A. (Saskatchewan)-2003.

#### **Assistant Professors**

MacDowall, Cyndra; B.A.E. (Queen's), M.F.A.. (Concordia)-2002.

Torinus, Sigi; B.A. (Art Institute Braunschweig, Germany), M.F.A. (Hameln, Germany), M.F.A. (San Francisco State)-2002.

• Communciation Studies:  
Courses

Computer Science: Graduate  
Faculty

- Computer Science:  
Programs
- Computer Science: Courses

Earth Sciences: Graduate  
Faculty

- Earth Sciences: Programs
- Earth Sciences: Courses

Economics: Graduate Faculty

- Economics: Programs
- Economics: Courses

Faculty of Education:  
Graduate Faculty

- Education: Programs
- Education: Courses

Faculty of Engineering:  
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Engineering

Civil and Environmental  
Engineering (CEE): Graduate  
Faculty

- CEE: Areas of Specialization
- CEE: Courses

Electrical Engineering:  
Graduate Faculty

- Electrical Engineering:  
Areas Of Specialization
- Electrical Engineering:  
Courses

Engineering Materials:  
Graduate Faculty

- Engineering Materials:  
Areas of Specialization
- Engineering Materials:  
Courses

Industrial and Manufacturing  
Systems Engineering (IMSE):  
Graduate Faculty

- IMSE: Areas of  
Specialization
- IMSE: Courses

Mechanical, Automotive, and  
Materials Engineering  
(MAME): Graduate Faculty

- MAME: Areas of  
Specialization

- MAME: Courses

English: Graduate Faculty

- English: Programs
- English: Courses

History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
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Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
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Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
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Political Science: Graduate  
Faculty

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Psychology: Graduate Faculty

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Social Work: Graduate  
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## **VISUAL ARTS: PROGRAMS OF STUDY**

### **Visual Arts (MFA)**

#### **THE MASTER OF FINE ARTS DEGREE**

The program provides two years of advanced education and creative development in the student's chosen areas of research. The program functions to stress studio production and the exploration of ideas and technical skills within a critical framework. Areas of research within the M.F.A. program are Painting/Drawing, Sculpture, Printmaking, and Integrated Media (Video, Sound, Photography and Digital Arts).

Students with a B.F.A. degree from the University of Windsor are encouraged to seek their Master's degree elsewhere.

#### **Admission Requirements**

1) In addition to the requirements set forth in 1.3 and 1.6.1 for admission to the Faculty of Graduate Studies and Research, applicants for admission to the Master of Fine Arts program must satisfy the following particular requirements:

(a) have an honours B.A. with a major in Visual Arts or Bachelor of Fine Arts degree from an approved college or university; an applicant with a general B.A. with a major in Visual Arts may be admitted with the stipulation that deficiencies will be made up;

(b) present twenty slides of recent work for evaluation by the departmental graduate acceptance committee;

(c) have attained at least a B standing in undergraduate art courses;

(d) have six courses in art history;

(e) present transcripts of all university and/or college-level work;

(f) present three letters of recommendation.

2) An applicant who has graduated from a recognized professional institution may be required to apply for entry into a special program prerequisite to admission into the M.F.A. program.

3) Students who are deficient in any of these requirements may be asked to register in appropriate undergraduate courses in order to satisfy the requirements.

4) Applications for admission to the Master of Fine Arts program should be complete by



- **Communciation Studies: Courses** February 10 for Fall admission; applications received after that date may not be considered.

**Computer Science: Graduate Faculty**

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**Earth Sciences: Graduate Faculty**

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- **CEE: Courses**

**Electrical Engineering: Graduate Faculty**

- **Electrical Engineering: Areas Of Specialization**
- **Electrical Engineering: Courses**

**Engineering Materials: Graduate Faculty**

- **Engineering Materials: Areas of Specialization**
- **Engineering Materials: Courses**

**Industrial and Manufacturing Systems Engineering (IMSE): Graduate Faculty**

- **IMSE: Areas of Specialization**
- **IMSE: Courses**

**Mechanical, Automotive, and Materials Engineering (MAME): Graduate Faculty**

- **MAME: Areas of Specialization**

**Program Requirements**

- 1) Eleven courses are required including Thesis (27-797):
  - (a) four courses in Studio Practice;
  - (b) one seminar on Contemporary Issues (28-660);
  - (c) one Art History Seminar (28-656) or Directed Individual Studies course (28-600);
  - (d) Graduate Seminars (27-596, 27-597, 27-598, 27-599);
  - (e) Early in the second term of their first year, students must participate in a first year M.F.A. group exhibition. This exhibition will be evaluated by faculty members to determine the advisability of a student continuing in the program.

*Optional courses:*

- (a) two additional non-credit teaching tutorial courses (27-580 and 27-581 are not required but may be taken.

2) *Thesis:* The thesis will consist of an exhibition of a body of original creative works within the candidate's area of research. The thesis will be planned with, and executed under the direction of the candidate's principal faculty advisor. This final exhibition should be regarded as the equivalent of the scholarly thesis of an academic discipline.

3) *Committees:*

(a) *Guidance Committee:* Each student will choose a guidance committee, approved by the Visual Arts Graduate Program Committee, at the beginning of the second term of his or her Master's program. This committee will meet with the student periodically throughout the time required to complete the M.F.A. program and to assess his/her work and progress through the program.

(b) *Thesis Defence Committee:* This committee will assess the student's thesis exhibition, conduct the oral examination, decide if the M.F.A. degree should be awarded and determine the thesis grade. The thesis committee will be constituted as follows: a member of the graduate faculty appointed by the Dean of Graduate Studies and Research serving as a non-voting chair, the student's principal advisor and two additional faculty members, one of whom will not have been a member of the student's guidance committee. In addition a professional artist or artist-educator not from the University of Windsor or the Windsor area will be chosen as an external member of the committee. The student will choose the last three members of this committee with the approval of the Visual Arts Graduate Program Committee and subject to the approval of the Executive Committee of the Faculty of Graduate Studies and Research.

4) *Examination and Thesis Requirements:*

- (a) a solo exhibition of the completed creative thesis acceptable to the student's thesis committee;
- (b) a written and photographic documentation of the thesis to be retained by Visual Arts;
- (c) a formal oral defense of the thesis before the student's thesis committee;
- (d) written support document given to each member of the Thesis Committee two weeks prior to the scheduled defense.

- MAME: Courses

5) *Residence Requirements:* The M.F.A. program will require a minimum of two academic years (four terms).

English: Graduate Faculty

- English: Programs
- English: Courses

Transfer credits will be evaluated and may be accepted.

History: Graduate Faculty

- History: Programs
- History: Courses

Work on an M.F.A. degree should ordinarily be completed within three consecutive years after a student's enrollment.

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:

Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
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Psychology: Graduate Faculty

- Psychology: Programs
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Social Work: Graduate  
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## VISUAL ARTS: COURSE DESCRIPTIONS

### STUDIO

All graduate studio courses are directed individual studies courses. Projects will be planned and carried out in conjunction with a faculty supervisor.

#### **27-561. Studio Practice 1**

Directed individual studio projects within the areas of research in; Painting/Drawing, Printmaking, Sculpture and Integrated Media (Video, Sound, Photography, Digital Arts). (This course is supervised by the Guidance Committee composed of two professors and the principal advisor.) (Open to M.F.A. students only.)

#### **27-562. Studio Practice 2**

Directed individual studio projects within the areas of research of; Painting/Drawing, Printmaking, Sculpture and Integrated Media (Video, Sound, Photography, Digital Arts). This course is supervised by the Guidance Committee composed of two professors and the principal advisor. (Prerequisite: [27-561](#)) (Open to M.F.A. students only.)

#### **27-563. Studio Practice 3**

Directed individual studio projects within the areas of research of; Painting/Drawing, Printmaking, Sculpture and Integrated Media (Video, Sound, Photography, Digital Arts). (This course is supervised by the Guidance Committee composed of two professors and the principal advisor.) (Prerequisite: [27-562](#)) (Open to M.F.A. students only.)

#### **27-564. Studio Practice 4**

Directed individual studio projects within the areas of research of; Painting/Drawing, Printmaking, Sculpture and Integrated Media (Video, Sound, Photography, Digital Arts). This course is supervised by the Guidance Committee composed of two professors and the principal advisor. (Prerequisite: [27-563](#).) (Open to M.F.A. students only.)

