

Principal's Message

2008-09



Welcome to McGill!

For more than 185 years, McGill has distinguished itself as one of the world's great public universities, renowned for outstanding students, professors and alumni, for achievement in teaching and research, and for its distinctive international character.

As one of the top 12 universities in the world, McGill's defining strengths include its unwavering commitment to excellence, and a willingness to be judged by the highest standards. And by these standards, McGill has excelled far beyond any reasonable expectations. We have produced a disproportionate number of Nobel laureates and Rhodes scholars. Olympians, award-winning authors and musicians, astronauts, medical pioneers and world-famous leaders in all walks of life are counted among our alumni — remarkable individuals who have shaped our society and the course of history itself in profound ways.

As students you are at the core of all that we do. Your time at McGill offers more than an excellent education. It is a critical period of personal and intellectual discovery and growth, and one that will help shape your understanding of the world.

By choosing McGill, you are following in the footsteps of almost 200,000 living McGill alumni across the globe and making a commitment to excellence, as they did. And, while a lot is expected of you, McGill gives you the means to succeed. All of McGill's 21 faculties and professional schools strive to offer the best education possible. By joining the McGill community of scholars, you will experience the University's vibrant learning environment and active and diverse campus life, which support both academic progress and personal development. You will form lasting friendships with people from around the world.

Today's social, technological and medical challenges continue to inspire innovative approaches to research, teaching and learning. New cutting-edge facilities provide you with many state-of-the-art classrooms and laboratories. Likewise, McGill's professors thrive in this environment as they enjoy some of the highest research successes per fulltime professor in Canada, while dedicating themselves as well, to enrich your education with research. Our dedicated administrative and support staff's primary focus is to ensure that you have the necessary resources to respond effectively to academic challenges and to develop lifelong skills.

McGill University has been synonymous with first-class education and research since it was founded in 1821. We remain committed to your success.

A handwritten signature in black ink, which appears to read 'H. Blum'. The signature is fluid and cursive, written over a white background.

Professor Heather Munroe-Blum
Principal and Vice-Chancellor

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Enrolment Services

McGill University
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Published July 2008

Note: Not all courses are offered every year, and changes can be made after this calendar is printed. Always check the Class Schedule link at www.mcgill.ca/courses for the most up-to-date information on whether a course is offered.

McGill University reserves the right to make changes to the information contained in this publication - including correcting errors, altering fees, schedules of admission and credit requirements and revising or cancelling particular courses or programs - without prior notification.

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McGill

GRADUATE AND POSTDOCTORAL STUDIES CALENDAR 2008 - 2009

McGill University:
www.mcgill.ca

**Graduate and Postdoctoral
Studies Office**
www.mcgill.ca/gps

Admission:
www.mcgill.ca/applying/graduate

Registration:
www.mcgill.ca/minerva

**General Information, Regulations
and Research Guidelines 3**

**Graduate Fellowships
and Awards 59**

**Index of Academic Units
by Faculty. 117**

Academic Units 119

Index of Graduate Programs . . 459

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Dean's Welcome, page 5	
1. Graduate and Postdoctoral Studies Office, page 5	
1.1 Location, page 5	
1.2 Administrative Officers, page 5	
1.3 General Statement Concerning Higher Degrees, page 5	
2. Calendar of Dates 2008-2009, page 5	
3. Programs Offered, page 12	
3.1 Graduate Diplomas and Certificates, page 12	
3.2 Degrees, page 12	
3.3 Master's Degrees Offered, page 12	
3.4 Doctoral Degrees Offered, page 15	
3.5 Postdoctoral Research, page 16	
4. Program Requirements, page 16	
4.1 Master's Degrees, page 16	
4.1.1 Residence Requirements – Master's Degrees, page 16	
4.1.2 Course Work – Master's Degrees, page 16	
4.1.3 Research and Thesis – Master's Degrees, page 17	
4.1.4 Language Requirements – Master's Degrees, page 17	
4.2 Doctoral Degrees, page 17	
4.2.1 Residence Requirements – Doctoral, page 17	
4.2.2 Comprehensive Examinations – Doctoral, page 17	
4.2.3 Language Requirements – Doctoral, page 17	
4.2.4 Thesis – Doctoral, page 17	
4.2.5 Thesis Oral Examination – Doctoral, page 18	
4.3 <i>Ad Hoc</i> Programs (Thesis Option only), page 18	
4.4 <i>Ad Personam</i> Programs (Thesis Option only), page 18	
4.5 Course Work for Graduate Programs, Diplomas and Certificates, page 18	
5. Admission, page 18	
5.1 Application for Admission, page 18	
5.2 Admission Requirements (minimum requirements to be considered for admission), page 18	
5.3 Graduate Record Examination and Other Admission Tests, page 19	
5.4 Competency in English, page 19	
5.5 Admission to a Qualifying Program, page 19	
5.6 Admission to a Second Degree Program, page 19	
5.7 Admission to Two Degree Programs, page 19	
5.8 Admission to an <i>Ad Personam</i> Joint Program, page 19	
5.9 Admission to an <i>Ad Hoc</i> Program (Thesis), page 20	
5.10 Reinstatement and Admission of Former Students, page 20	
5.11 Deferral of Admission, page 20	
6. Regulations, page 20	
6.1 Categories of Students, page 20	
6.1.1 Full-time Students, page 20	
6.1.2 Half-time Students (Thesis programs), page 20	
6.1.3 Part-time Students, page 20	
6.1.4 Additional Session (Thesis Programs) and Non-Thesis Extension (Non-Thesis Programs) Students, page 20	
6.1.5 Qualifying Students, page 20	
6.1.6 Special Students, page 21	
6.1.7 Visiting Students, page 21	
6.1.8 Visiting Research Students, page 21	
6.1.9 Non-Resident Status, page 21	
6.1.10 Leave of Absence Status, page 21	
6.1.11 Medical Residents, page 21	
6.1.12 McGill Staff as Graduate Students, page 21	
6.1.13 Quebec Inter-University Transfer Agreement (IUT), page 22	
6.1.13.1 McGill Students, page 22	
6.1.13.2 Visiting IUT Students, page 22	
6.2 Registration, page 22	
6.2.1 Registration for Fall and Winter Terms (Including Additional Session and Non-Thesis Extension Students), page 22	
6.2.2 Fee Policies Related to Registration, page 23	
6.2.3 Summer Registration, page 23	
6.2.4 Courses taken in the Centre for Continuing Education, page 23	
6.2.5 Courses Which Cannot Be Taken for Credit in a Graduate Program Unless They Have Formally Been Approved for a Specific Program, page 23	
6.2.6 Registration for Two Degree Programs Concurrently, page 23	
6.2.7 Time Limitation, page 23	
6.2.8 Withdrawal from a Degree Program, page 24	
6.2.9 Late Registration, page 24	
6.3 Course Information, page 24	
6.3.1 Course Numbering, page 24	
6.3.2 Multi-term Courses, page 24	
6.3.3 Course Terminology, page 24	
6.3.4 Class Schedule and Course Catalog, page 25	
6.4 Summer Studies, page 25	
6.5 Course Change Period, page 25	
6.6 Auditing of Courses, page 25	
6.7 Regulations Concerning Withdrawal, page 25	
6.7.1 Regulations Concerning Course Withdrawal, page 25	
6.7.2 Regulations Concerning University Withdrawal, page 26	
6.7.3 Deadlines for University Withdrawal, page 26	
6.7.4 Consequences of University Withdrawal, page 26	
6.8 Grading and Grade Point Averages (GPA), page 26	
6.9 Verification of Student Record, page 27	
6.9.1 Unofficial Transcripts, page 27	
6.10 Changes to Student Records after Normal Deadlines, page 27	
6.10.1 Student Record Changes, page 27	
6.10.2 Registrar Deadlines, page 27	
6.10.3 Before Registrar Deadlines, page 27	
6.10.4 After Registrar Deadlines, page 27	
6.10.5 Fee Assessment Consequences, page 27	
6.10.6 Student's Citizenship and/or Immigration or Fee Exemption Status, page 27	
6.11 Failure Policy, page 27	
6.12 Language Policy, page 28	
6.13 Regulations Concerning Theses, page 28	
6.14 Graduation, page 28	
6.14.1 Apply to Graduate, page 28	
6.14.2 Graduation Approval Query, page 28	
6.14.3 Replacement Diploma, page 28	
6.14.4 Dean's Honour List, page 28	
6.15 Policy Concerning Access to Records, page 29	
6.16 Transcript of Academic Record, page 29	
6.16.1 Unofficial Transcripts, page 29	
6.16.2 Official Transcripts, page 29	
6.16.3 General Information, page 29	
6.16.4 Course Numbering on the Transcript, page 29	
6.17 Academic Integrity, page 29	
6.18 Legal Documents, page 30	
6.18.1 Why Do We Collect Legal Documents from You?, page 30	
6.18.2 What Documents Do We Need from You?, page 30	
6.18.3 Have We Received Your Documents?, page 30	
6.18.4 What Are the Consequences of Not Providing Your Documents?, page 31	
6.18.5 Where Do I Send my Documents?, page 31	
6.19 Identification (ID) Cards, page 31	
6.20 Name, page 32	
6.20.1 Legal Name, page 32	
6.20.2 Preferred First Name, page 32	
6.21 Verification of Name, page 32	
6.22 E-mail Communication, page 32	
6.23 Updating Personal Information, page 32	
6.24 Authorization, Acknowledgement and Consent, page 32	
6.25 Student Rights and Responsibilities, page 33	
6.26 Proper Use of Computing Facilities, page 33	
6.27 Non-Smoking Policy, page 33	
6.28 Health Professions - Immunization Requirement, page 33	
6.29 Health Insurance - International Students, page 33	
6.30 Health Insurance - Canadian Residents, page 33	
6.31 Special Medical Needs, page 33	
6.32 Minerva, page 33	
6.33 myMcGill, page 33	

7. Student Services and Information, page 33

- 7.1 Fellowships, Awards and Assistantships, page 33
- 7.2 Student Financial Assistance, page 34
- 7.3 International Students, page 34
- 7.4 Student Rights and Responsibilities, page 34
 - 7.4.1 Office of the Dean of Students, page 34
 - 7.4.2 Office of the Executive Director, Services for Students, page 35
- 7.5 Student Services – Downtown Campus, page 35
- 7.6 Student Services – Macdonald Campus, page 35
- 7.7 Residential Facilities, page 36
 - 7.7.1 University Residences – Downtown, page 36
 - 7.7.1.1 Dormitory-style Residences, page 36
 - 7.7.1.2 Apartment-style Residences, page 36
 - 7.7.1.3 Shared-facilities Houses, page 36
 - 7.7.1.4 Residence Fees, page 36
 - 7.7.1.5 Meal Plans, page 36
 - 7.7.1.6 Student Government, page 37
 - 7.7.2 University Residences – Macdonald Campus, page 37
 - 7.7.2.1 Residence Fees – Macdonald Campus, page 37
 - 7.7.2.2 Residence Occupancy – Macdonald Campus, page 37
 - 7.7.2.3 Facilities for Non-Resident Students – Macdonald Campus, page 37
 - 7.7.2.4 Student Parking – Macdonald Campus, page 37
- 7.8 Athletics, page 37
- 7.9 Ombudsperson for Students, page 37
- 7.10 Extra-Curricular Activities, page 38
- 7.11 Bookstore, page 38
- 7.12 Computer Store, page 38
- 7.13 Day Care, page 38

8. Fees and Expenses, page 38

- 8.1 Fee Information Booklet, page 38
- 8.2 Access to Fee Information, page 38
- 8.3 Tuition Fees, page 38
- 8.4 Documentation, page 39
- 8.5 Compulsory Fees (2007-2008 rates), page 39
- 8.6 Administrative Charges, page 39
- 8.7 Other Fees, page 40
- 8.8 Billings and Due Dates, page 40
 - 8.8.1 Guest Access on Minerva, page 40
- 8.9 Fees and Withdrawal from the University, page 40
 - 8.9.1 Fee Refund Deadlines, page 41
- 8.10 Other Policies Related to Fees, page 41
 - 8.10.1 Overdue Accounts, page 41
 - 8.10.2 Canceling Registration for Non-Payment, page 41
 - 8.10.3 Acceptance of Fees vs. Academic Standing, page 41
 - 8.10.4 Fees for Students in Two Programs, page 41
 - 8.10.5 Senior Citizens, page 41
 - 8.10.6 Québec Exchange (Inter-University Agreements), page 41
- 8.11 Deferred Fee Payment, page 41
 - 8.11.1 Students with Sponsors, page 41
 - 8.11.2 Students Receiving McGill Scholarships/Awards, page 42
 - 8.11.3 Students Receiving Government Aid, page 42
 - 8.11.4 Graduate Awards/Teaching Assistantships, page 42
- 8.12 Yearly Fees and Charges, page 42