#### **27-580. Studio Tutorial I**

Introduction to course preparation and studio teaching practices. This course is a non-credit course and, upon successful completion, will appear on the student's transcript

#### **27-581. Studio Tutorial II**

Continuation of [27-580](#), with emphasis on studio teaching experience. (Prerequisite: [27-580](#) and approval of the M.F.A. Program Coordinator.) This course is a non-credit course and, upon successful completion, will appear on the student's transcript

#### **27-596. Graduate Seminar 1**

The seminar addresses art methodologies in the creative research, the development of critical vocabulary and interpretations in the context of contemporary art making as well as some pedagogical concepts through lectures, group discussions, studio visits, visiting scholars and artists. The seminar provides a forum for peer critique and critical discussion on contemporary concepts related to the students' artistic research. (Open to M.F.A. students only.)

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- [IMSE: Areas of Specialization](#)
- [IMSE: Courses](#)

[Mechanical, Automotive, and Materials Engineering \(MAME\): Graduate Faculty](#)

- [MAME: Areas of Specialization](#)

**27-597. Graduate Seminar 2**

The seminar addresses art methodologies in the creative research, the development of critical vocabulary and interpretations in the context of contemporary art making as well as some pedagogical concepts through lectures, group discussions, studio visits, visiting scholars and artists. The seminar provides a forum for peer critique and critical discussion on contemporary concepts related to the students' artistic research. (Prerequisite: [27-596](#).) (Open to M.F.A. students only.)

**27-598. Graduate Seminar 3**

The seminar addresses art methodologies in the creative research, the development of critical vocabulary and interpretations in the context of contemporary art making as well as some pedagogical concepts through lectures, group discussions, studio visits, visiting scholars and artists. The seminar provides a forum for peer critique and critical discussion on contemporary concepts related to the students' artistic research. (Prerequisite: [27-597](#).) (Open to M.F.A. students only.)

**27-599. Graduate Seminar 4**

The seminar addresses art methodologies in the creative research, the development of critical vocabulary and interpretations in the context of contemporary art making as well as some pedagogical concepts through lectures, group discussions, studio visits, visiting scholars and artists. The seminar provides a forum for peer critique and critical discussion on contemporary concepts related to the students' artistic research. (Prerequisite: [27-598](#).) (Open to M.F.A. students only.)

**27-600. Special Project**

Directed individual artist project outside the Student's area of research. (May be repeated for credit.) (Has to be approved by the Graduate Committee and the Program Coordinator.)

**27-797. Thesis**

**ART HISTORY**

The specific topics in the Directed Individual Studies in Art History and the Art History Seminar will vary from year to year, depending upon the interests and needs of professors and students. All courses are three hours a week unless otherwise indicated.

**28-600. Directed Individual Studies**

This course involves examination of a particular problem in a specific area of interest in which a paper will be required. (May be repeated for credit with permission of the M.F.A. Program Coordinator.)

**28-656. Art History Seminar**

A proseminar course based on group encounters with particular studies in the history of art, which will be considered by means of readings, discussions, papers and museum trips. (May be repeated for credit with permission of the M.F.A. Program Coordinator.)

**28-660. Seminar on Contemporary Issues**

Current issues in art criticism and theory will be considered through reading, discussions, museum trips, guest lectures and research papers culminating in a seminar presentation by individual students on specific issues.

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## POSTGRADUATE AWARDS AND FINANCIAL AID

While there is no guarantee of financial support for individual students, the University of Windsor is committed to supporting and encouraging graduate studies. We are proud of our record of funding for graduate study, and with the active effort of current and potential graduate students we aim to sustain and enhance that record. Your host program and the Faculty of Graduate Studies and Research will be happy to assist you in the preparation of a strong and complete application for external funding.

Students wishing further information and applications on awards listed below should consult the Office of Graduate Studies and Research. As far as possible, information presented here is up-to-date at the time of calendar printing.

The five main sources of funding for graduate students at the University of Windsor are: (a) National (Canadian) and provincial (Ontario) scholarship awards (i) tenable at Windsor, or (ii) tenable elsewhere;

(b) Internal scholarships and bursaries;

(c) Internal graduate teaching assistantships and research assistantships; OSAP (Ontario Student Assistance Program), which generally provides loans;

(d) Discipline-specific or designated awards (awarded by departments or external donors).

A sixth group of awards are "Career Awards". These often seek to identify a researcher during the period of graduate studies, and to provide the individual with ongoing support over various formative stages of the career.

International students ("visa students") may also be eligible for scholarship and bursary support through programs based in or administered through their home country. We recommend that international students investigate potential sources of support prior to making an application to graduate school, noting that, in Ontario, tuition costs for international students are higher than those for Canadians and Canadian permanent residents (landed immigrants). International students are eligible to apply for all scholarships marked with an asterisk (\*) in the section that follows; unmarked scholarships are open only to Canadian citizens and Canadian permanent residents.

### National And Provincial Scholarship Awards

Generally speaking, a student should have an outstanding academic record to be in the running for these external awards. A grade average of A- in the most recent two years of study (undergraduate or graduate coursework) is usually necessary. Evidence of research capability, previous research awards (such as NSERC Undergraduate Student Research Awards), and experience of research will also strengthen an application. An application for an external scholarship will pass through several stages: first, the application must be submitted to the program by the appropriate deadline date,



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• [Mechanical, Automotive, and Materials Engineering \(MAME\): Graduate Faculty](#)

- [MAME: Areas of Specialization](#)

then applications may have to be ranked by a program committee. The applications will then be forwarded, along with the program's ranking, to the Dean of Graduate Studies and Research. A committee representing the Faculty of Graduate Studies and Research may then have to rank the applications overall. The Dean will forward recommendations and ranking to the external agency. These applications should be prepared with care. They must be typed, and complete. It is the responsibility of the student to ensure that the application package, including letters of reference, arrives on time. Applicants should check to see whether an award is renewable, or if it must be applied for anew on subsequent occasions.

*TENABLE AT WINDSOR, AWARDED EXTERNALLY*

### **Natural Sciences and Engineering Research Council of Canada Postgraduate Scholarships (NSERC)**

These scholarships are valued at up to \$17,500 for twelve months as of May 1, 2004 for students at the Master's level and up to \$35,000 for students at the doctoral level. These awards are open to students in the fields of natural sciences and engineering, and in some areas of psychology. At the time of application, an applicant must be either a Canadian citizen or a permanent resident. The deadline set by the University is usually early October. Further information may be obtained from the Office of Graduate Studies and Research, or at [www.nserc.ca](http://www.nserc.ca).

### **Social Sciences and Humanities Research Council of Canada Fellowships (SSHRC)**

Master's scholarships are valued at \$17,500 for one year, and Doctoral Fellowships are valued at \$20,000 per year, for up to four years. The awards are intended to develop research skills and to assist in the training of highly qualified personnel. Candidates must demonstrate a high standard of academic achievement in the social sciences and humanities. Applicants must be Canadian citizens or permanent residents of Canada. Further information may be obtained from the Office of Graduate Studies and Research or at [www.sshrc.ca](http://www.sshrc.ca). The deadline set by the University is usually early November.

### **Canadian Institutes of Health Research Canada Graduate Scholarships (CIHR)**

The Master's Awards administered by CIHR are intended to provide special recognition and support to students who are pursuing a Master's degree in a health related field in Canada. The awards are valued at \$17,500 for one year. Applicants must be either a Canadian citizen or a permanent resident. The deadline set by the University is usually early December. Further information may be obtained from the Office of Graduate Studies and Research, or at [www.cihr.ca](http://www.cihr.ca).

### **\* Ontario Graduate Scholarships (OGS)**

The Government of the Province of Ontario provides annually a number of postgraduate awards, valued for 2004-05 at up to \$15,000 per year, and tenable only at Ontario universities. The purpose of these awards is to encourage excellence in graduate studies in all disciplines. The minimum academic qualification is a four-year degree or its equivalent. Applicants should have an A- grade average or better in the most recent two years of study. The awards may be held for three consecutive terms and must be held for at least two consecutive terms. International students should note that while they are eligible to apply for OGS support, there is a very limited number of awards allocated to international students. Further information and application forms are available from the Office of Graduate Studies and Research. Deadline is normally in October.

### **Ontario Graduate Scholarships in Science and Technology (OGSST)**

The Government of the Province of Ontario supports excellence in graduate studies and technology through the Ontario Graduate Scholarships in Science and Technology (OGSST). These scholarships are worth up to \$15,000 per year for Master's and doctoral students. The allocation of scholarships is made according to each university's share of eligible graduate full-time Canadian (or Permanent Resident) students in

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History: Graduate Faculty

- History: Programs
- History: Courses

Faculty of Human Kinetics:  
Graduate Faculty

- Kinesiology: Programs
- Kinesiology: Courses

Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics:  
Programs
- Mathematics and Statistics:  
Courses

Faculty of Nursing: Graduate  
Faculty

- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

- Philosophy: Programs
- Philosophy: Courses

Physics: Graduate Faculty

- Physics: Programs
- Physics: Courses

Political Science: Graduate  
Faculty

- Political Science: Programs
- Political Science: Courses

Psychology: Graduate Faculty

- Psychology: Programs
- Psychology: Courses

Social Work: Graduate  
Faculty

- Social Work: Programs
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Sociology: Graduate Faculty

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Visual Arts: Graduate Faculty

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applied sciences, biological sciences, and physical sciences. Applicants must be Canadian citizens or permanent residents. The selection of winners is made by the University, and the deadline set by the University is usually early January. Further information may be obtained from the Office of Graduate Studies and Research.

#### \* **Delta Kappa Gamma World Fellowship**

The Delta Kappa Gamma Society international is an organization of professional women in the field of education. A fellowship for graduate study in the amount of \$4,000 U.S. is offered to a female graduate student, with a possibility of renewal for a second year. To be eligible, an applicant must be a female student from a country other than Canada or the United States, studying under a "student authorization", and accepted for admission to graduate studies. The student must be in a program which will lead to a teaching position in an educational institution (school, college, university, library, nursing institution). In addition, the applicant must plan to return to teach in her home country on completion of studies. Applications may be obtained from the International Students' Centre, and must be submitted by December 15.

#### \* **Datatel Scholars Foundation Scholarships**

Datatel Inc. awards scholarships to undergraduate and graduate students who attend or plan to attend a university selected from one of Datatel's client sites, the University of Windsor being one of these sites. Value of the scholarship determined by the cost of tuition. More information is available from the Office of Student Awards and Financial Aid, University of Windsor, or online at [www.datatel.com](http://www.datatel.com).

\* International students may apply for awards marked with an asterisk (\*).

#### *TENABLE ELSEWHERE AND AWARDED EXTERNALLY*

For listings of external awards available to graduate students, please visit [www.uwindsor.ca/grad](http://www.uwindsor.ca/grad).

#### **Internal Scholarships And Bursaries**

##### \* **University of Windsor Scholarships and Bursaries**

The following scholarships will be offered annually for full-time postgraduate study in any field at the University of Windsor. All students who apply for admission to graduate studies at Windsor and whose file of documentation is complete by January 31 will be considered by their program as potential candidates for the scholarship. Eligible continuing students will also be considered. The awards are competitive and open to university graduates with high standing. They may be held concurrently with a Graduate Assistantship and/or Research Assistantship.

##### \* **C. P. Crowley Scholarships**

These prestigious awards, established in honour of the founder and first Dean of the Faculty of Graduate Studies at this University, provide tuition for one calendar year beginning with Summer term in the year of the award, and an annual stipend of \$5,000.

##### **Strategic Scholarships**

These are special scholarships for Canadian citizens and permanent residents in areas designated by the University as of strategic importance to its mission. They provide tuition for one calendar year beginning with Summer term in the year of the award, and an annual stipend of \$4,000.

##### \* **University of Windsor Tuition Scholarships**

These awards provide full tuition for one calendar year beginning with Summer term in the year of the award.

##### \* **University of Windsor Visa Differential Fee (Partial Tuition) Bursaries**

Most international students are obliged by the Government of Ontario to pay a higher

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tuition rate than Canadians and landed immigrants. Award of a visa differential fee waiver reduces the fee required of an international student to the same level as that for Canadians and landed immigrants, for one calendar year beginning with Summer term in the year of the award.

#### **\* University of Windsor Summer Research Scholarships**

These awards are available to assist students in the completion of the thesis. They are terminal in that they are available only for the last summer of the research program. Students who have received this award are no longer eligible for further support from the University.

#### **Ian David Berks Memorial Scholarship**

This scholarship, value \$1,000, is awarded annually through the Faculty of Graduate Studies and Research. It is designated for a mature married student with family or other responsibilities, on the basis of academic merit. The recipient may be enrolled in any graduate program in the natural or applied sciences at the University of Windsor, and shall be a Canadian citizen or British subject with landed immigrant status in Canada. This award was established in 1990 by the family and friends of Ian David Berks. Eligible students should indicate their interest in being considered for this award to the program coordinator or chair of the graduate committee.

#### **John and Anne Cristescu Memorial Scholarship**

Value: \$5000. Awarded annually through the Faculty of Graduate Studies and Research, this scholarship is designated for a full-time student of Romanian descent (at least one parent must have been born in Romania), who is enrolled in any graduate program at the University of Windsor. This award was established in 1999 by the estate of Anne Cristescu. Eligible students should indicate their interest in being considered for this award to their program coordinator.

#### **Lois K. Smedick Graduate Award**

Value: \$500 to \$1000. Awarded annually, to a Canadian citizen or permanent resident, on the basis of financial need and scholastic ability. Established in 1996, by friends and colleagues of Dr. Lois K. Smedick, former Dean of Graduate Studies and Research, in recognition of her contribution to the Faculty of Graduate Studies and Research.

\* International students may apply for awards marked with an asterisk (\*).

### **Internal Graduate Assistantships**

#### **Graduate (Teaching) Assistantships**

The majority of financially eligible full-time graduate students who have been accepted to graduate studies at the University of Windsor are awarded graduate assistantships. The maximum Graduate Assistantship requires an average of ten hours of work a week for a total stipend of \$7,986 (Master's) or \$8,701 (Doctoral) for 2 terms (2003-04 rates). Partial assistantships with prorated stipends may be offered in some programs. For further details please consult the program concerned.

#### **Research Assistantships**

A number of programs also offer Research Assistantships supported by funds received by faculty from external granting agencies. Consult your program for further information.

### **External Loan Program (Ontario Student Assistance Program)**

Ontario Student Assistance Program (for Full-and Part-Time Students).

Students who are Canadian citizens or permanent residents, and who are residents of

Ontario, may apply for an award under the Ontario Student Assistance Program.

To receive an award a student must establish a need for assistance and be enrolled in a program which leads to a (graduate or undergraduate) degree, diploma or certificate.

Information on the Ontario Student Assistance Program (OSAP) is available from the Office of Student Awards and Financial Aid, which is located in the Neal Education Building Annex, or from the OSAP website (<http://osap.gov.on.ca>).

A separate section on graduate awards administered by departments follows below.

### **Internal, Disciplinary Or Designated Awards (Awarded By Programs)**

Students wishing further information on the awards listed below, conditions and deadlines should consult the program concerned.

#### *BIOLOGICAL SCIENCES*

##### **The Biology Club Award**

Value determined by interest earned on Trust Fund. The Biology Club is organized by the undergraduate and graduate students of Biological Sciences. Award is made annually to a student entering the M.Sc. program in Biological Sciences, on the basis of participation in departmental activities at the undergraduate level at the University of Windsor, financial need, and academic merit. This award may not be held concurrently with major awards such as NSERC and OGS. Application forms are available in the Biological Sciences office; deadline for submission to Biological Sciences, University of Windsor, is August 15.

##### **Dr. Joseph E.J. Habowsky Graduate Student Teaching Award**

Each academic year, an award may be made to an eligible graduate student in Biological Sciences who demonstrates enthusiasm, commitment and excellence in undergraduate teaching. Nominations may be made by a faculty member or graduate student by March 31 to the program coordinator. This Committee will evaluate and recommend an award to the Program Chair by April 15. This award was established by colleagues, friends and students to honour Dr. Joseph E.J. Habowsky, Professor of Biological Sciences, on the occasion of his retirement.

##### **Graduate Leadership Award for Excellence**

One or two awards may be made in any academic year to recognize graduate students who demonstrate an enthusiasm for science, excellence in research and teaching, and who display leadership in fostering a spirit of enquiry and community within Biological Sciences, the University or society at large. Nominations with supporting documents may be made by a faculty member or graduate student by March 31 to the program coordinator. Faculty members of this Committee will evaluate and recommend awards to the Program Chair by April 15. This award was established by Biological Sciences to acknowledge graduate student excellence.