9. Postdoctoral Research, page 43

- 9.1 Postdocs, page 43
- 9.2 Guidelines and Policy for Academic Units on Postdoctoral Education, page 43
- 9.3 Vacation Policy for Graduate Students and Postdocs, page 45
- 9.4 Leave of Absence for Health and Parental/Familial Reasons, page 45
- 9.5 Student Services - Downtown Campus, page 45
- 9.6 Student Services - MacDonald Campus, page 45

10. Graduate Studies Guidelines and Policies, page 45

- 10.1 Guidelines and Regulations for Academic Units on Graduate Student Advising and Supervision, page 45
- 10.2 Policy on Graduate Student Research Progress Tracking, page 46

- 10.3 Vacation Policy for Graduate Students and Postdocs, page 47
- 10.4 Ph.D. Comprehensives Policy, page 47
- 10.5 Graduate Studies Reread Policy, page 48
- 10.6 Health and Parental/Familial Leave of Absence Policy, page 49
- 10.7 Failure Policy, page 49

11. Resources for Study and Research, page 49

- 11.1 Libraries, page 49
- 11.2 University Archives, page 50
- 11.3 Museums, page 50
 - 11.3.1 Redpath Museum, page 50
 - 11.3.2 McCord Museum of Canadian History, page 50
 - 11.3.3 Lyman Entomological Museum and Research Laboratory, page 50
 - 11.3.4 Other Historical Collections, page 50

12. For your Information Technology (IT) needs, page 50

- 12.1 Logging In, page 51
- 12.2 myMcGill, page 51
 - 12.2.1 Browser compatibility, page 51
- 12.3 myCourses, page 51
- 12.4 E-mail, page 51
- 12.5 Online Student Directory, page 51
- 12.6 Getting Connected, page 51
- 12.7 Safe Computing, page 51
- 12.8 Need Help?, page 51
 - 12.8.1 Getting Help, page 51

13. Research Policy, Patents, Postdocs, Associates, Trainees, page 51

- 13.1 Policy on Research Ethics, page 51
- 13.2 Regulations on Research Policy, page 51
- 13.3 Policy on Student Involvement in Research, page 51
- 13.4 Guidelines for Research Involving Human Subjects, page 52
- 13.5 Guidelines for Research with Animal Subjects, page 53
- 13.6 Policy on Intellectual Property, page 54
- 13.7 Regulations Governing Conflicts of Interest in Proprietary Research, page 54
- 13.8 Safety in Field Work, page 54
- 13.9 Procedure to Obtain Research Support, page 55
- 13.10 Research Grants Office (RGO), page 55
- 13.11 Office of Technology Transfer (OTT), page 55
- 13.12 Office of International Research (OIR), page 55
- 13.13 Postdocs, page 56
- 13.14 Research Associates, page 56
- 13.15 Academic Trainees, page 56

14. Governance, page 56

- 14.1 Visitor, page 56
- 14.2 Board of Governors, page 56
- 14.3 Members of Senate, page 56

15. Administration, page 56

Important Information, Regulations and Policies

It is the responsibility of all graduate students to be aware of rules and regulations contained in this Calendar. In particular, attention is drawn to:

Deadlines, as indicated in the [Calendar of Dates 2008-2009, page 5](#).

[Reinstatement and Admission of Former Students, page 20](#).

[Time Limitation, page 23](#).

Dean's Welcome

To Graduate Students and Postdoctoral Fellows:
I am extremely pleased to welcome you to McGill University. With over 250 Doctoral and Master's degree programs, McGill is committed to providing world-class graduate education and postdoctoral training in a full range of academic disciplines and professions. The Graduate and Postdoctoral Studies Office (GPSO) works in collaboration with the Faculties and other administrative and academic units to deliver the very highest level of teaching and research across the University. The GPSO is responsible for the admission and registration of graduate students, disbursing graduate fellowships, supporting postdoctoral fellows, and facilitating the graduation process, including the examination of theses.

As a student-centered research institution, McGill places singular importance upon the quality of graduate education and postdoctoral training. As Associate Provost (Graduate Education), as well as Dean of Graduate and Postdoctoral Studies, I work closely with the central administration, Faculties, graduate students, professors, researchers, postdoctoral fellows, and staff to enhance the graduate and postdoctoral experience and provide a supportive, stimulating, and enriching academic environment. We welcome your input in further improving the graduate student experience and encourage you to bring your ideas forward (write to feedback.gps@mcgill.ca).

McGill is ranked as one of Canada's most intensive research universities and among the world's top 25. We recognize that these successes come not only from our outstanding faculty members, but also from the quality of our graduate students and postdoctoral fellows - a community into which we are very happy to welcome you.

I invite you to join us in advancing this heritage of excellence at McGill.

*Martin Kreiswirth, Ph.D.
Associate Provost (Graduate Education)
Dean, Graduate and Postdoctoral Studies*

1 Graduate and Postdoctoral Studies Office

1.1 Location

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Canada

Telephone: (514) 398-3990
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Website: www.mcgill.ca/gps

1.2 Administrative Officers

Martin Kreiswirth; B.A.(Hamilton), M.A.(Chic.), Ph.D.(Tor.)
**Associate Provost (Graduate Education) and
Dean (Graduate and Postdoctoral Studies)**

Heather Durham; M.Sc.(W. Ont.), Ph.D.(Alta.)
Associate Dean (Graduate and Postdoctoral Studies)

Meyer Nahon; B.Sc.(Qu.), M.Sc.(Tor.), Ph.D.(McG.), Eng.
(*Sabbatical Leave 2008-2009*)
Associate Dean (Graduate and Postdoctoral Studies)

Lisa deMena Travis; B.A.(Yale), Ph.D.(MIT)
**Interim Associate Dean (Graduate and Postdoctoral
Studies)**

Charlotte E. Légaré; B.Sc.(Montr.), M.Sc.(Sher.), M.B.A.(McG.)
Director (Graduate and Postdoctoral Studies)

Lissa B. Matyas; B.F.A., M.Sc.(C' dia.)
Director (Recruitment and Retention)

1.3 General Statement Concerning Higher Degrees

The Graduate and Postdoctoral Studies Office (GPSO) administers all programs leading to graduate diplomas, certificates and higher degrees. It is responsible for the admission of candidates, the supervision of their work and for recommending to Senate those who may receive the degrees, diplomas and certificates.

2 Calendar of Dates 2008-2009

Given in this section are the Graduate and Postdoctoral Studies Office key dates. The complete Calendar of Dates is available on the Web at www.mcgill.ca/student-records. The excerpt published herein was accurate as of February 2008. The information is subject to change and users are advised to verify important dates by checking the Web.

LEGENDS	
GPSO	Graduate and Postdoctoral Studies Office
Activity Codes:	
APP	Application
APPGRAD	Apply to graduate on Minerva
AWRD	Awards (including scholarships)
CONV	Convocation
DEF	Deferred - application and examination
EXAM	Examinations
EXCH	Exchange and Study Abroad Deadlines
EVENT	Event - reunion, carnival, presentation, etc.
FORM	Forms
HOLIDAY	Holiday
INFO	Information
LEC	Lecture
NOTE	Note to students
ORIENT	Orientation
REG	Registration
SUPP	Supplemental - application and examination
THES	Thesis
W	Course withdrawal
W--	University withdrawal

DATE	ACTIVITY CODE	ACTIVITY
March 2008		
Mar. 1, Sat.	APP	Deadline for application for September admission to most departments in the GPSO. (Many departments have earlier deadlines. Please verify with the individual department or on the Web at www.mcgill.ca/applying/graduate).
Mar. 1, Sat.	EXCH	Deadline for incoming exchange applications at the graduate level Fall term (September) start and Winter term (January) start. (Many departments have earlier deadlines. Please verify with individual department or at www.mcgill.ca/applying/graduate).

DATE	ACTIVITY CODE	ACTIVITY
Mar. 5, Wed.	APPGRAD	Deadline to apply to graduate on Minerva for all Undergraduate students and Graduate students in all non-thesis programs (certificates, diplomas, master's non-thesis) who expect to complete their program requirements at the end of the Winter 2008 term (Spring 2008 convocation).
Mar. 6, Thurs.	REG	Summer Term registration opens. Graduate students should confirm dates with individual departments.
Mar. 17, Mon.	NOTE	Class schedule on Minerva is available for Fall 2008 and Winter 2009 registration.
Mar. 17, Mon. to Apr. 13, Sun.	INFO	Online course evaluation period for Winter term: Evaluations available for completion on Mercury through Minerva.
Mar. 20, Thurs.	NOTE	The normal Thursday schedule of course activities is cancelled for March 20. In its place, all lectures, labs, conferences and other course-related activities that are cancelled on Monday, March 24 because of Easter Monday will be held on Thursday, March 20.
Mar. 21, Fri. to Mar. 24, Mon.	HOLIDAY	EASTER. No classes or exams. Administrative offices closed. Library hours to be announced.
Mar. 26, Wed.	APPGRAD	Deadline for all Undergraduate students and Graduate students in all non-thesis programs (certificates, diplomas, master's non-thesis) who expect to complete their program requirements at the end of the Summer 2008 term (Fall 2008 convocation) to apply to graduate on Minerva.
Mar. 27, Thurs.	REG	Registration for Fall 2008 and Winter 2009 using Minerva begins for all students entering the <u>graduating (U3/U4)</u> year of their program (excluding Law and courses offered by the Desautels Faculty of Management, except as noted below), and all students in Graduate degree programs, except for Continuing Education.

DATE	ACTIVITY CODE	ACTIVITY
April 2008		
Apr. 11, Fri.	INFO	Last day for the Winter 2008 term for students to request fee exemptions from and to submit legal documents for proof of Canadian citizenship and proof of Quebec residency to the Enrolment Services Office. Students in Medicine or Continuing Education should submit their documents directly to their Faculty Student Affairs office or the Centre for Continuing Education. Documents received after this date will be updated for the following term only.
Apr. 11, Fri.	LEC	Last day of lectures for Winter term.
Apr. 14, Mon. to Apr. 30, Wed.	EXAM	Examination period for Winter term and multi-term courses.
May 2008		
May 15, Thurs.	W	Deadline for Web withdrawing (grade of "W") from multi-term courses (D1/D2, N1/N2) that started in the Winter term 2008 and end in the Summer term or in the Fall term (with fee refund for Summer term).
	NOTE	Students in multi-term courses with course numbers ending in N1 and N2 only (started in the Winter, skip the Summer, are completed in the subsequent Fall term) may withdraw on Minerva until May 15 and following May 15 until the end of the Fall term course change period on September 16 (with full fee refund for the Fall term) by contacting their faculty Student Affairs Office.
May 15, Thurs.	W--	Deadline for newly-admitted students beginning their graduate thesis program in a Summer Term of Residence to withdraw from the University, with fee refund (less deposit or \$100 minimum charge).
May 19, Mon.	HOLIDAY	VICTORIA DAY. (Classes cancelled). Administrative offices closed.

DATE	ACTIVITY CODE	ACTIVITY
May 26, Mon.	CONV	10:00 Faculty of Law 14:00 Schulich School of Music 18:00 Centre for Continuing Education
	NOTE	For additional information regarding Convocation, please consult www.mcgill.ca/convocations
May 27, Tues.	CONV	10:00 Faculty of Education 14:00 Desautels Faculty of Management
May 28, Wed.	CONV	10:00 Faculty of Engineering 14:00 Health Sciences (Faculties of Medicine, Dentistry, and Schools of Nursing and Physical & Occupational Therapy)
May 29, Thurs.	CONV	10:00 Faculty of Science "A" 14:00 Faculty of Science "B"
May 30, Fri.	CONV	10:00 Faculty of Arts "A", Faculty of Religious Studies and B.A. & Sc. degrees 14:00 Faculty of Arts "B"
June 2008		
June 2, Mon.	CONV	14:00 Faculty of Agricultural and Environmental Sciences
June 2, Mon.	THES	Deadline to submit Doctoral theses with Nomination of Examiners forms to GPSO (Thesis Office) for students expecting to convocate in Fall 2008. Meeting this deadline does not guarantee a Fall graduation.
June 16, Mon.	THES	Deadline to submit Master's theses with Nomination of Examiners forms to GPSO (Thesis Office) for students expecting to convocate in Fall 2008. Meeting this deadline does not guarantee a Fall graduation.
June 24, Tues.	HOLIDAY	LA FÊTE NATIONALE DU QUÉBEC. (Classes cancelled). Administrative offices closed. Libraries closed.
July 2008		
July 1, Tues.	HOLIDAY	CANADA DAY. (Classes cancelled). Administrative offices closed. Libraries closed.
July 28, Mon.	REG	Last day for returning students in all faculties to register (except Continuing Education) without a late registration fee.

DATE	ACTIVITY CODE	ACTIVITY
July 29, Tues. to Sept. 2, Tues.	REG	Late registration and course change on Minerva for returning students in all faculties (except Continuing Education) with a \$50 late registration fee (\$20 for Special students and Graduate part-time students).
July 29, Tues. to Aug. 19, Tues.	IDCARD	Canadian students can avoid line-ups and get their ID cards early once they have registered. Visit Enrolment Services, James Administration Building, Room 205, from July 29 to August 19. Office hours are Monday to Thursday 9:00 a.m. to 5:00 p.m. and Fridays 10:00 a.m. to 5:00 p.m.
July 29, Tues. to Aug. 22, Fri.	IDCARD	New students can avoid line-ups and get their ID cards Monday to Thursday at Laird Hall, Room 106, from 9:00 a.m. to 3:30 p.m., and Friday from 9:00 a.m. to 12:00 p.m. Alternatively, they can sign up to get their ID Card during Orientation Week at www.mcgill.ca/macdonald/orientation .
August 2008		
Aug. 5, Tues. to Sept. 2, Tues.	REG	Registration using Minerva for all <u>newly-admitted</u> students in Graduate Studies.
Aug. 15, Fri.	INFO	Last day for the Summer 2008 term for students to request fee exemptions and to submit legal documents for proof of Canadian citizenship and proof of Quebec residency to the Enrolment Services Office. Students in Medicine or Continuing Education should submit their documents directly to their Faculty Student Affairs office or the Centre for Continuing Education. Documents received after this date will be updated for the following term only.
Aug. 15, Fri.	REG	Registration using Minerva begins for Fall term Continuing Education courses.
Aug. 20, Wed. to Aug. 29, Fri.	IDCARD	IDs at the Trotter Building Cafeteria from 9:00 a.m. to 5:00 p.m. Including Saturday, August 23 and Sunday, August 24.

DATE	ACTIVITY CODE	ACTIVITY
Aug. 25, Mon. to Aug. 29, Fri.	IDCARD	IDs at Laird Hall during "Discover Mac" week. Refer to Orientation schedule and Website www.mcgill.ca/macdonald for more details (closed Monday, September 1).
Aug. 25, Mon. to Aug. 29, Fri.	ORIENT	Orientation Week
Aug. 25, Mon. to Aug. 29, Fri.	ORIENT	" Discover Mac " – Faculty Orientation for all new students in the Faculty of Agricultural and Environmental Sciences. Refer to orientation schedule and Website www.mcgill.ca/macdonald/orientation for details.
Aug. 25, Mon. to Sept. 12, Fri.	ORIENT	Orientation Centre opens daily at 9:00 a.m., Brown Student Services Building, 2 nd floor, 3600 McTavish Street (closed weekends and Labour Day).
Aug. 25, Mon. to Sept. 16, Tues.	ORIENT	First-Year Resource Room opens daily (9:00 a.m. to 5:00 p.m.) Brown Student Services Building, Room 2100, 3600 McTavish Street (closed weekends and Labour Day).
Aug. 29, Fri.	REG	Deadline for cancellation of registration for the Fall term except Continuing Education. (Deposit is non-refundable for new students.)
Aug. 29, Fri.	THES	Registered students in 2007-2008 who have completed the residency in a thesis program and who submit their theses to GPSO (Thesis Office) on or before this date are not required to register for the 2008-2009 academic year. Students who have already registered for the year must ask the Graduate and Postdoctoral Studies Office, in writing, to delete their registration at the time of their thesis submission, by completing the "Request to Cancel Graduating Program Registration" form on the Web at www.mcgill.ca/gps/current/dates .
	NOTE	Students should not expect to graduate in Fall 2008, but must graduate by Fall 2009 (at the latest), otherwise, they must be reinstated and will be charged retroactive registration fees for all unregistered sessions up to and including the term in which they graduate.

DATE	ACTIVITY CODE	ACTIVITY
September 2008		
Sept. 1, Mon.	HOLIDAY	LABOUR DAY. (Classes cancelled). Administrative offices closed.
Sept. 2, Tues.	ORIENT	University Orientation for new graduate students in Thomson House, 3650 McTavish Street, either 11:00 a.m. to 12:00 noon, OR 3:00 p.m. to 4:00 p.m., OR 5:00 p.m. to 6:00 p.m.
Sept. 2, Tues.	REG	Deadline for new students to register without a late registration fee for all faculties and for returning students to register with a \$50 late fee (\$20 for Special Students and Graduate part-time students).
Sept. 2, Tues.	LEC NOTE	Lectures begin. The normal Tuesday schedule of course activities will be cancelled for December 2, 2008. In its place, all lectures, labs, conferences and other course-related activities that are normally held on Monday will be held on Tuesday, December 2, 2008 as well. This change in schedule is to make up for activities that will be cancelled on Monday, October 13 due to Thanksgiving Day.
Sept. 2, Tues.	AWRD	Start of external and internal graduate fellowship competitions for 2009-2010 funding. Graduate and final-year undergraduate students should enquire in their department and on the fellowships Website at www.mcgill.ca/gps/fellowships regarding information session schedules and application procedures and deadlines.
Sept. 3, Wed. to Sept. 16, Tues.	REG	Late registration period with \$100 late registration fee for all faculties; \$40 for Special Students and Graduate part-time students (\$25 late registration fee for Continuing Education students).
Sept. 4, Thurs.	ORIENT	University Orientation for new graduate students in Thomson House, 3650 McTavish Street, 3:00 p.m. to 4:00 p.m.
Sept. 4, Thurs.	ORIENT	University Orientation for new postdoctoral scholars in Thomson House, 3650 McTavish Street, 5:00 p.m. to 6:00 p.m.

DATE	ACTIVITY CODE	ACTIVITY
Sept. 16, Tues.	W	Deadline for Web withdrawing (grade of "W") from multi-term courses (D1/D2, N1/N2) that started in Summer 2008 (with fee refund for Fall term 2008).
	NOTE	Please note that students in multi-term courses with course numbers ending in N1 and N2 only (started in the Winter, skip the Summer, are completed in the subsequent Fall term) may withdraw on Minerva until May 15 and following May 15 until the end of the Fall term course change period on September 16 (with full fee refund for the Fall term) by contacting their faculty Student Affairs Office.
Sept. 16, Tues.	REG	Course Change (drop/add) deadline for Fall term and first part of multi-term courses starting in September 2008.
Sept. 19, Fri.	AWRD	Returning Master's and Doctoral level students should enquire of their departments or the GPSO (Graduate Fellowships and Awards) regarding precise deadlines for internal and external fellowship competitions; important deadlines normally fall during the months of October and November.
Sept. 21, Sun.	W/W--	Deadline to Web withdraw (grade of "W") or University Withdrawal (grade of "W--") with full fee refund (less \$100 minimum charge for returning students; less deposit or \$100 minimum charge for new students, in case of complete withdrawal from the University).
October 2008		
Oct. 6, Mon.	THES	Deadline for submission of doctoral theses with Nomination of Examiners forms to GPSO (Thesis Office) for students expecting to graduate in February 2009. Meeting this deadline does not guarantee a Winter graduation.

DATE	ACTIVITY CODE	ACTIVITY
Oct. 13, Mon.	HOLIDAY	THANKSGIVING DAY. (Classes cancelled). Administrative offices closed. Continuing Education evening classes will be re-scheduled.
	NOTE	The normal Tuesday schedule of course activities will be cancelled for December 2, 2008. In its place, all lectures, labs, conferences and other course-related activities that are normally held on Monday will be held on Tuesday, December 2, 2008 as well. This change in schedule is to make up for activities that are cancelled on Monday, October 13 due to Thanksgiving Day.
Oct. 16, Thurs. to Oct. 19, Sun.	EVENT	Homecoming 2008.
Oct. 18, Sat.	EVENT	Macdonald Campus Homecoming.
Oct. 19, Sun.	W/W--	Deadline for Web withdrawing (grade of "W") or University Withdrawal (grade of "W--") from Fall term 2008 courses and Continuing Education Fall term courses (with no fee refund).
Oct. 20, Mon.	THES	Deadline for submission of Master's theses with Nomination of Examiners forms to GPSO (Thesis Office) for students expecting to graduate in February 2009. Meeting this deadline does not guarantee a Winter graduation.
November 2008		
Nov. 6, Thurs. to Dec. 3, Wed.	INFO	Online course evaluation period for Fall term: Evaluations available for completion on Mercury through Minerva.
Nov. 14, Fri. (tentative)	CONV	10:00 Fall Convocation - AM Ceremony 14:00 Fall Convocation - PM Ceremony
December 2008		
Dec. 1, Mon.	APPGRAD	Deadline to apply to graduate on Minerva for all Undergraduate students and Graduate students in all non-thesis programs (certificates, diplomas [excluding Continuing Education] or master's non-thesis) who expect to complete their program requirements at the end of the Fall 2008 term (February 2009 graduation).

DATE	ACTIVITY CODE	ACTIVITY
Dec. 2, Tues.	INFO	Last day for the Fall 2008 term for students to request fee exemptions and to submit legal documents for proof of Canadian citizenship and proof of Quebec residency to the Enrolment Services Office. Students in Medicine or Continuing Education should submit their documents directly to their Faculty Student Affairs office or the Centre for Continuing Education. Documents received after this date will be updated for the following term only.
Dec. 2, Tues.	LEC	Last day of lectures.
Dec. 2, Tues.	NOTE	The normal Tuesday schedule of course activities is cancelled for December 2, 2008. In its place, all lectures, labs, conferences and other course-related activities that are normally held on Monday will be held on Tuesday, December 2, 2008 as well. This change in schedule is to make up for activities that were cancelled on Monday, October 13 due to Thanksgiving Day.
Dec. 2, Tues. to Jan. 5, Mon.	REG	Winter term registration period for new students. Individual departments set their own dates within this period.
Dec. 2, Tues.	IDCARD	New students can obtain their ID cards at Enrolment Services, James Admin Building, Room 205. Starting on this date, office hours are Monday to Thursday 9:00 a.m. to 5:00 p.m. and Fridays 10:00 a.m. to 5:00 p.m.
Dec. 3, Wed.	INFO	Study Day.
Dec. 4, Thurs. to Dec. 19, Fri.	EXAM	Examination period for Fall term courses, and multi-term courses.
Dec. 15, Mon.	REG	Registration begins for Winter term Continuing Education courses via Minerva.
Dec. 24, Wed.	NOTE	Administrative offices will be open on Wednesday, December 24.
Dec. 25, Thurs. to Jan. 2, Fri.	HOLIDAY	CHRISTMAS AND NEW YEAR'S. Administrative offices will be closed between December 25 and January 2 inclusive. Library hours available at Reference Desks.

DATE	ACTIVITY CODE	ACTIVITY
Dec. 31, Wed.	REG	Deadline for cancellation of registration for the Winter term except Continuing Education. (Deposit is non-refundable for new students.)
January 2009		
Jan. 1, Thurs.	HOLIDAY	NEW YEAR'S. Administrative offices will be closed. Library hours available at Reference Desks.
Jan. 2, Fri.	NOTE	Administrative offices will be closed on Friday, January 2 and will reopen on Monday, January 5.
Jan. 5, Mon.	REG	Deadline for new students to register for Winter term without a late registration fee for all faculties.
Jan. 5, Mon.	LEC NOTE	Winter term lectures begin. The normal Tuesday schedule of course activities will be cancelled for April 14, 2009. In its place, all lectures, labs, conferences and other course-related activities that are normally held on Fridays will be held on Tuesday, April 14, 2009 as well. This change in schedule is to make up for activities that will be cancelled on Friday, April 10, 2009 due to the Easter holiday.
Jan. 5, Mon. to Jan. 20, Tues.	ORIENT	First-Year Resource Room opens daily (9:00 a.m. to 5:00 p.m.) Brown Student Services Building, Room 2100, 3600 McTavish Street.
Jan. 5, Mon.	ORIENT	Faculty Orientation for new undergraduate and graduate students in the Faculty of Agricultural and Environmental Sciences (5:30 p.m. to 7:00 p.m.) Ceilidh, Centennial Center.
Jan. 6, Tues.	ORIENT	University Orientation for new graduate students (5:00 p.m. to 6:00 p.m., Ballroom in Thomson House).
Jan. 6, Tues. to Jan. 20, Tues.	REG	Late registration for new students with \$100 late registration fee for all faculties; \$40 for Special Students and Graduate part-time students. (\$25 late registration fee for Continuing Education students).
Jan. 8, Thurs.	ORIENT	University Orientation for new postdoctoral scholars (5:00 p.m. to 6:00 p.m., Ballroom in Thomson House).