#### *BUSINESS ADMINISTRATION*

##### **Odette Graduate Awards in Business Administration**

Value up to \$4,000. Scholarships are awarded annually to students in the M.B.A. program, on the basis of academic achievement and achievement on the Graduate Management Admission Test (GMAT). Details available from the Faculty of Business Administration.

##### **Daniel Bryan Memorial Bursary**

Value \$500. Awarded annually on the basis of academic standing to a full-time graduate student upon completion of the first year of the M.B.A. program. Established

in 1985 by Mrs. Daniel Bryan and sons.

#### **J. R. Calcott Memorial Fund**

Value \$500. Awarded annually to a student who has completed Year I of the M.B.A. program, entering Year II. Recipients must have a cumulative average of at least B and must have demonstrated a strong interest in the area of entrepreneurship either by high grades in related courses or by serious research. Applicants must submit a letter of application and resume to the Dean of the Faculty of Business Administration by September 30.

#### **Commerce Class of '55 Alumni Award**

Annual awards of \$100. for outstanding undergraduate and graduate students in business administration, awarded on the basis of combined academic excellence and extracurricular achievement. Further information is available from the Faculty of Business Administration. Deadline for submission of applications is September 30.

#### **Allied Domecq Scholarship**

Awarded to a graduate student entering the first year of the M.B.A. program. Further information is available from the Faculty of Business Administration.

#### **Denise Gervais Memorial Award**

Value \$700. Awarded annually to a female graduate of the Honours B.Comm. program upon entrance to the M.B.A. program. Special consideration for this award will be given to students who demonstrate leadership qualities, interest in Human Resources, Marketing, and involvement in undergraduate extra-curricular activities (i.e. Marketing and/or other teams). Established in 1994 by the family and friends in memory of Denise Gervais, B.Comm. (1991), M.B.A. (1992).

#### **Don Riley Award**

Value \$3,000. One award is to be made each year to an M.B.A Co-op student who is entering his/her 2nd year of study. The award is made based on academic standing, demonstrated community involvement, leadership ability and extracurricular accomplishments, and financial need. The award is named in memory of the late Donald Riley, M.B.A '90, who had an outstanding record of leadership and community involvement.

### *CHEMISTRY AND BIOCHEMISTRY*

#### **William A. Redmond Memorial Bursary**

Value \$1,000. Awarded annually on the basis of academic achievement to a student beginning a graduate program in Chemistry or Biochemistry at the University of Windsor. Established (1972) in memory of William A. Redmond, who obtained his doctorate in chemistry at the University of Windsor in 1964.

#### **Roger J. and Audrey M. Thibert Travel Award in Clinical Research**

Value \$500. Awarded annually to a student enrolled in Biochemistry, doing Clinical Research at the Master's, Doctoral, or Postdoctoral level. The award may not be held concurrently by students who have already received another major travel award. This award is to be given only to a second year student or beyond who is presenting a paper/poster at an annual meeting in Biochemistry or Clinical Chemistry. Apply to the Head of the Department of Chemistry and Biochemistry.

### *COMMUNICATION STUDIES*

#### **Meng-Rooney Memorial Bursary**

Value \$500. Awarded annually on the basis of scholarship and financial need to a graduate student in Communication Studies. Established in 1989 in honour of a Master's student from the People's Republic of China.

## *EDUCATION*

### **Gregory Blake Nephew Memorial Scholarship**

Value \$1,000. Awarded annually on the basis of scholarship and financial need to a full-time graduate student in the Faculty of Education. Established in 1981 by Dr. and Mrs. J. H. Nephew. Deadline: April 15, to the Dean of the Faculty of Education.

### **Erika Kuendiger Doctoral Scholarship**

Awarded to a student enrolled in the Ph.D. program in Education. Established in 2002, in memory of Dr. Erika Kuendiger, a professor in the Faculty of Education. Apply to the Dean of Education.

## *ELECTRICAL ENGINEERING*

### **Fredrick Atkins Graduate Awards**

Value \$2,000. Two annual awards, one for a doctoral student in the Department of Electrical Engineering on the basis of excellent performance in research and course work; and one award for a female Master's or doctoral student in Electrical Engineering on the basis of excellent performance in research and course work. If no female student is eligible, the award will be given to another student on the same basis. The two awards may not be held concurrently.

## *ENGLISH*

### **Commonwealth Graduate Prize**

Value \$100. Awarded annually on the basis of scholarship and financial need to an outstanding graduate student in English. The award was established by a grant-in-aid to English from the Commonwealth Scholarship and Fellowship Plan, on behalf of a Commonwealth Scholarship recipient.

## *HUMAN KINETICS*

### **Human Kinetics Alumni Awards**

Value \$100. Human Kinetics Alumni Awards are bestowed annually on the basis of scholarship. Specific areas of emphasis will be identified each year.

## *NURSING*

### **Dr. Sheila J. Cameron Graduate Award**

Value \$250. One or more entrance awards annually to M.Sc. students in nursing, on the basis of academic merit and leadership in nursing. All students accepted into the Master's program in nursing will be considered for the award. Established in 1996 by the School of Nursing alumni to honour the contribution of Dr. Sheila J. Cameron (Director of the School of Nursing from 1986-1995) to the development of graduate education.

### **Alumni Graduate Award**

Value \$250. Awarded annually to an M.Sc. student in nursing entering the final year of the program, on the basis of scholarship and leadership. Established in 1996 by the School of Nursing alumni.

### **Chadwell-Horsburgh Family Award for Graduate Students**

Value: \$250. Awarded annually to a part-time M.Sc. student in Nursing who is a resident of Essex County. To be awarded on the basis of the applicant's academic merit and potential for scholarship. Established in 2000 to honour two families who have made long-standing contributions to the community of Windsor-Essex.

### **Dr. Devamma Purushotham Neuroscience Bursary Award**

Awarded annually to a full-time graduate student in the Nursing program who

specializes in Neuroscience. Established in recognition of the outstanding, dedicated services and support that Dr. Purushotham has provided as a volunteer to persons with brain injury and their families.

**Dr. Janet N. Rosenbaum Graduate Practicum Scholarship**

Awarded annually to a full-time graduate student after successful completion of the first year of the Master of Science program in Nursing on the basis of academic record and leadership. Established in honour of the contributions of Janet N. Rosenbaum to the Faculty of Nursing.

**Dr. M. L. Drake Conference Travel Award**

Awarded annually to a student in the M.Sc. program in Nursing, on the basis of academic merit, who is presenting a paper/or attending a Nursing conference. This award is open to both full- and part-time students.

**Yvette Miller Memorial Graduate Nursing Award**

Awarded on the basis of academic merit and leadership to a graduate student after successful completion of the first year of graduate studies in Nursing. Established in memory of Yvette Miller, a 1985 graduate of the B.Sc.N. program.

*POLITICAL SCIENCE*

**Walter L. White Memorial Scholarship**

Value up to \$1,000. Awarded annually on the basis of scholarship and financial need to a graduate student in political science. Established in 1975 by friends and admirers of Walter L. White, first Head of the Department of Political Science and first Dean of Social Science.

*PSYCHOLOGY*

**Louis L. Odette Bursaries in Child Clinical Neuropsychology**

Two bursaries, one valued at \$3,000 and one valued at \$2,000, awarded to graduate students in Psychology specializing in Child Clinical Neuropsychology. Established in 1995 by Louis L. Odette.

*VISUAL ARTS*

**Warner-Lambert Award in Printmaking**

Value up to \$1,000. May be awarded annually on the basis of the graduate admissions portfolio, transcript and letters of recommendation to a first-term M.F.A. student majoring in printmaking. The award will not necessarily be assigned every year.

**Note to Donors:** The University of Windsor greatly appreciates the financial contributions of individuals, groups, and corporations who wish to support the creative and research enterprise of graduate study. Anyone who is interested in setting up a named award or trust fund to support scholarship or commemorate individuals or events is encouraged to contact the Dean of Graduate Studies and Research. Donors are often interested in directing their contribution to specific groups of students. It must be recognized that in accepting the administration of awards designated for specific groups, the University of Windsor is bound by provincial and federal human rights legislation not to deny eligibility to anyone on discriminatory grounds. The criteria of eligibility must therefore be expressed in accordance with these legislative principles. Ability to benefit is the primary criterion for the award of scholarships and may be measured by academic achievement or demonstrated potential of other kinds relevant to the particular award. Membership of a group that has been disadvantaged because of race, national or ethnic origin, colour, religion, sex, age or disability may also be a criterion of eligibility. It would be helpful if the donor could provide supporting evidence that a particular group is disadvantaged, so that such "positive discrimination" can be

justified to Federal and Provincial authorities.