DATE	ACTIVITY CODE	ACTIVITY
Jan. 19, Mon.	EXCH	Deadline for graduate students to apply for approval from the Graduate and Postgraduate Studies Office to participate in an exchange program during the 2009-2010 academic year.
Jan. 20, Tues.	REG	Final Course Add/Drop deadline for Winter term courses and N1/N2 courses in Graduate Studies. After this date students receive a mark of "W" (withdrawn).
Jan. 20, Tues.	W	Deadline for Web withdrawing (grade of "W") from multi-term courses that started in September 2008 (with fee refund for Winter term) .
Jan. 25, Sun.	W/W--	Deadline to Web withdraw (grade of "W") or University Withdrawal (grade of "W--") from Winter term 2009 courses with full fee refund. Returning students - less \$100 minimum charge in the case of complete withdrawal for students not registered in the Fall. New students - less deposit or \$100 minimum charge in case of complete withdrawal.
February 2009		
Feb. 2, Mon.	EXCH	Deadline for McGill students to submit supporting documentation for a student exchange application for the Fall 2009 and/or Winter 2010 term to Student Exchanges and Study Abroad Office.
Feb. 2, Mon.	THES	Deadline to submit doctoral theses with Nomination of Examiners forms to GPSO (Thesis Office) for students expecting to convocate in Spring 2009. Meeting this deadline does not guarantee a Spring graduation.
Feb. 5, Thurs.	EVENT	Macdonald College Founder's Day. (Sir William C. Macdonald born Feb. 10, 1831; died June 9, 1917.) Classes cancelled 10:00 a.m. to 1:00 p.m.
Feb. 15, Sun.	W/W--	Deadline for Web withdrawing (with no fee refund) (grade of "W") or University Withdrawal (grade of "W- -") from Winter 2009 and Winter term 2009 Cont. Ed courses.

DATE	ACTIVITY CODE	ACTIVITY
Feb. 16, Mon.	THES	Deadline to submit Master's theses with Nomination of Examiners forms to GPSO (Thesis Office) for students expecting to convocate in Spring 2009. Meeting this deadline does not guarantee a Spring graduation.
Feb. 22, Sun. to Feb. 28, Sat.	BREAK	STUDY BREAK. (Classes cancelled).
March 2009		
Mar. 1, Sun.	APP	Deadline for applications for September admission to most departments for Graduate Studies. (Many departments have earlier deadlines. Please verify this date with the individual department or on the Web at www.mcgill.ca/applying/graduate .)
Mar. 19, Thurs. to Apr. 14, Tues.	INFO	Online course evaluation period for Winter term: Evaluations available for completion on Mercury through Minerva.
April 2009		
Apr. 10, Fri. to Apr. 13, Mon.	HOLIDAY	EASTER. No classes or exams. Administrative offices closed. Library hours to be announced.
Apr. 14, Tues.	INFO	Last day for the Winter 2009 term for students to request fee exemptions and to submit legal documents for proof of Canadian citizenship and proof of Quebec residency to the Enrolment Services Office. Students in Medicine or Continuing Education should submit their documents directly to their Faculty Student Affairs office or the Centre for Continuing Education. Documents received after this date will be updated for the following term only.
Apr. 14, Tues.	LEC	Last day of lectures for Winter term.
Apr. 14, Tues.	NOTE	The normal Tuesday schedule of course activities is cancelled for April 14, 2009. In its place, all lectures, labs, conferences and other course-related activities that are normally held on Fridays will be held on Tuesday, April 14, 2009 as well. This change in schedule is to make up for activities that were cancelled on Friday, April 10, 2009 due to the Easter holiday.
Apr. 15, Wed. to Apr. 30, Thurs.	EXAM	Examination period for Winter term and multi-term courses.

DATE	ACTIVITY CODE	ACTIVITY
May 2009		
May 15, Fri.	W	Deadline for Web withdrawing (grade of "W") from multi-term courses (D1/D2, N1/N2) that started in the Winter term 2009 and end in the Summer term 2009 or in the Fall term 2009 (with fee refund for Summer term 2009).
May 15, Fri.	W--	Deadline for newly-admitted students beginning their graduate thesis program in a Summer Term of Residence to withdraw from the University, with fee refund (less deposit or \$100 minimum charge).
May 18, Mon.	HOLIDAY	VICTORIA DAY. (Classes cancelled). Administrative offices closed.
June 2009		
TBA	CONV	Spring 2009 Convocation
June 24, Wed.	HOLIDAY	LA FÊTE NATIONALE DU QUÉBEC. (Classes cancelled). Administrative offices closed. Libraries closed.
July 2009		
July 1, Wed.	HOLIDAY	CANADA DAY. (Classes cancelled). Administrative offices closed. Libraries closed.
August 2009		
Aug. 15, Sat.	INFO	Last day for students to request fee exemptions and to submit legal documents for proof of Canadian citizenship and proof of Quebec residency to the Enrolment Services Office for the Summer 2009 term. Students in Medicine or Continuing Education should submit their documents directly to their Faculty Student Affairs office or the Centre for Continuing Education. Documents received after this date will be updated for the following term only.

Epidemiology and Biostatistics
 Housing
 Islamic Studies
 Library and Information Studies
 Mining Engineering
 Nursing
 Public Accountancy (C.A.)
 Registered Dietician Credentialing (R.D.)
 School and Applied Child Psychology (post-Ph.D.)
 Surgical Health Care Research

These programs consist of at least two terms of full-time study or the equivalent.

Graduate Certificates are offered in:

Assessing Driving Capabilities
 Air and Space Law
 Bioresource Engineering (IWRM)
 Biotechnology
 Comparative Law
 Educational Leadership 1
 Educational Leadership 2
 Library and Information Studies
 Post-M.B.A.
 Teaching English as a Second Language

All graduate regulations apply to graduate diploma and certificate candidates.

3.2 Degrees

Two categories of programs lead to higher degrees at McGill University, Master's programs and Doctoral programs.

The following degrees are offered:

Master of Architecture (M.Arch.)
 Master of Arts (M.A.)
 Master of Business Administration (M.B.A.)
 Joint program: Master of Business Administration (M.B.A.) with integrated Bachelor of Civil Law (B.C.L.) / Bachelor of Laws (L.L.B.)
 Concurrent Master of Business Administration with Doctor of Medicine/ Master of Surgery (M.B.A. with M.D.,C.M.)
 Master of Civil Law (M.C.L.)
 Master of Education (M.Ed.)
 Master of Engineering (M.Eng.)
 Master of Laws (LL.M.)
 Master of Library and Information Studies (M.L.I.S.)
 Master of Management (M.M.)
 Master of Music (M.Mus.)
 Master of Sacred Theology (S.T.M.)
 Master of Science (M.Sc.)
 Master of Science, Applied (M.Sc.A.)
 Master of Social Work (M.S.W.)
 Joint program: Master of Social Work (M.S.W.) with integrated Bachelor of Civil Law (B.C.L.) / Bachelor of Laws (L.L.B.)
 Master of Urban Planning (M.U.P.)
 Doctor of Civil Law (D.C.L.)
 Doctor of Music (D.Mus.)
 Doctor of Philosophy (Ph.D.)

3 Programs Offered

3.1 Graduate Diplomas and Certificates

Graduate diplomas and graduate certificates are programs of study under the academic supervision of the Graduate and Post-doctoral Studies Office. They have as a prerequisite an undergraduate degree in the same discipline.

McGill University offers other diploma and certificate programs under the supervision of the relevant faculties and their Calendars should be consulted for further details.

Graduate Diplomas are offered in:

Clinical Research (Experimental Medicine)

3.3 Master's Degrees Offered

Master of Architecture Degree

M.Arch. programs offered:

M.Arch. (professional degree) (Non-Thesis)
 M.Arch. (post-professional degree) (Non-Thesis)
 Instruction for the M.Arch. (post-professional degree) is given in the following fields of specialization:
 Architectural History and Theory
 Housing (which includes Affordable Homes, Domestic Environments, Minimum Cost Housing and Urban Design).

Prerequisites:

M.Arch. (professional degree) – McGill B.Sc.(Arch.) degree, or equivalent;

M.Arch. (post-professional degree) – an M.Arch. (professional degree) or equivalent professional degree.

See Architecture.

Master of Arts Degree

Programs leading to the degree of Master of Arts are offered in the following areas:

- Anthropology (Thesis and Non-Thesis)
 - Development Studies
 - Environment
 - Gender and Women's Studies
 - Medical Anthropology
- Art History (Non-Thesis)
 - Gender and Women's Studies (Non-Thesis)
- Classics (Thesis and Non-Thesis)
- Communication Studies (Thesis and Non-Thesis)
 - Gender and Women's Studies
- Economics (Thesis and Non-Thesis)
 - Development Studies (Non-Thesis)
 - Social Statistics (Non-Thesis)
- Education (Thesis and Non-Thesis)
- English (Thesis and Non-Thesis)
- French (Thesis and Non-Thesis)
 - Gender and Women's Studies
- Geography
 - Development Studies
 - Environment
 - Gender and Women's Studies
 - Neotropical Environment
 - Social Statistics
- German (Thesis and Non-Thesis)
- Hispanic Studies (Thesis and Non-Thesis)
- History (Thesis and Non-Thesis)
 - Development Studies (Thesis and Non-Thesis)
 - European Studies (Thesis and Non-Thesis)
 - Gender and Women's Studies (Thesis and Non-Thesis)
 - History of Medicine (Non-Thesis)
- Islamic Studies
- Italian (Thesis and Non-Thesis)
- Jewish Studies (Thesis and Non-Thesis)
- Kinesiology and Physical Education (Thesis and Non-Thesis)
- Linguistics (Non-Thesis)
- Mathematics and Statistics (Thesis and Non-Thesis)
- Music (Thesis and Non-Thesis)
- Philosophy
 - Bioethics
- Political Science (Thesis and Non-Thesis)
 - Development Studies (Thesis and Non-Thesis)
 - European Studies (Thesis and Non-Thesis)
 - Gender and Women's Studies (Non-Thesis)
 - Neotropical Environment (Thesis and Non-Thesis)
 - Social Statistics (Non-Thesis)
- Psychology
- Religious Studies (Thesis and Non-Thesis)
 - Bioethics
- Russian
- Sociology (Thesis and Non-Thesis)
 - Development Studies (Thesis and Non-Thesis)
 - Environment
 - Gender and Women's Studies (Thesis and Non-Thesis)
 - Medical Sociology (Thesis and Non-Thesis)
 - Social Statistics (Non-Thesis)
 - Neotropical Environment

Prerequisites:

Bachelor of Arts in the subject selected for graduate work. See appropriate unit.

Master of Business Administration Degree

A program leading to the degree of Master of Business Administration (M.B.A.) is offered in the following concentrations:

- Finance
- Global Leadership
- Marketing
- Technology and Innovation Management

An EMBA is also offered (joint with HEC).

Prerequisites:

An undergraduate degree from an approved university. See Management.

Special programs:

- M.B.A. with M.D., C.M.,
- M.B.A. with B.C.L. and L.L.B.,
- Master of Manufacturing Management (see Management and Mechanical Engineering).

Master's Degrees in Education

Three types of Master's degrees are offered:

M.A. (Thesis and Non-Thesis), M.Ed. (Non-Thesis) and M.Sc. (Thesis and Non-Thesis).

The M.A. may be taken in the following areas:

- Counselling Psychology (Thesis and Non-Thesis)
- Culture and Values in Education (Thesis, Non-Thesis and Non-Thesis Coursework)
 - Gender and Women's Studies (Thesis and Non-Thesis)
- Curriculum Studies (Thesis, Non-Thesis and Non-Thesis Coursework)
 - Gender and Women's Studies (Thesis and Non-Thesis)
- Educational Psychology (Thesis and Non-Thesis)
- Educational Leadership (Thesis, Non-Thesis and Non-Thesis Coursework)
 - Gender and Women's Studies (Thesis and Non-Thesis)
- Kinesiology and Physical Education (Thesis and Non-Thesis)
- Second Language Education (Thesis and Non-Thesis)
 - Gender and Women's Studies

The M.Ed. may be taken in the following area:

- Educational Psychology

The M.Sc. may be taken in the following area:

- Kinesiology and Physical Education (Thesis and Non-Thesis)

Prerequisites:

A Bachelor's degree with specialization related to the subject chosen for graduate work, plus a Permanent Quebec Teaching Diploma or its equivalent for some of the above degrees. See appropriate department.

Master's Degree in Engineering

Programs leading to the degree of Master of Engineering are offered in the following areas:

- Aerospace Engineering (Project)
- Biomedical Engineering
- Bioinformatics
- Chemical Engineering (Thesis and Project)
 - Environmental Engineering (Project)
- Civil Engineering and Applied Mechanics (Thesis and Project)
 - Environmental Engineering (Project)
- Electrical Engineering (Thesis and Project)
 - Computational Science and Engineering
- Mechanical Engineering (Thesis and Project)
 - Computational Science and Engineering
- Mining and Materials Engineering (Thesis and Non-Thesis)
 - Environmental Engineering (Non-Thesis)
 - Mining (Non-Thesis)
 - Metals and Materials (Non-Thesis)

Other degrees:

Master of Management (M.M.) is offered in Manufacturing Management (see Department of Mechanical Engineering and Faculty of Management).

Master of Science (M.Sc.) is offered in Chemical Engineering, Civil Engineering, Mechanical Engineering, and Mining and Materials.

Prerequisites:

Bachelor of Engineering or equivalent, with specialization appropriate for the subject selected for graduate study. See appropriate department.

Master's Degrees in Law

The degree of Master of Laws is offered in:

Law (Thesis and Non-Thesis)

Bioethics

Comparative Law (Thesis and Non-Thesis)

Environment (Thesis and Non-Thesis)

European Studies

Air and Space Law (Thesis and Non-Thesis)

Prerequisites:

An acceptable degree in Law or equivalent qualifications. See Law.

Master of Library and Information Studies Degree

The Graduate School of Library and Information Studies offers a postgraduate professional program in librarianship. Two years of full-time study or the equivalent are required.

Prerequisites:

At least a Bachelor's degree from a recognized university. See Library and Information Studies.

Master's Degrees in Music

Programs leading to the degrees of Master of Arts and Master of Music are offered in the Faculty of Music.

The M.A. may be taken in:

Music Technology

Musicology (Thesis and Non-Thesis)

Music Education (Thesis and Non-Thesis)

Theory (Thesis and Non-Thesis)

The M.Mus. may be taken in:

Composition

Performance (various options) (Non-Thesis)

Sound Recording (Non-Thesis)

Applicants to the Performance program are required to pass auditions in their speciality.

Prerequisites:

Bachelor of Music or Bachelor of Arts with concentration in the area selected for graduate study. See Music.

Master's Degrees in Nursing

Two types of Master's degrees are offered: Master of Science (Applied) and Master of Science (with thesis). These two-year programs are designed to prepare clinicians and researchers for the expanding function of nursing within the health care delivery system.

Prerequisites:

Preparation in nursing comparable to the Bachelor's degree offered at McGill and accomplishment and development as a nurse. A current nursing registration is required. Non-nurses holding a bachelor's degree comparable to a B.Sc. or B.A. program offered at McGill may be admitted to a Qualifying Program. See Nursing.

Master's Degrees in Religious Studies

A program leading to the degree of Sanctae Theologiae Magister (S.T.M.) is given in the Faculty of Religious Studies. This degree is primarily for those who intend to enter the ministry of the Christian Church or another religious institution, or to proceed to teaching in schools. A Master of Arts program (thesis and non-thesis) is also available.

Prerequisites:

B.A. with specialization in religious studies or theology. See Religious Studies.

Master of Science Degree

Programs leading to the degree of Master of Science are provided in the following areas:

Agricultural Economics

Animal Science

Atmospheric and Oceanic Sciences

Computational Science and Engineering

Environment

Biochemistry

Bioinformatics

Chemical Biology

Biology

Bioinformatics

Environment

Neotropical Environment

Bioresource Engineering

Environment

Integrated Water Resource Management (Non-Thesis)

Neotropical Environment

Cell Biology and Anatomy

Chemical Engineering

Chemistry

Chemical Biology

Civil Engineering and Applied Mechanics

Communication Sciences and Disorders

Computer Science (Thesis and Non-Thesis)

Bioinformatics

Computational Science and Engineering

Dental Science (Thesis and Non-Thesis)

Oral and Maxillofacial Surgery

Earth and Planetary Sciences

Environment

Entomology

Environment

Neotropical Environment

Epidemiology and Biostatistics (Thesis and Non-Thesis)

Food Science and Agricultural Chemistry (Thesis and Non-Thesis)

Geography

Environment

Neotropical Environment

Genetic Counselling (Non-Thesis)

Human Genetics

Bioinformatics

Human Nutrition

Kinesiology and Physical Education (Thesis and Non-Thesis)

Mathematics and Statistics (Thesis and Non-Thesis)

Bioinformatics

Computational Science and Engineering

Mechanical Engineering

Medical Radiation Physics

Medicine, Experimental

Bioethics

Environment

Microbiology and Immunology

Microbiology (Macdonald Campus)

Environment

Mining and Materials Engineering

Neuroscience

Nursing

Otolaryngology

Parasitology

Bioinformatics

Environment

Pathology

Pharmacology and Therapeutics

Chemical Biology

Physics

Physiology

Bioinformatics

Plant Science

Bioinformatics

Environment
 Neotropical Environment
 Psychiatry
 Psychology
 Rehabilitation Science (Thesis and Non-Thesis)
 Renewable Resources
 Environment
 Environmental Assessment (Non-Thesis)
 Neotropical Environment
 Surgery, Experimental

Prerequisites:

Bachelor of Science in the subject selected for graduate work. See appropriate unit.

Master of Science, Applied, Degree

This degree was designed to provide postgraduate training of a professional and vocational character, with less emphasis on theoretical knowledge and research than in Master of Science programs, but with no lower standards either for admission or completion of requirements. Two years of full-time study or equivalent are normally required with an emphasis on course work.

Programs are available in:

Animal Science
 Bioresource Engineering
 Environment
 Environmental Engineering
 Neotropical Environment
 Biotechnology
 Chemistry
 Communication Sciences and Disorders
 Human Nutrition
 Nursing
 Occupational Therapy
 Occupational Health
 Plant Science
 Physical Therapy

Prerequisites:

A Bachelor's degree in the subject selected for graduate work. See appropriate unit.

Master of Social Work Degree

The M.S.W. degree (thesis and non-thesis options) represents a second level of professional study in which students build competence in a chosen field of practice.

Prerequisites:

Bachelor's degree in Social Work including courses in statistics and social science research methods. See Social Work.

Special program:

M.S.W. with B.C.L. and L.L.B.

Master of Urban Planning Degree

The program requires a minimum of two years residence and a three-month internship with a member of a recognized planning association.

An option in Urban Design is also offered.

Prerequisites:

Bachelor's degree in any one of the following: Anthropology, Architecture, Economics, Civil Engineering, Geography, Law, Management, Political Science, Social Work, Sociology or Urban Planning, with adequate knowledge of quantitative techniques. See Urban Planning.

3.4 Doctoral Degrees Offered

Doctor of Civil Law Degree

Doctoral programs are offered in Air and Space Law and Law (Comparative Law). Both are predominantly research degrees awarded on the basis of a thesis that represents an original contribution to the development of legal science.

Prerequisites:

B.C.L. or L.L.B. and usually LL.M. See Law.

Doctor of Music Degree

The Doctor of Music degree is offered in Composition. The Doctoral thesis consists of a musical composition of major dimensions together with a written analysis of the work. The composition is presented by the candidate in concert. The regulations set forth for the Ph.D. generally apply also to the D.Mus.

Prerequisite:

M.A. in composition. See Music.

The Doctor of Music degree is also offered in Performance. It is offered to professional musicians who wish to teach at the university level and to develop a specialization in a particular repertoire, approach, or discipline (musicology, music theory, music education and pedagogy, or music technology).

Prerequisites:

Master's degree in Performance, and professional and teaching experience. See Music.

Doctor of Philosophy Degree

Programs leading to the degree of Doctor of Philosophy are offered in the following areas:

Animal Science
 Bioinformatics
 Anthropology
 Architecture
 Art History
 Gender and Women's Studies
 Atmospheric and Oceanic Sciences
 Biochemistry
 Bioinformatics
 Chemical Biology
 Biology
 Bioinformatics
 Environment
 Neotropical Environment
 Biomedical Engineering
 Bioinformatics
 Bioresource Engineering
 Environment
 Neotropical Environment
 Cell Biology and Anatomy
 Chemical Engineering
 Chemistry
 Chemical Biology
 Civil Engineering and Applied Mechanics
 Classics
 Communication Studies
 Gender and Women's Studies
 Communication Sciences and Disorders
 Language Acquisition
 Computer Science
 Bioinformatics
 Counselling Psychology
 Earth and Planetary Sciences
 Environment
 Economics
 Educational Psychology
 Educational Studies
 Gender and Women's Studies
 Electrical Engineering
 English
 Entomology
 Environment
 Neotropical Environment
 Epidemiology and Biostatistics
 Food Science and Agricultural Chemistry
 French
 Gender and Women's Studies
 Geography
 Environment
 Gender and Women's Studies
 Neotropical Environment
 German

Hispanic Studies (Spanish)
 History
 Human Genetics
 Bioinformatics
 Human Nutrition
 Islamic Studies
 Gender and Women's Studies
 Linguistics
 Language Acquisition
 Management
 Mathematics and Statistics
 Bioinformatics
 Mechanical Engineering
 Medicine, Experimental
 Environment
 Microbiology and Immunology
 Microbiology (Macdonald Campus)
 Bioinformatics
 Environment
 Mining and Materials Engineering
 Music
 Neuroscience
 Nursing
 Psychosocial Oncology
 Occupational Health Sciences
 Parasitology
 Bioinformatics
 Environment
 Pathology
 Pharmacology and Therapeutics
 Chemical Biology
 Philosophy
 Environment
 Gender and Women's Studies
 Physics
 Physiology
 Bioinformatics
 Plant Science
 Bioinformatics
 Environment
 Neotropical Environment
 Political Science
 Neotropical Environment
 Psychology
 Language Acquisition
 Psychosocial Oncology
 Rehabilitation Science
 Religious Studies
 Renewable Resources
 Environment
 Neotropical Environment
 Russian
 School/Applied Child Psychology
 Social Work
 Sociology
 Environment
 Gender and Women's Studies
 Surgery, Experimental

The following joint Ph.D. programs are offered:
 Nursing (McGill/Université de Montréal)
 Management (McGill/Concordia/H.E.C./UQAM)
 Social Work (McGill/Université de Montréal)

Prerequisites:

An undergraduate degree relevant to the subject chosen for graduate work. Some departments require all Ph.D. candidates to hold a Master's degree in the same subject. Departments may recommend to the Graduate and Postdoctoral Studies Office that candidates of undoubted promise should be allowed to proceed directly to the Ph.D. degree without being required to submit a Master's thesis.

3.5 Postdoctoral Research

See [section 9 "Postdoctoral Research"](#) for information about post-doctoral research at McGill University.

4 Program Requirements

4.1 Master's Degrees

4.1.1 Residence Requirements – Master's Degrees

Refers to the number of terms (or years) students must be registered on a full-time basis to complete their program. Students are NOT permitted to graduate until they have fulfilled the residence requirement (or paid the corresponding fees) in their program.

- The following Master's programs have a minimum residence requirement of **three full-time terms**: M.Arch, M.A., M.C.L., M.Eng., LL.M., M.Mus. (**except** M.Mus. in Sound Recording), M.Sc., M.S.W., M.Sc.A. (**except** M.Sc.A. in Communication Sciences and Disorders).
- The following Master's programs have a **minimum** residence requirement of **four full-time terms**: M.L.I.S., M.Mus. in Sound Recording, M.U.P., M.A. (60 credits - Counselling Psychology – thesis; 78 credits - Educational Psychology), M.Sc.A. in Communication Sciences and Disorders, S.T.M., Religious Studies.
- The residence requirement for the Master's program in Education (M.Ed.), Library and Information Studies (M.L.I.S.), Religious Studies (S.T.M.), M.A. Counselling Psychology – Non-thesis; M.Sc.A. Nursing, M.Sc.A. Occupational Therapy; M.Sc.A. Physical Therapy and students in part-time programs is determined on a per course basis. Residence requirements are fulfilled when students complete all course requirements in their respective programs.
- For Master's programs structured as Course, Project or Non-thesis options where the program is pursued on a part-time basis, residence requirements are normally fulfilled when students complete all course requirements in their respective programs (min. 45 credits or a minimum of 3 full-time terms) and pay the fees accordingly.