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## GENERAL INFORMATION

### The University Library System

The University Library System is comprised of the Leddy Library, and the Paul Martin Law Library. The Leddy Library, the main library for the campus, provides access to the full range of library resources, including over two million volumes of print material, thousands of electronic journals, a comprehensive collection of government documents, a growing Special and Rare Book Collection, the Paul Vandall Map Collection, and the University Archives.

Twenty-three Librarians and fifty-plus Library staff work seven days a week providing assistance and support for Library users in their research and academic endeavours. The Library provides access to its resources, print and electronic, from over sixty computer workstations housed in the Library building, as well as from home or office through the Library Home Page at <http://www.uwindsor.ca/library/leddy>.

### Athletics & Recreational Services

The University of Windsor's program in Athletics and Recreational Services offers a full range of interuniversity athletics and campus recreation activities. Interuniversity varsity teams, nicknamed the Lancers, compete in the newly formed Ontario University Athletics conference (OUA). Nationally, Windsor is affiliated with the Canadian Interuniversity Athletic Union (CIAU). Varsity teams compete for berths at OUA conference and CIAU national championships, staged at different universities across the country.

The men's interuniversity program includes basketball, cross-country running, football, ice hockey, soccer, indoor track & field, and volleyball. Varsity sport club teams are available in Women's curling and rugby; and in men's curling, golf, and rugby. Women's interuniversity teams include basketball, cross-country running, ice hockey, soccer, indoor track & field, and volleyball. Regular conference schedules are supplemented by a non-conference schedule including games against opponents from different universities across Canada and the United States. If you are interested in trying out for a varsity team, you can contact the Athletics Office at (519) 253-3000, ext. 2437. Ask to speak with the coach of your particular sport, or plan to attend that team's opening meeting, usually held in late August or early September.

For those students who do not wish to compete in varsity athletics but are still interested in becoming involved, there are numerous opportunities available. For spectators, admission to all Lancer home events is free with a valid student ID card, and there are numerous part-time jobs as well. Students help organize behind-the-scenes aspects of home games, organize and publicize special events, even keep statistics and collect gate receipts. Positions as team managers and student athletic therapists are also available. The University of Windsor is home to the Green Shield Canada Sport Therapy Clinic, a state of the art sport injury facility.

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Participation in Campus Recreation provides more options for those not interested in varsity athletics. Instructional classes in campus recreation include weight training, fitness, learn-to-swim, martial arts, tai chi, and dance. If you enjoy recreational and competitive intramural sports, a challenging program with a variety of activities is available. Activities include volleyball, basketball, slo-pitch, badminton, floor or ice hockey, soccer, and innertube water polo. No prior experience or specific skill level is necessary. Different levels of competition allow novices and those with experience the opportunity to participate.

As with varsity athletics, there are also a number of part-time jobs available in Campus Recreation, ranging from referees and intramural coordinators to fitness and aquatic instructors. To join an intramural program or team, or to apply for a position with Campus Recreation, call (519) 253-3000, ext. 2449, or sign up in September when you arrive on campus.

You can visit our website at <http://www.uwindsor.ca/athletics>.

### Information Technology Services

Information Technology Services is in the University Computer Centre, located on the south end of the CAW Student Centre. Information Technology Services provides a full range of facilities and services for students, faculty and staff. The Helpdesk, Computing Consultants and Operation staff are located on the main floor of the building. The lower level houses the Computer Lab and the Computer Classroom.

The Computer Lab is open from 8:00 a.m. to 2:00 a.m., seven days a week, during the Fall and Winter terms. During the summer and Christmas holidays, the Lab operates on a shorter schedule. The Lab is always staffed by a Student Consultant to provide assistance.

The Servers typically used by students, namely the UNIX SGI server and Novell servers, operate from 8:00 a.m. to 6:00 a.m. They can be accessed from the Computer Lab and other locations on campus. The SGI can be accessed from home using the dial-up services.

The Helpdesk is staffed between 8:30 a.m. and 5:00 p.m. during working days. Consulting support is available during normal business hours. Documentation on various services is available from the HelpDesk.

A Userid is required to use the UNIX and other servers: students can activate their userid at a microcomputer located in the Computer Lab for this purpose; faculty and staff can obtain a userid by filling out a form indicating their employee number. The personal computers in the Computer Lab can be used by simply producing a student card.

### Facilities

The following is the list of major facilities available to students:

*UNIX Server (SGI):* The UNIX server can be accessed using X-terminals, microcomputers (with appropriate software) from various locations across campus and through via Telnet. Fortran, Java, IMSL, C, SPSS, SAS, SAS/GRAPH and MAPLE are some of the over 80 applications available on the server. The SGI is also used by students for e-mail.

*Computer Lab Facilities:* The Computer Lab has 73 microcomputers on a Student Novell network, 40 X-terminals accessing the SGI, two Macintosh computers and 8 ethernet laptop docking stations. The microcomputers access Corel WordPerfect and other popular software such as SPSS for Windows, MAPLE, CorelDraw, QuatroPro and

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History: Graduate Faculty

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- Kinesiology: Programs
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Mathematics and Statistics:  
Graduate Faculty

- Mathematics and Statistics: Programs
- Mathematics and Statistics: Courses

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- Nursing: Programs
- Nursing: Courses

Philosophy: Graduate Faculty

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Physics: Graduate Faculty

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Political Science: Graduate Faculty

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Psychology: Graduate Faculty

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Social Work: Graduate Faculty

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Sociology: Graduate Faculty

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Paradox. The X-terminals access the software on the SGI. The Macintosh computers run System 7 with Word and Excel software. There are dot matrix and laser printers available to all workstations.

*Dial-up Access:* Students can use our computing resources from home and residences using the student dial-up system for a nominal charge.

*Internet Access:* Students have access to many Internet services such as e-mail, WWW access, Telnet, FTP and many others. These are available from the Computer Lab, most microcomputers on campus, some residence buildings as well as off campus through the student dial-up service.

## Services

Information Technology Services offers the following services to students:

*Helpdesk:* Offers problem solving for computer related problems through telephone, e-mail or walk-in contact. Solutions requiring longer or multiple contacts will be referred to the Computing Consultants.

*Consulting:* Consulting is available on computing related issues for graduate students and faculty members. Undergraduate students can use this service for specialized, non-assignment related problems. Student Consultants are always available in the Computer Lab.

*Training:* Computing Consultants offer non-credit seminars and workshops on a variety of topics during the term. The seminars are open to all students at no cost. The schedules are posted in the Computer Lab and are published in the electronic "Daily News", the "Lance" and "Insight".

*Documentation:* An extensive HELP facility and on-line PUBLIC files are available on the WWW to provide detailed information and help. Information Technology Services publishes a bi-monthly newsletter called "Insight", which contains technical information for the active computer user. It is placed in the Computer Lab, at the HelpDesk and in other campus computing facilities. Handouts on various topics and services of interest to students are available at the Helpdesk.

*Databases:* Information Technology Services, in conjunction with Leddy Library, maintains a large collection of databases that are available for student and faculty research. These databases, available on the WWW by registered students and faculty, include the Canada Census, General Social Surveys, CANSIM and many others.

*SOCR:* Information Technology Services also works closely with SOCR ( Student Organized Computing Resources) which provides students with the opportunity to host their own WWW pages.

Further information is available at Information Technology Services' WWW site at: <http://www.uwindsor.ca/its>

## Counselling

For Academic Advising, Career Advising, Cooperative Education, Financial Counselling, Students with Special Needs, International Students, and Aboriginal Education Counselling, see "Educational Development Centre", 30.8.

For Medical Facilities, see "University Services", 30.7.

[General Information](#)

For Campus Ministry, see "University Services", 30.7.

[Fee Regulations and Schedule](#)

### **Psychological Services Centre**

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Located in two houses at 326 and 336 Sunset Avenue, the Psychological Services Centre provides confidential assistance to Windsor students in immediate distress and to those whose difficulties are of longer standing. We also seek to promote growth and personal enrichment. The staff includes two full-time and one part-time clinical psychologists, five doctoral-level psychology interns, and other graduate students from the Department of Psychology.

[Quick Links](#)

Methods of counselling can vary from individual sessions to group, couple, or family therapy. The Centre conducts both psychotherapy groups and topic-focused groups, such as stress management, eating disorders, interpersonal relationships, women's issues, and others as needs arise. Our staff also consults with faculty and staff in any department to assist them in helping students.