These designated periods of residence represent minimum time requirements. There is no guarantee that the work for the degree can be completed in this time. Students must register for such additional terms as are needed to complete the program.

4.1.2 Course Work – Master's Degrees

Program requirements are outlined in the relevant departmental sections of the Calendar.

The department concerned will examine the student's previous training and then decide which of the available courses in the area of specialization or related fields are required to bring the candidate to the proper level for the Master's degree. Due account will be taken of relevant courses passed at any recognized university.

As a rule, no more than one-third of the McGill program formal course work (not thesis, project or stage) can be credited with courses from another university.

Non-thesis degrees normally specify the course program which the candidate must follow.

The candidate is required to pass, with a mark of B- or better, all those courses which have been designated by the department as forming a part of the program, including additional requirements.

Students taking courses at another university must obtain a minimum grade of B- (65%) if the course is to be credited towards their McGill degree. In the cases where only a letter grade is used, a B- is the minimum passing grade and no equivalent percentage will be considered. In the cases where only a percentage grade is used, 65% is the minimum passing grade.

If courses were not used for a degree, they could be **credited** towards a McGill degree keeping in mind that a maximum of one-third of the course work (not thesis, project, stage, internship, and practicum) can be credited. If an **exemption** is granted, it must be replaced by another graduate course at McGill towards the degree. No double counting is ever allowed. This regulation also applies to doctoral programs.

In rare cases a student may wish to attend a course, without registering for it. Permission must be obtained from the student's department and from the instructor. No notation of such courses will appear on the transcript and the student will not receive credit for them.

4.1.3 Research and Thesis – Master's Degrees

All candidates for a research degree must present a thesis based on their own research. The total number of credits allotted to the thesis in any Master's program must not be less than 24. The title of the thesis and names of examiners must be forwarded on a Nomination of Examiners form, in accordance with the Calendar of Dates, through the Chair of the department concerned at the same time as the thesis is submitted to the Graduate and Postdoctoral Studies Office. A thesis for the Master's degree, while not necessarily requiring an exhaustive review of work in the particular field of study, or a great deal of original scholarship, must show familiarity with previous work in the field and must demonstrate the ability to carry out research and to organize results, all of which must be presented in good literate style. The thesis will not normally exceed 100 pages; in some disciplines, shorter texts are preferred. Guidelines and deadlines are available at www.mcgill.ca/gps.

4.1.4 Language Requirements – Master's Degrees

Most Master's degree programs do not include language requirements but candidates who intend to proceed to a doctoral degree should take note of any language requirements and are strongly advised to take the examinations in at least one language while working for the Master's degree.

4.2 Doctoral Degrees

4.2.1 Residence Requirements – Doctoral

Refers to the numbers of terms (or years) students must be registered on a full-time basis to complete their program. Students are not permitted to graduate until they have fulfilled the residence requirement (or paid the corresponding fees) in their program.

Candidates entering Ph.D.1 must follow a program of at least three years residency at the University; this is a minimum requirement, and there is no guarantee that the work of the degree can be completed in this time, but students are expected to complete within the maximum specified period. Only exceptional candidates holding a bachelor's degree will be considered for direct admission to Ph.D.1 level.

It is required that candidates spend the greater part of each summer working on their theses, and those who do not do so are unlikely to complete a satisfactory thesis in the prescribed minimum time (see [section 10.3 "Vacation Policy for Graduate Students and Postdocs"](#)).

A student who has obtained a Master's degree at McGill University or at an approved institution, in a relevant subject and is proceeding to a Ph.D. degree will, on the recommendation of the department, be admitted to Ph.D.2; in this case, the residency requirement for the program is two years.

In the doctoral program, students must be registered on a full-time basis for one more year after completion of the residency (i.e., Ph.D. 4 year) before continuing as additional session students until completion of the program.

Note: The Master's degree must have been awarded before initial registration in the doctoral program, otherwise the admission level will be at Ph.D.1 and residency will be extended to three years. Once the level of admission is approved by the Graduate and Postdoctoral Studies Office, it will not be changed after obtaining

the Master's degree if the date falls after registration in the program. If a previous awarded degree is a condition of admission, it must be fulfilled before registration in another program.

As a rule, no more than one-third of the McGill program formal coursework can be credited with courses from another university.

4.2.2 Comprehensive Examinations – Doctoral

A comprehensive examination or its equivalent is usually held near the end of Ph.D.2. The results of this examination determine whether or not students will be permitted to continue in their programs. The methods adopted for examination and evaluation and the areas to be examined are specified by departmental regulations approved by the Dean of Graduate and Postdoctoral Studies. It is the responsibility of students to inform themselves of these details at the commencement of their programs. For more information, see [section 10.4 "Ph.D. Comprehensives Policy"](#).

4.2.3 Language Requirements – Doctoral

Most graduate departments in the Faculties of Agricultural and Environmental Sciences, Education, Engineering, Management, Medicine, and Science do not require a language examination. Students should inquire in their departments if there are any such requirements or whether any other requirements have been substituted for those relating to languages.

Graduate departments in the Faculties of Arts, Music and Religious Studies usually require proficiency in one or two languages other than English. In all cases **students should consult departmental regulations concerning language requirements.**

Language requirements for the Ph.D. degree are met through demonstrated reading knowledge. The usual languages are French, German, or Russian, but in particular instances another language may be necessary.

All language requirements must be fulfilled and the marks reported to the Graduate and Postdoctoral Studies Office before submission of the thesis to the GPSO (Thesis Office).

Students must contact their departments to make arrangements to take the Language Reading Proficiency Examinations. Students may, however, demonstrate competence by a pass standing in two undergraduate language courses taken at McGill (see departmental regulations).

Candidates are advised to discharge their language requirements as early in their program as possible.

Students expecting to enrol in Professional Corporations in the province of Quebec are advised to become fluent in both spoken and written French.

Courses in French language are available at the English and French Language Centre. The teaching is intensive and class sizes are kept small. While undergraduate students are given preference, graduate students who are certain they can devote sufficient time to the work may enrol.

4.2.4 Thesis – Doctoral

The thesis for the Ph.D. degree must display original scholarship expressed in good literate style and must be a distinct contribution to knowledge. **Formal notice of a thesis title and names of examiners must be submitted to the Thesis Office (GPSO) on the Nomination of Examiners form in accordance with the Calendar of Dates at the same time as the thesis is submitted.** The list of examiners must be approved by the Department Chair, the supervisor and the student. The Thesis Office should be notified of any subsequent change of title as early as possible. The appointment of the examiners and communication with them is the duty and privilege of the Graduate and Postdoctoral Studies Office. Under no circumstances should any student or department contact the external examiners. Guidelines and deadlines are available at www.mcgill.ca/gps/current/programs/thesis/guidelines.

Seven copies of the thesis must be provided by the candidate. Of these, two copies will be retained by the University and five copies returned to the candidate. Some departments may require one or more additional copies.

Special regulations for the Ph.D. degree in particular departments are stated in the entries of those departments.

4.2.5 Thesis Oral Examination – Doctoral

After the thesis has been received and approved, a final oral examination is held on the subject of the thesis and subjects intimately related to it. This is conducted in the presence of a Committee of at least five members presided over by a Pro-Dean nominated by the Graduate and Postdoctoral Studies Office. The Chair of the candidate's department and the Thesis Supervisor are regularly invited to be members of the Committee; at least one member of the Committee is appointed from outside the candidate's department. Guidelines are available at www.mcgill.ca/gps/current/programs/thesis/guidelines.

4.3 Ad Hoc Programs (Thesis Option only)

In exceptional cases, an applicant who wishes to pursue a Master's (Thesis option only) or Ph.D. program in an academic department which is not currently authorized to offer graduate programs, may be admitted to an *Ad Hoc* program. The application, including a research proposal, is examined by an Admissions Committee in the department which has familiarity with the proposed research area and experience in directing graduate studies.

Once the Admissions Committee makes a favourable recommendation, the Graduate and Postdoctoral Studies Office confirms an Advisory Committee (recommended by the academic unit) to be responsible for program planning and monitoring of research progress. The regulations are fully described in the document "Procedures for Admission in *Ad Hoc* Master's and Doctoral Programs", available from the GPSO.

4.4 Ad Personam Programs (Thesis Option only)

In very rare circumstances, an applicant who wishes to engage in Master's (Thesis Option only) or Ph.D. studies of an interdisciplinary nature involving joint supervision by two departments, each of which is authorized to offer its own graduate programs, may be admitted to an *Ad Personam* program. The regulations are fully described in a document available from the GPSO.

4.5 Course Work for Graduate Programs, Diplomas and Certificates

Upper level undergraduate courses (excluding 500 level) may not be considered for degrees, diplomas and certificates unless they are already listed as required courses in the approved program description. If an upper-level undergraduate course (excluding 500 level) is taken by a graduate student, it must come as a recommendation from the Graduate Program Director in the department. The recommendation must state if the undergraduate course is an additional requirement for the program (must obtain B- or better) or if the course is extra to the program (will be flagged as such on the record).

English and French language courses offered by the English and French Language Centre or the Centre for Continuing Education may not be taken for coursework credits toward a graduate program.

All substitutions for course work in graduate programs, diplomas and certificates must be approved by the GPSO.

Courses taken at other institutions to be part of the requirements of a program of studies must be approved by GPSO before registration. Double counting is not permitted.

5 Admission

Website: www.mcgill.ca/applying/graduate

E-mail: graduate.admissions@mcgill.ca

Deadline: Admission to graduate studies operates on a rolling admission basis, and complete applications and their supporting documentation must reach departmental offices on or before the specified departmental deadline. To be

considered for entrance fellowships, where available, applicants must verify the deadlines with individual departments. Meeting minimum admission standards does not guarantee admission.

5.1 Application for Admission

Two procedures are available to apply for graduate admission: online and paper-based forms. Application information and the online application form are available at www.mcgill.ca/applying/graduate. Paper application (i.e. PDF) forms should be obtained from individual departments.

Using either procedure, applicants (with some exceptions) are required to ask two instructors familiar with their work to send letters of recommendation. All applicants must themselves send, or ask the appropriate university authorities to send, two official or certified copies of their complete academic record from each university-level institution attended to date. For McGill graduates the appropriate authority is the Registrar. Letters of recommendation and official transcripts must be sent **directly** to the department concerned. Please note that all documents submitted to McGill University in support of an application to be admitted, including, but not limited to transcripts, diplomas, letters of reference and test scores, become the property of McGill University and will not be returned to the applicant or issuing institution under any circumstance.

A **non-refundable** fee of \$80 (\$100 for some Management programs) in Canadian funds **must** accompany each application, otherwise **it cannot be considered**. This sum must be paid by credit card if the online application is used. For paper applications, the fee must be paid in negotiable form, such as a bank draft, money order or certified cheque (but not in cash), at the current rate of exchange, or by credit card. Candidates for Special and Visiting Student, and Qualifying status must apply and pay the application fee every year (i.e. every Fall term).

It is recommended that applicants submit a list of the titles of courses taken in the major subject, since transcripts often give code numbers only. **Transcripts written in a language other than English or French must be accompanied by a certified translation.** An explanation of the grading system used by the applicant's university is essential. The applicant should also indicate the major subject area in which further study is desired.

Completed applications, with supporting documents, must reach departmental offices according to individual department deadlines. Applicants should contact the department concerned. International students are advised to apply well in advance of the deadlines as immigration procedures may be lengthy. Applications received after the prescribed dates will not be considered. Candidates will be notified of acceptance or refusal as quickly as possible.

Admission to Graduate Programs at McGill is highly competitive and the final decision rests with Graduate and Postdoctoral Studies. Admission decisions are not subject to appeal.

5.2 Admission Requirements (minimum requirements to be considered for admission)

Applicants should be graduates of a university of recognized reputation and hold a Bachelor's degree equivalent to a McGill degree in a subject closely related to the one selected for graduate work. This implies that about one-third of all undergraduate courses should have been devoted to the subject itself and another third to cognate subjects.

The applicant must present evidence of academic achievement: a minimum standing equivalent to a Cumulative Grade Point Average (CGPA) of 3.0 out of a possible 4.0 or a CGPA of 3.2/4.0 for the last two full-time academic years. High grades are expected in courses considered by the department to be preparatory to the graduate program. Some departments impose additional or higher requirements.

Admission to Graduate Programs at McGill is highly competitive and the final decision rests with Graduate and Postdoctoral Studies. Admission decisions are not subject to appeal.

5.3 Graduate Record Examination and Other Admission Tests

The Graduate Record Examination (GRE) (Educational Testing Service, Princeton, N.J. 08540) consists of a relatively advanced test in the candidates' specialty, and a general test of their attainments in the several basic fields of knowledge, for which no special preparation is required or recommended. It is offered at many centres, including Montreal, several times a year; the entire examination takes about eight hours, and there is a registration fee. Only some departments require applicants to write the GRE examination, but all applicants who have written either the general aptitude or the advanced test are advised to submit the scores along with their other admission material.

This credential is of special importance in the case of applicants whose education has been interrupted, or has not led directly towards graduate study in the subject selected. In such cases the department has the right to insist on a report from the Graduate Record Examination or some similar test. High standing in this examination will not by itself guarantee admission. The Miller Analogies Test may be used similarly. Some departments of the Faculty of Education also require the taking of various tests.

Applicants to graduate programs in Management must submit scores from the Graduate Management Admissions Test (GMAT).

5.4 Competency in English

Applicants to graduate studies must demonstrate an adequate level of proficiency in English **prior to admission**, regardless of citizenship status or country of origin.

Normally, applicants meeting any one of the following conditions are NOT required to submit proof of proficiency in English:

- 1) Mother tongue (language first learned and still used on a daily basis) is English.
- 2) Has obtained (or is about to obtain) an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction.
- 3) Has obtained (or is about to obtain) an undergraduate or graduate degree from a recognized institution in Canada or the United States of America (anglophone or francophone).
- 4) Has lived and attended school, or been employed, for at least four consecutive years, in a country where English is the acknowledged primary language.

Applicants who do not meet any of the above-listed conditions must demonstrate proficiency in English using **one** of the following options:

- 1) TOEFL (Test of English as a Foreign Language): minimum acceptable scores are

iBT (internet based test)	PBT (paper based test)	CBT (computer based test)*
86 overall, (no less than 20 in each of the four component scores)	550	213

*The CBT is no longer being offered. CBT Test results will be accepted as long as considered valid by ETS.

N.B. an institutional version of the TOEFL is not acceptable.

- 2) IELTS (International English Language Testing System): a band score of 6.5 or greater.
- 3) MELAB (Michigan English Language Assessment Battery): a mark of 85% or higher.
- 4) University of Cambridge ESOL Certificate in Advanced English (CAE): a grade of "B" (Good) or higher.
- 5) University of Cambridge ESOL Certificate of Proficiency in English (CPE): a grade of "C" (Pass) or higher.
- 6) Edexcel London Test of English - Level 5 - with an overall grade of at least "Pass".

- 7) McGill Certificate of Proficiency in English or McGill Certificate of Proficiency - English for Professional Communication: Certificate of Proficiency awarded.

In each case, applicants must ensure that official test results are sent to McGill directly by the testing service. Applications cannot be considered if test results are not available. These scores are general minima; some departments may set higher requirements.

Revised - July 2008

5.5 Admission to a Qualifying Program

Some applicants whose academic degrees and standing entitle them to serious consideration for admission to graduate studies, but who are considered inadequately prepared in the subject selected may be admitted to a Qualifying Program. The undergraduate-level courses to be taken in a Qualifying Program will be prescribed by the department concerned.

Qualifying students are registered in graduate studies, **but not as candidates for a degree**. Only one qualifying year (i.e., two full-time terms) is permitted.

In all cases, after the completion of a qualifying year or term, an applicant interested in commencing a degree program must apply for admission by the stated deadlines. In cases where a department recommends a change of registration from Qualifying Program (Fall) to Master's Degree First Year (Winter), **students must apply to the degree program by October 15 at the latest**.

Successful completion of the work of the Qualifying Program does not automatically entitle the student to proceed towards a degree. Qualifying-year students must re-apply for admission to the program for which they seek qualification. A Qualifying-Year applicant admitted to a Winter term as a first term of studies must apply for admission for a Fall term as his/her second term of studies.

Students who are ineligible for a Qualifying Program may apply to the appropriate undergraduate faculty for admission as regular or special students, and seek admission to graduate studies at a later date. The normal admission requirements must be met and the usual procedures followed.

5.6 Admission to a Second Degree Program

A candidate with a given higher degree may apply for admission to a second degree program at the same level but **in a different subject**. The normal admission requirements must be met and all the usual procedures followed.

5.7 Admission to Two Degree Programs

Students may, with special permission granted by the Graduate and Postdoctoral Studies Office, be admitted to two degree programs or to two departments or faculties. Students are **never** permitted to pursue two **full-time** degree programs concurrently.

5.8 Admission to an *Ad Personam* Joint Program

Ad Personam joint graduate programs are restricted to Master's Thesis Option and Ph.D. programs. Students shall be admitted and registered by one department, to be known as the "first department". Approval for the joint program must be obtained from the Graduate and Postdoctoral Studies Office. The request shall be signed by the Chairs of both departments involved and shall explicitly list the conditions imposed by the second department. The student shall undertake research under the joint supervision of both departments.

Students shall fulfil the degree requirements of the first department and shall complete all the requirements specified by the second department in the request for admission. This program is described in more detail in a document available from the GPSO.

5.9 Admission to an *Ad Hoc* Program (Thesis)

In exceptional cases, admission to an *Ad Hoc* program (thesis) may be considered. Before the Graduate and Postdoctoral Studies Office will authorize the admission of a student into an *Ad Hoc* program, it must receive a favourable report from a departmental committee constituted to examine the program in question.

Candidates, through the supervisor designated by the academic department most closely related to their research field, must submit a research proposal, an outline of the course work needed including a Comprehensive Examination (for Doctoral programs) in the relevant field, and the list of four supervisory committee members.

Once the request has been approved, the candidate may register following all the regular procedures. Full description of the admission procedure is available from the GPSO.

5.10 Reinstatement and Admission of Former Students

Students who have not been registered for a period of up to two years but who have not officially withdrawn from the University by submitting a signed Withdrawal Form to the Graduate and Postdoctoral Studies Office are eligible to be considered for reinstatement into their programs. The student's department must recommend, in writing, that the student be reinstated, stipulating any conditions for reinstatement that it deems appropriate. The final decision rests with the GPSO. Normally, the GPSO will approve the departmental recommendation. If the student's department chooses not to recommend reinstatement, the student may appeal to the Associate Dean (Graduate and Postdoctoral Studies). The decision of the Associate Dean (Graduate and Postdoctoral Studies) shall be final and not subject to further appeal.

Reinstatement fees will be charged in addition to the fees due for the academic session into which the student has been reinstated. The amount of the reinstatement fees is the tuition portion of fees owed for all unregistered terms, up to a maximum of two years just prior to the term of reinstatement.

If an individual has not registered for a period of more than two years, their student file will be closed. These individuals and those who have formally withdrawn may be considered for admission. Applicants' admission applications will be considered as part of the current admission cycle, in competition with other people applying during that cycle and in accordance with current graduate admission procedures and policies.

Implementation: This procedure took effect in January 2004.
Revised Council of February 9, 2004.

5.11 Deferral of Admission

Under exceptional circumstances, an admission for a particular semester can be considered for a deferral. This can be considered only if the student has not registered. If the student has already registered, no deferral can be granted. The student must withdraw from the University and apply for admission to a later term.

6 Regulations

6.1 Categories of Students

6.1.1 Full-time Students

Full-time students are students with a registration status of full-time and paying full-time fees. Full-time Master's, Diploma and Certificate candidates must show a minimum of 12 credits per term on their record.

6.1.2 Half-time Students (Thesis programs)

In some departments, students are permitted to proceed towards a degree on a half-time basis, i.e., students are permitted to register half-time instead of full-time during sessions of residence.

It is expected that half-time students will spend 50% of their time in the department participating in course work, seminars, discussions, etc., with the staff and the full-time students.

Half-time students are reminded that they must complete the degree within the time limitation imposed by the Graduate and Postdoctoral Studies Office, and that if they choose to be half-time they must: a) be so for an even number of half-time terms (i.e., two half-time terms equal one full-time term) and b) fulfil the minimum residence requirement in their program.

6.1.3 Part-time Students

Certain degree programs can be followed on part-time basis (e.g., M.Ed., M.Eng. non-thesis option, M.B.A., M.S.W. non-thesis option, and S.T.M.). Students in non-thesis programs (including the C.A. program) as well as Special, Visiting and Qualifying, Certificate and Diploma students, **not taking at least 12 credits per term**, are considered to be part-time. Students may, in some departments, proceed towards the degree on a part-time basis.

Part-time students are reminded that they must complete the degree within the time limitation imposed by the Graduate and Postdoctoral Studies Office.

Part-time students who do not take any courses or drop all courses, during any semester, automatically become non-resident students and are charged fees accordingly.

In cases of part-time and transfer students, all coursework might not be completed during the residency. It must therefore be completed during one or more additional terms (non-thesis extensions).

6.1.4 Additional Session (Thesis Programs) and Non-Thesis Extension (Non-Thesis Programs) Students

Students in additional session or non-thesis extension are students with a registration status of additional session (thesis programs) or non-thesis extension (non-thesis programs) and paying fees accordingly. The following are such students:

1. Graduate students who have completed the residency requirements in a Master's program.
2. Graduate students who have completed 8 full-time semesters in a doctoral program (when admitted to Ph.D. 1).
3. Graduate students who have completed 6 full-time semesters in a doctoral program (when admitted to Ph.D. 2).

In the doctoral program, students must be registered on a full-time basis for one more year after completion of the residency (i.e., Ph.D. 4 year) before continuing as additional session students until completion of the program. It is expected that, at this stage, all the course work and Comprehensive Examinations will have been completed and the student will be engaged in thesis preparation.

Graduate students in non-thesis programs, graduate diplomas and certificates who have registered for all required courses but have not completed the work and/or have completed the residency requirements must register as non-thesis extension students and pay fees accordingly. Students in a non-thesis extension session who are not registered for at least 12 credits per term, are not considered engaged in full-time studies.

6.1.5 Qualifying Students

Students admitted to a Qualifying Program are known as Qualifying Students. They must meet the minimum entrance requirements of the Graduate and Postdoctoral Studies Office. The courses taken during a qualifying year will not be credited towards a degree program. Students are registered in graduate studies but have not yet been admitted to a degree program. These students take a full load (12 credits minimum) per semester of

undergraduate courses as specified by the department. Only one qualifying year is permitted.

6.1.6 Special Students

Students who meet the minimum entrance requirements of the Graduate and Postdoctoral Studies Office and wish to take **one, or at most two, graduate-level courses per term** (6 credits) without intention of proceeding to a degree or diploma are termed Special Students. After completion of a maximum of 12 credits, an applicant **may not** continue as a Special Student.

If graduate Special Students subsequently become candidates for higher degrees, they may receive academic credit for relevant graduate courses taken as Special Students. They must apply every year.

Students who wish to take undergraduate courses only must apply as Special Students in the undergraduate faculty concerned, even if they already hold degrees.

6.1.7 Visiting Students

Visiting Students are those students who are registered in a degree program at another university and who have obtained written permission from both universities to take a course(s) for credit towards that degree program. Students studying in the province of Quebec who are in this category are eligible for a transfer of credit if the required permission is obtained on Quebec Inter-University Transfer forms. These forms are available on-line at www.mcgill.ca/student-records/register/iut. McGill students registering for courses required for their degree program at other Quebec universities are required to pay for the course(s) at the home university. McGill University and Université de Montréal participate in an exchange (graduate) with the University of British Columbia and the University of Toronto.

As a rule, graduate students should not register for courses through Inter-university Transfers (IUT) during the last semester before graduation. There are considerable delays in receiving official transcripts which delay the degree audit process and graduation. If special departmental permission is given for such a course to be taken in the last semester, there will be no extension given for the grade submission deadline.

6.1.8 Visiting Research Students

Graduate students registered in a degree program at another university who wish to come to McGill to do **research only** may do so after acceptance by the GPSO. The department recommending admission must specify “**Visiting Research**” on the Decision Form. Visiting Research students are charged additional session fee rates and they may not register for courses. They must apply for admission every year. As part of the application package, they must include a letter of permission and official transcripts. Fees are charged for every term of registration including Summer.

6.1.9 Non-Resident Status

(may be granted to students in **residence terms only**)

1. Departments, with the approval of the Graduate and Postdoctoral Studies Office, may permit or require candidates to spend one session at another institution; it is understood that this session must be one of full-time work, and that the institution selected must be able to provide expert supervision and facilities for research appropriate to the candidate, in the field selected.

Permission to spend a required year of residence at another university must be obtained **before** the beginning of the session in which the student will be absent. A program of the work projected and particulars of the institution selected must be sent, accompanied by a letter from the Chair of the department, to the Director of the GPSO for approval. Permission is only granted to students who have already completed one full session at McGill.