[Like our new Web site?](#)

Applications for service can be made in person at 326 Sunset Avenue. For additional information, call either 973-7012 or 253-3000, Ext. 7012. Hours are 8:30 a.m. to 12:00 noon, and 1:00 p.m. to 4:30 p.m., Monday through Friday. Services are free to students.

### **Human Rights Office**

The objective of the Human Rights Office is to create and promote an environment in which all members of the university community interact on the basis of mutual respect and which is harassment-free. The office deals with all forms of harassment, discrimination and issues of procedural, unfairness, employing various procedures, remedies and sanctions to settle disputes. The Human Rights Commissioner has been authorized by the university to investigate complaints and request person(s) to cooperate in investigations of complaints. Confidentiality is assured in all dealings with the Office.

The University of Windsor has a policy that prohibits harassment and discrimination on the basis of gender, race, sexual orientation, disability, ancestry, place of origin, citizenship, creed, age, marital status, receipt of public assistance and family status. Behaviour constituting a violation of the University policy and/or the Ontario Human Rights Code is considered to be a serious offense.

Complaints, concerns or questions should be directed to the Human Rights Office, 300 Sunset Ave., or call 253-4232, ext. 3400.

### **Office Of Student Recruitment**

Representatives from this office present information about the University of Windsor to prospective students. Liaison officers offer details with respect to undergraduate admission requirements, student awards and financial aid, residence, academic program particulars, first-year programs, student services, and campus life. Presentations are made to student groups, secondary school administrators, and parents.

This area is also responsible for conducting tours of the campus for individuals and groups. Tours include a guided walk through the campus and buildings, academic advising in the appropriate area when required, and visits to special areas as requested.

Special open house activities for prospective applicants are conducted through the year.

Those interested in the services of the Office of Student Recruitment should contact the office directly at 440 Sunset Avenue. For those from within the local calling area, the telephone number is 973-7014. Others may use our toll free number 1-800-864-2860. Information about special campus events for prospective students may be found at <http://prospectives.uwindsor.ca>. Tours may be booked at this site as well.

## **University Services**

University Services provides facilities, services, programs, and activities designed to meet the diverse needs of the campus community. In addition to the administration of specific student services departments, the Office of University Services facilitates liaison with student organizations, the general student body, and other sectors of the University.

## **Residence Accommodation**

The Residence Mission is to provide quality student housing in an environment that supports the academic and social needs of students. Living in residence provides students with convenient access to all campus resources and a clean and comfortable living environment while they complete their studies.

Residence Life staff are trained to offer a variety of programs and services which are designed to help students develop the skills necessary to improve their academic performance and adjust to their new environment. Programs on topics such as time management, study skills and exam preparation, communication skills, and diversity help students make a successful transition to university.

Secondary school students are guaranteed a place in residence if they are accepted to the University and submit their applications by the date specified. Residence scholarships are available to students who meet the criteria.

The University of Windsor operates six residences, four on campus and two located on the perimeter of the campus.

*The Quad* is comprised of four halls, Laurier, Macdonald, Cody, and Cartier. They are located on the south corner of the campus in close proximity to the main food service outlet, Café Chez Vanier. These buildings are co-ed and house primarily first-year students in double rooms.

*Electa Hall* is located adjacent to the Faculty of Law and one block from the Faculty of Education. This traditional-style, co-ed residence houses upper-year and graduate students in single rooms only. Room assignments are done on a first-come, first-served basis.

The facilities available in Cartier, Cody, Electa, Laurier, and Macdonald Halls include: a laundry room, kitchenettes on each floor, a storage room, access to a Front Desk for mail, keys, and information, and common lounges and study rooms on each floor.

*Clark Residence* is a 224-bed, townhouse-style residence located on Sunset Avenue at Walnut Street. The Tudor-style units house seven to ten students each in single and double bedrooms, full kitchens, bathrooms, living rooms, dining rooms, storage rooms, and balconies. A limited number of studio (single) and two-bedroom apartments are also available. The facilities in Clark Residence include: two laundry rooms, a storage room, access to a Front Desk for mail, keys, and information, and two common lounges/study areas.

All residence students are required to take a meal plan.

Residence tours can be arranged through the Office of Student Recruitment, and off-campus housing information is available from the University of Windsor Students' Alliance at Ext. 3600. The Office of Residence Services also operates sixty-eight off-campus houses for students, staff, and faculty.

All students who are interested in residence accommodation are encouraged to contact the Office of Residence Services at (519) 253-3000, Ext. 3279 or website: [www.uwindsor.ca](http://www.uwindsor.ca) or e-mail [sunset@uwindsor.ca](mailto:sunset@uwindsor.ca) for information on the application process, residence buildings, scholarships, residence houses, and/or residence life.

### **Catering Services**

Catering Conference Services assists students, faculty, and staff in planning their workshops, luncheons, dances, receptions, and banquets. All arrangements for meeting rooms and banquet rooms, liquor, food services, and the physical setups are made through this office. Another service offered by Catering and Conference Services is summer accommodation to non-registered students, alumni, and other visitors. Residence rooms and apartments are available.

For further information call (519) 253-4232, Ext. 3276 or 3277, or visit Room 12, Vanier Hall.

### **Document Imaging Centre**

The Document Imaging Centre provides same-day copying services to meet the printing needs of students, faculty, and staff on campus. Fast, low-priced photocopies, full-colour copies, a wide selection of résumé paper, overheads, and transparencies are available. Located in the lower level of Chrysler Hall Tower, the Document Services Centre is open Monday through Friday from 8:30 a.m. until 4:30 p.m.

For further information, contact the Document Services Centre at (519) 253-4232, Ext. 2013.

### **Word Processing and Desktop Publishing Services**

Word Processing and Desktop Publishing Services provides typesetting of manuscripts, résumés, cover letters, papers, posters, and flyers, offers laser printing from diskette with black and white or colour. Scanning services are also available in black and white or colour. Overhead production is available.

For further information, visit Word Processing and Desktop Publishing Services at 309 Chrysler Hall Tower, or call (519) 253-4232, Ext. 2100.

### **Food Services**

The dining program at the University of Windsor is designed with taste, nutrition, and convenience in mind. Five restaurants and two convenience stores are located on campus and serve both the resident student and the student living off campus. Campus meal plans are available to both residents and commuters.

Locations in Vanier Hall include the main dining room, Café Chez Vanier, the Quad Lounge, and the Mini Mart convenience store. The Marketplace and the Kiosk are located in the CAW Student Centre. Dividends, in the Faculty of Business Administration Building features the offerings of Tim Horton's. The Gavel, located in the Faculty of Law Building, offers "grab and go" items for nutrition on the run.

For further information regarding campus meal plans, please call Food and Hospitality

Services at (519) 253-4232, Ext. 3272.

### **The CAW Student Centre**

The CAW Student Centre is a focal point of campus activity. On the main floor of the building, the Information Desk provides a variety of services, including general campus information, processing of student I.D. cards for all full- and part-time students, locker rentals, and an off-campus housing directory. The Marketplace offers a complete variety of food items throughout the day.

In addition to a variety of meeting rooms that can be reserved by both campus and community groups, the CAW Student Centre also houses offices of the Students' Administrative Council (SAC), the Graduate Student Society (GSS), Womyn's Centre, the Organization of Part-time University Students (OPUS), Student Media Services, The Lance (student newspaper), CJAM (student radio), the Games Room, and the "Asylum" Pub. The CAW Student Centre is also home to Medical and Health Services, the SAC Used Bookstore, a pharmacy, and a travel agency, in addition to a variety of lounge and study areas. While hours of operation for various areas and services within the building vary, the CAW Student Centre itself is open 24 hours a day, seven days a week, throughout the Fall and Winter terms.

### **Marketing, Sales and Promotions**

The Marketing, Sales and Promotions Department provides a contact or liaison for students, staff, and faculty with all the services offered within the Division. Complete listings of services and hours of operation are available. Questions, comments, or concerns regarding any of the services may be brought to this office.

For further information, call (519) 254-4232, Ext. 3412 or 7065, visit Room 272, CAW Student Centre, or find it on the web at <http://www.uwindsor.ca> under University Services.

### **Medical and Health Services**

*Medical Office:* The University maintains an office, staffed by full-time and part-time physicians and nurses, who will counsel, examine, and advise students who have acute or chronic medical problems. In addition, they have a major interest in Health education and life-style choices, to help prevent later illness and to preserve optimum health throughout life. The medical office is located on the second floor, CAW Student Centre. Office. Hours are 0900 hrs. to 1700 hrs. daily, Monday to Friday.

*Ontario Health Insurance Plan:* This plan (OHIP) covers all in-patient and out-patient hospital and medical services, and is available free of charge to all Ontario residents. Each person now has an individual card, not a "family" card as in the past. Visa students are given an individual card for which they must apply in person with their Student Authorization and which is valid for the length of their visa.

Application forms may be obtained at the University Student Health Office, CAW Student Centre.

### **Bookstore**

For the convenience of students, the University maintains a Bookstore located at Wyandotte and Sunset (next to the Odette Faculty of Business Building), where textbooks, supplies and clothing may be purchased. Special orders are also taken.

The Bookstore is open year-round, from 8:30 a.m. to 4:30 p.m., Monday through Friday, and from 10:00 a.m. to 4:00 p.m. on Saturdays (except holiday weekends).

## *EXTENDED HOURS*

For the first two weeks of classes in September, the Bookstore is open until 8:00 p.m., Monday through Thursday, with regular hours on Friday;

For the first two weeks of classes in January, the Bookstore is open until 7:00 p.m., Monday through Thursday, with regular hours on Friday;

For the balance of September, October, January and February, the Bookstore remains open on Mondays until 7:00 p.m.;

For Intersession, the Bookstore is open until 7:00 p.m. for the first week of classes; for Summer Session, regular hours are observed.

The Campus Nook is open from 10:00 a.m. to 2:00 p.m., Monday to Friday, in the C.A.W. Student Centre.

## **Campus Ministry**

Although the University is non-sectarian in its support of campus religious life, it is aware of the importance of ethical and moral influences in the development of the individual. Assumption University, Iona College, and Canterbury College are affiliated or federated parts of the University of Windsor and are committed to providing services for all the students of the University. Students, therefore, have access to the spiritual counsel of chaplains representing various denominations.

## **Educational Development Centre**

Located on the first floor of Dillon Hall, the Academic Advisory Centre provides assistance to students through academic advising and student support programs. Academic advisors provide general information to all students, especially those who have not declared their academic major or who are considering changing it. Students who have already declared their major are directed to the appropriate department/which administers their program. Assistance is provided to all students who are experiencing academic difficulty and placed on academic probation.

Career counselling is also available in the Centre. All University students may take advantage of several interest tests to explore their academic, educational and vocational goals. Through this interest testing and workshops offered by the AAC, students have the opportunity of examining various academic and career options compatible with their scholarly and vocational goals and talents.

The Academic Advisory Centre, in conjunction with the Student Information Resource Centre (S.I.R.C.) offers a series of workshops on academic skills to assist students to become more effective and efficient learners. Topics include Improving Reading Skills, Effective Note Taking, Time Management, Exam Strategies, and Studying and Memory.

Through the Head Start program the Academic Advisory Centre also coordinates academic advising for all newly-admitted, first-year students and provides for them a comprehensive orientation to University life, thus facilitating their transition to a new learning environment.

A very effective network of over one hundred student volunteers form the Students Orienting Students (S.O.S.) Program in the A.A.C. These students assist the staff of the Centre in delivering services to the student community. S.O.S. members assist year-round in capacities such as orientation leaders, peer advisors, "Campus Match" mentors, and S.I.R.C. volunteers.



## **Academic Writing Centre**

For the student who experiences a degree of uncertainty with meeting the academic writing requirements at the University of Windsor, assistance and instruction is available from the Academic Writing Centre. The instruction provided is non-credit, individualized, and sequentially covers all elements of the essay writing process. An enrolled University of Windsor student may register at any time by telephoning 253-4232, Ext. 3405 or by stopping in the office located at 470 Sunset Avenue.

Upon student request, writing workshops, individual tutorials, and diagnostic assessments are readily available. Daily workshops, embracing grammar and mechanics, writing style, in addition to essay writing skills, are scheduled conveniently throughout each term. Appointments for tutorials are reserved for students in need of intensive instruction as indicated by the diagnostic assessment and/or the writing sample.

## **Co-op Education and Career Services**

The Office of Co-op Education & Student Placement's mission is to provide quality assistance and to facilitate the employment of students by offering programs, services, information, tools, resources, and guidance to students and new graduates engaged in career planning, co-op, and job search activities.

The Office coordinates and administers co-operative programs in Business (undergraduate and M.B.A.), Computer Science, Engineering, Earth Science, and Environmental Biology.

Career-related programs and services are offered through workshops and counselling in the areas of career exploration, resume writing, job search, and interview techniques. Special events featuring alumni and recruiters are offered throughout the year to provide career information and better prepare students for the job market.

A career information centre houses educational calendars, employment literature, directories, videotapes, reference books, and other resource materials.

Job descriptions for on- and off-campus, part-time, full-time, summer, overseas, and volunteer positions are posted on our job boards.

## **Program for Students with Special Needs**

The Special Needs Program facilitates the integration of students with special needs by providing individualized services and accommodations necessary to eliminate as much as possible the effect of a disability. The Program provides counselling, professor liaison, exam accommodation and contact with notetakers, interpreters, scribes, and mobility assistants. A computer and access technology facility has also been established which contains specialized equipment. Individual counselling prior to registration is strongly recommended, and students are invited to contact the Special Needs Coordinator (519-253-4232, Ext. 3298), whose office is located on the first floor of Dillon Hall, in the Office of Student Affairs.

## **Aboriginal Education Centre (Turtle Island)**

Located at 496 Sunset Avenue, the Aboriginal Education Counsellor provides an academic, social and cultural support system to students. The counsellor will liaise with various departments, s, and faculties and encourage participation in all workshops and activities that will result in improved study habits and personal satisfaction with campus life. For more information about the A.E.C., call 253-4232, Ext. 3465.

## **International Students' Centre**

Assistance, advice and information regarding orientation, general counselling, U.S. Visitor's Visa, Canadian Immigration matters (work visa, student authorizations, visitors' visas), and referral services can be obtained at the International Students' Centre on the first floor of Cody Hall and through the International Students' Advisor. The Centre provides a lounge for organizations clubs' functions and meetings, and houses the office of the International Students' Society (I.S.S.). For assistance from the International Students' Advisor, please visit the office or call 519-253-4232, Ext. 3901, or e-mail WUJI@uwindsor.ca.

### **Student Information Resource Centre (S.I.R.C.)**

Located on the second floor of the C.A.W. Student Centre, SIRC provides a central, user-friendly service that offers one-stop shopping for information and referrals to campus support services. In addition, SIRC offers STEPS (Skills to Enhance Personal Success Program) in conjunction with the Academic Advisory Centre, operates the Welcome Centre each September, and oversees information and programming for off-campus students.

### **Office of Student Awards and Financial Aid**

The Office of Student Awards administers all of the bursary, loans, and special project components of the Ontario Student Assistance Program (including the Canada Student Loans Plan). The office administers all of the University's undergraduate scholarships, bursaries, and other awards. An emergency loan fund for OSAP-eligible University of Windsor students is also coordinated through this office.

Information on undergraduate scholarships, bursaries and other awards may be obtained from the office, located in Room 122, Dillon Hall.

Graduate students wishing information on non-OSAP awards should consult the Office of Graduate Studies and Research.



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## FEE REGULATIONS AND SCHEDULE

The University reserves the right to make changes without prior notice in the various fee schedules, as well as changes in rules and regulations and the revision or cancellation of particular courses and programs. The acceptance of fees does not necessarily imply approval of registration.

The following regulations apply to all students.

### PAYMENT OF FEES

Fees are due and payable before the commencement of regular term classes. (see "Calendar of the Academic Year" for specific dates). As a convenience, students may pay their tuition fees at any time prior to the appropriate due date. It is the responsibility of the student to ensure that deadlines are met.

Cheques or other remittances must be made payable to The University of Windsor and must be received by the Cashier's Office prior to the due date. The student's name, identification number, address and telephone number should be recorded in the upper portion of the form of the remittance to ensure that the records are properly credited.

Students may pay their fees at any chartered bank in Canada by using a bank payment form available at the Cashier's Office. If a student has a grant and/or loan (*e.g.*, OSAP), the loan must be assigned to the University to pay the fees. Any known difference between the amount of the award and the fees must be paid on or before the due date.

Students who are unable to complete payment of fees by the prescribed due date must arrange a fee deferment. Daily interest charges may apply. Deferments are permitted under the following circumstances:

- (a) a student has evidence of having been awarded a Canada Student Loan or an Ontario Student Loan.
- (b) a student has evidence of having been awarded a scholarship, bursary or similar award, which may be used to pay the fees.

Students who are sponsored and require invoices to be sent for collection of fees must bring the appropriate documentation to the Accounts Receivable Office, 1st Floor, Chrysler Hall North.

#### Notes:

- 1) It is the responsibility of the student to accurately report his or her academic status and correctly calculate the amount owing to the University for fees and other charges. Where calculations are incorrect or full payment is not made, daily interest will be charged on balances outstanding after the payment due date. Students should check all calculations thoroughly.

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Any errors in a student's academic program, level, and status in Canada must be reported to the Office of the Registrar. Any errors which result in the incorrect calculation of fees owing do not relieve the student of the responsibility for payment of these fees. Students will be responsible for any additional charges incurred as a result of changes in their academic profile for all terms that are applicable.

2) It is the responsibility of the student paying his or her fees by cheque to ensure that sufficient funds are available to cover any cheques made payable to the University of Windsor. Cheques returned by the student's bank for any reason will incur return cheque penalties plus other penalties.

3) Every effort is made to process payments in a timely manner; however, cheques are valid for a period of six months and may be cashed at any time during that period.

### **OVERLOAD COURSE FEE**

Undergraduate students who enrol in a course overload as defined in 2.4.13 of the Undergraduate Calendar will be assessed an overload course fee.

### **INTEREST CHARGES ON OUTSTANDING ACCOUNTS**

A daily interest charge will be calculated on all outstanding accounts. The interest will be compounded monthly.

A student who has failed to comply with the above regulations may have his or her registration cancelled as of the date on which the unpaid fees were due.

### **NON-PAYMENT OF FEES AND CHARGES**

Information concerning academic results of any student who has an overdue debt owing to the University shall be withheld until the debt is settled. This includes transcripts, tuition tax receipts and diplomas. Overdue accounts which are not settled in a timely manner may be referred to an external collection agency as deemed necessary by the Cashiers Office.

Students who are graduating and who have an outstanding debt will be permitted to attend Convocation, but they will not receive their diplomas until all their debts are settled.

Any student who has an overdue debt owing to the University may not be permitted to re-register until the debt is settled in full by cash, certified cheque, debit card, a money order, bank draft, electronic back transfer. Students who are settling an overdue account who pay with a personal cheque will have the hold remain on their account for 30 days (45 days for foreign cheques and drafts) to ensure the cheque clears the bank. The hold may be lifted upon presentation of a copy of the front and back of the cancelled cheque.

A student who has not made a satisfactory fee arrangement by the appropriate fee payment due date (see above, 31.1.1) may be subject to cancellation of his/her registration. Students will be notified by mail of any cancellations due to non-payment using the most recent address available. Appropriate charges will be assessed effective the date of cancellation.

**Note:** Non-payment of fees does not automatically result in the cancellation of registration in a course or courses.

Any student whose registration has been cancelled for default of payment is required to apply for reinstatement of registration at the Office of the Registrar. If the application is

• MAME: Courses

approved, a \$50.00 reinstatement fee is added to any other assessable charges.

English: Graduate Faculty

Overdue accounts must be paid by cash, certified cheque, or money order.

• English: Programs

Any student who has an unresolved grievance concerning fees or other charges may present an explanatory letter with appropriate official documentation (e.g. doctor's notes, etc.) to the Credit Manager, Cashier's Office.

• English: Courses

### TUITION AND EDUCATION CREDIT CERTIFICATE (T2202A)

History: Graduate Faculty

A special certificate in a form acceptable to Revenue Canada authorities is required in order that the student may claim a tax credit for eligible tuition fees for income tax purposes. This certificate will be mailed out by February 28 to all students whose accounts were paid in full by December 31 of the previous year. It is the responsibility of students to ensure that their mailing addresses are correct on the Student Information System.

• History: Programs

### SCHOLARSHIPS

• History: Courses

Undergraduate scholarships and other awards paid to students through the Finance Office are usually credited to the student's account on the basis of one half payable in each term. A cheque for any balance owing to the student will be available to the student at the Cashier's Office.

Faculty of Human Kinetics:

October 31-First Instalment

Graduate Faculty

February 28-Second Instalment

• Kinesiology: Programs

### WITHDRAWAL AND REFUND POLICY

• Kinesiology: Courses

Graduate students who, for any reason, wish to withdraw from the University must notify, in writing, the Office of Graduate Studies and Research, as otherwise resumption of graduate study at this University may be difficult or impossible.

Mathematics and Statistics:

Full-time undergraduate students who intend to withdraw completely from the University are required to undergo an interview and complete the appropriate forms at the Office of Student Development and Support.

Graduate Faculty

Part-time undergraduate students who find it necessary to withdraw from a course or from the University entirely are required to notify the Registrar in person or by registered mail.

• Mathematics and Statistics:

Notice by telephone is not acceptable. Failure to attend classes does not constitute a withdrawal. Full refund will be given to part-time students enrolled in a course that has been cancelled by the University. Full- and part-time students withdrawing from regular courses during the periods indicated below will be assessed fees as indicated.

Programs

#### WITHDRAWAL DURING FALL OR WINTER TERM

• Mathematics and Statistics:

Week(s) One and Two

#### FEE PAYABLE

Courses

Week(s) Three through Nine

None

Faculty of Nursing: Graduate Faculty

After Week Nine

Partial Fees Payable

• Nursing: Programs

• Nursing: Courses

Philosophy: Graduate Faculty

Full fees for the appropriate program payable

• Philosophy: Programs

• Philosophy: Courses

Physics: Graduate Faculty

• Physics: Programs

• Physics: Courses

Political Science: Graduate Faculty

• Political Science: Programs

• Political Science: Courses

Psychology: Graduate Faculty

• Psychology: Programs

• Psychology: Courses

Social Work: Graduate Faculty

• Social Work: Programs

• Social Work: Courses

Sociology: Graduate Faculty

• Sociology: Programs

• Sociology: Courses

Visual Arts: Graduate Faculty

• Visual Arts: Programs

• Visual Arts: Courses

Postgraduate Awards and Financial Aid

[General Information](#)

Refunds resulting from withdrawals will be available on request.

[Fee Regulations and Schedule](#)

## **FREE TUITION FOR STUDENTS 60 YEARS OF AGE AND OVER**

[Back to List of Calendars](#)

The University of Windsor offers an incentive of free tuition and incidental fees for students sixty years of age and over. It is felt that people in this group might wish to avail themselves of the University facilities, not only for degree purposes, but perhaps for personal enrichment and the fuller utilization of their leisure time. If you feel that your needs can be served according to this program, we encourage and invite you to contact the Student Information Resource Centre. This applies to Canadian citizens or Permanent Residents of Canada only.

[Quick Links](#)

## **SCHEDULE OF FEES**

The Board of Governors reserves the right to make changes without notice in the published schedule of fees and charges if, in its opinion, circumstances so require. Any such changes will be reflected in the Self-Assessment form issued through the Cashier's Office before registration. It is the responsibility of the student to obtain this information.

The schedule of fees changes annually. Contact the Cashier's Office for information on the current schedule of fees, which outlines tuition, incidental, and other fees.

The following miscellaneous fees and charges are payable as incurred:

Undergraduate part-time studies application fee	\$25.00
Letter of Permission	\$27.00
Undergraduate change of course	\$5.00
Overload course	Part-time per course tuition fee
Special and supplemental exam (per course)	
Regular time, on campus	\$10.00
Outside regular time, on campus	\$20.00
Off campus	\$40.00
Evaluation of documents	\$40.00
Transcript of record	\$8.00
Duplicate T2202A	
Current year - First duplicate is free, each duplicate thereafter	\$3.00
Previous years	\$5.00
Late registration (full-time students)	\$30.00
Returned cheque charge	\$25.00 per cheque
Registration reinstatement	\$50.00
Application to graduate fee	
Before deadline	\$25.00
After deadline	\$45.00

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For information regarding residences, meal plan, residence deposits, deposit refund policies, and University houses, please contact the Office of Residence Services, Room 49, Vanier Hall, University of Windsor, Windsor Ontario, N9B 3P4, telephone 519-253-3000, ext. 3379 or 3380.