The student will be required to register and pay the normal full-time McGill tuition fee less any tuition fee payable to the

host institution. Other student-related fees are not levied and the ID card is not validated.

Students participating in a formal exchange program must register and pay full-time tuition including other student-related fees. The ID card is not validated.

2. Students who wish to take a leave (such as for work purposes) from the University for a maximum period of one year **before returning to complete their residence requirements** must first obtain permission to do so both from their department and the GPSO.

The student **must register as a Non-Resident student**, and pay the non-resident fee. Student services fees are not levied and the ID card is not validated. Students can only be non-resident for a maximum of one year. The non-resident fee is \$100 per term.

6.1.10 Leave of Absence Status

A leave of absence may be granted by the Graduate and Postdoctoral Studies Office for maternity or parenting reasons or for health reasons (see [section 10.6 “Health and Parental/Familial Leave of Absence Policy”](#)). Such a leave must be requested on a term by term basis and may be granted for a period of up to 52 weeks. Students and Postdocs must make a request for such a leave in writing to their department and submit a medical certificate justifying the leave. The department shall forward the request to the GPSO.

Students and Postdocs who have been granted such a leave will have to register for the term(s) in question and their registration will show as “leave of absence” on their record. No tuition fees will be charged for the duration of the authorized leave. Research supervisors are not obligated to remunerate students on leave. A student on leave of absence during the Fall term must register for an active term of study in the Winter term (at least) in order to apply for graduation. A student on leave of absence during the Winter and/or Summer terms must register for an active term of study in the Fall term (at least) in order to apply for graduation.

The GPSO has prepared a summary table of various leave policies (paid or unpaid) for students and postdocs paid from the Federal and Quebec Councils through fellowships or research grants. The document is available at www.mcgill.ca/gps/documents/funding under “Information on the Funding Council Leave Policies for Graduate Students and Postdocs”.

6.1.11 Medical Residents

Residents and fellows on staff of teaching hospitals associated with the University are included in the Graduate and Postdoctoral Studies Office statistics. They must apply for admission to be Special Students or for admission to a degree program, a graduate diploma or certificate.

6.1.12 McGill Staff as Graduate Students

Members of the teaching staff of the University up to and including the rank of lecturer may enrol as candidates for a degree, diploma or certificate. If their teaching duties are designated as full-time, they may only enrol as half-time students.

Professorial members of the academic staff may not enrol in graduate degree and diploma programs. This rule shall apply also to any persons who have been on the professorial staff within the previous 12 months, unless they resign completely from their positions at McGill.

Should persons registered in graduate studies be promoted to professorial rank, they may no longer remain graduate students, unless they resign or are granted a leave of absence from their professorial appointments.

In certain exceptional cases, professorial members of the academic staff may apply to the Graduate and Postdoctoral Studies Council to enter graduate programs in academic units other than their own. The Council may grant permission if it is satisfied that the applicant’s teaching unit and proposed unit for graduate study are sufficiently remote that conflict of interest situations will not arise. Permission must be granted before any courses are taken towards the proposed degree.

6.1.13 Quebec Inter-University Transfer Agreement (IUT)

The IUT Agreement permits concurrent registration at McGill and another Quebec institution.

6.1.13.1 McGill Students

Regular undergraduate and graduate degree, diploma or certificate students registered at McGill may, with the permission of their faculty, register at any university in the province of Quebec for three (3), or exceptionally six (6), **credits** per term in addition to their registration at McGill. These courses, subject to faculty regulations, will be recognized by McGill for the purpose of the degree for which the student is registered up to the limit imposed by the residency requirements of the program. (Normally, a minimum residency requirement of 60 credits must be completed at McGill in order to qualify for a McGill degree — students should check with their faculty.) This privilege will be granted if there are valid academic reasons.

Students wishing to take advantage of this agreement should consult their Student Affairs Office for details, and are informed that this agreement is subject to the following conditions:

- The other universities concerned may, at their discretion, refuse the registration of a student for any of their courses.
- Students must complete their faculty and program requirement.
- The student is responsible for ensuring that the McGill Class Schedule permits these courses to be taken without conflict.
- The universities concerned are not responsible for special arrangements in cases of examination or class schedule conflicts.
- Marks earned at the host university will not appear on McGill transcripts or be included in McGill grade point averages.
- Students who are attending McGill as exchange students from outside Quebec are not eligible to take courses at another Quebec institution through the IUT agreement.
- Students should be aware that late results received from host universities may delay their graduation.

Scholarship holders should consult with their Student Affairs Office and the Scholarships Coordinator concerning eligibility for continuation or renewal of their awards.

Students must initiate an on-line Inter-University Transfer (IUT) application to request the required authorizations at www.mcgill.ca/student-records/iut. Students may also find additional information posted at their faculty Website.

Note: Once the IUT application is approved by both the home and host universities, the student remains responsible for registering in the same course for which they have obtained electronic approval. The method of registration of the host university will vary (e.g., Web, in-person, phone, etc.). **The student is advised to initiate the electronic application allowing enough time to meet the host university's registration deadlines. Furthermore, the student is responsible for adhering to all registration deadlines of the host institution.** Students who later wish to drop or withdraw from the course(s) for which approval has been granted, will need to drop or withdraw from the course as per the method of registration at the host university AND submit this change on the online IUT application.

For courses that are completed the grade will be automatically submitted to the home university by the host institution.

6.1.13.2 Visiting IUT Students

Students from other Quebec universities wishing to come to McGill using the Inter-University Transfer (IUT) agreement must initiate an on-line application to request the required authorizations at www.mcgill.ca/student-records/iut. Visiting students should also refer to their home university website for regulations on the number of credits allowed as well the policies for transferring the credits.

Note: Once the IUT application is approved by both the home and host universities, the student remains responsible for registering in the same course for which they have obtained electronic approval. At McGill, the visiting student whose application has been approved will have to register on Minerva (www.mcgill.ca/minerva).

visiting students will be informed via e-mail of the steps involved in registering once their application has been approved. **The student is advised to initiate the electronic application allowing enough time to meet the host university's registration deadlines. Furthermore, the student is responsible for adhering to all registration deadlines of the host institution.** Students who later wish to drop or withdraw from the course(s) for which approval has been granted will need to drop or withdraw from the course as per the method of registration at the host university AND submit this change on the online IUT application.

For courses that are completed the grade will be automatically submitted to the home university by the host institution.

6.2 Registration

6.2.1 Registration for Fall and Winter Terms (Including Additional Session and Non-Thesis Extension Students)

All returning and new graduate students must register on-line at www.mcgill.ca/minerva, after completing a Minerva Course Selection Form and obtaining departmental approval.

Courses may be added until the end of the course change period without penalty.

Returning Students:

Returning students register via Minerva between Thursday, March 27 and Tuesday, July 28.

Students will be charged a late registration fee during the late registration period. **To avoid the late registration fee students must access www.mcgill.ca/minerva and register for REGN RCGR (the Registration Confirmation course) in both the Fall (CRN 2334) and Winter (CRN 2262) terms.**

Successful completion of registration is contingent upon acceptable academic standing in the previous session and payment of any previous outstanding fees and fines.

Newly-Admitted Students:

New students entering in September 2008 register on Minerva between Tuesday, August 5 and Tuesday, September 2.

Students will be charged a late registration fee during the late registration period. **To avoid the late registration fee students must access www.mcgill.ca/minerva and register for REGN RCGR (the Registration Confirmation course) in both the Fall (CRN 2334) and Winter (CRN 2262) terms.**

New students entering in January 2009 register on Minerva between Tuesday, December 2 and Monday, January 5.

Students will be charged a late registration fee during the late registration period. **To avoid the late registration fee students must access www.mcgill.ca/minerva and register for REGN RCGR (the Registration Confirmation course) in the Winter (CRN 2262) term.**

Students must register (and pay fees) annually up to and including the term of graduation. Outstanding tuition fees must be paid before graduation. A graduate student registered in the Winter term who graduates in February will have their Winter registration and fees cancelled at the end of February.

Exception: A registered student in 2007-08 (not on a leave of absence), who has completed the residency in a thesis program, and who meets the **August 29 thesis submission deadline to the GPSO** (Thesis Office), does not need to register for the 2008-09 academic year. The student should not expect to graduate in Fall 2008, but **must graduate by Fall 2009 graduation at the latest.** Otherwise the student must be reinstated and will be charged retroactive registration fees for all unregistered sessions/terms up to and including the term in which they graduate. Students who have already registered for the year must ask the Graduate and Postdoctoral Studies Office, IN WRITING, to delete their registration at the time of their theses submission.

If the thesis is submitted after August 29, and the student graduates in February of the next year, he/she must register for the Fall term and pay fees. The last term of registration will show the graduation narrative, i.e., Fall for February graduation, Winter for

May/June graduation and Summer for October Graduation. If the thesis is submitted after August 29, and the student graduates in May/June of the next year, he/she must register for Fall and Winter terms and pay fees.

6.2.2 Fee Policies Related to Registration

Refer to [section 8 "Fees and Expenses"](#); particular attention should be paid to [section 8.9 "Fees and Withdrawal from the University"](#) and [section 8.10 "Other Policies Related to Fees"](#).

6.2.3 Summer Registration

Detailed Summer registration information will be available in the middle of March in individual departments and on the Web at www.mcgill.ca/gps/records/registration.

Course Registration

Students taking summer courses register within Graduate and Postdoctoral Studies Office deadlines on Minerva at www.mcgill.ca/minerva after completing a Minerva Course Selection Form and obtaining departmental approval.

Summer Term of Residence

Students in thesis programs who wish to register for a Summer term to count as part of their residence requirements must advise their department in March and complete the appropriate Summer Registration Form in April. Newly admitted students beginning their graduate thesis program in a Summer Term of Residence can get 100% refund (less \$100.00 minimum or registration deposit if applicable) up to and including the May 15th withdrawal date. Students in thesis programs, who at the end of the Winter term are continuing in their programs are expected to devote the summer to research and are considered "continuing students".

6.2.4 Courses taken in the Centre for Continuing Education

In the Fall and Winter terms, students may add credit courses (500 level or higher) offered through the Centre for Continuing Education (CCE) directly on Minerva. Fall term courses can be added on Minerva starting August 15. Winter term courses can be added on Minerva starting December 15.

Non-credit general interest or languages courses cannot be added directly by the student. Students may register for these courses in person at the CCE, where the course(s) will be added to their record as "Extra" to their program and course fees will be charged.

Summer courses offered through the CCE cannot be added directly by the student. To add these courses, students must bring a copy of their approved Minerva Course Selection Form to the Graduate and Postdoctoral Studies Office where, subject to space availability and program controls, the course(s) will be added to their record.

To register for courses offered through the CCE, students must be registered in their graduate studies program. All courses taken at CCE must be completed unless the course has been dropped on Minerva according to CCE course drop/withdrawal deadlines. **The GPSO reserves the right to place limitations on the number of Continuing Education courses taken for any one program. Approval from GPSO must be obtained prior to registration.**

6.2.5 Courses Which Cannot Be Taken for Credit in a Graduate Program Unless They Have Formally Been Approved for a Specific Program

Two courses are offered through English and French Language Centre for graduate students whose first language is not English. These courses cannot be counted toward the requirements of a graduate program. The courses are:

ESLN 590 WRITING FOR GRADUATE STUDENTS. (3) (3 hours) (Restriction: open only to graduate students for whom English is a second language) Audience, purpose, organization and style of graduate-level academic writing. Mechanics. Editing. Textual analysis. Critical thinking. Genres: problem-solution,

general-specific, process description, data commentary, article summary/critique. Student work-in-progress. ESL diagnosis-correction. Multiple drafts. Extensive feedback including audio-taped commentary and individual conferences.

ESLN 650 PRONUNCIATION & COMMUNICATION. (3) (3 hours) (Restrictions: Open only to graduate students for whom English is a second language.) (Restriction: Not open to students who have taken ESLN 550.) (Restriction: This course cannot be counted towards course requirements of any graduate program.) Focus on developing pronunciation and communication skills, including aspects of pronunciation that most affect intelligibility, and with verbal and non-verbal techniques for effective presentations.

Note: The following writing course is available for senior graduate students but cannot be counted toward the requirements of a graduate program:

EDEC 645 SCIENCE WRITING AND PUBLISHING. (3) (Restriction: Limited to senior graduate students - Ph.D.2 and above.) Techniques for writing reader-sensitive scientific articles and grant applications, including how to express abstract ideas.

REDM 610 WRITING SCIENCE ARTICLES 1. (3) (Prerequisite: Permission of instructor.) (Restrictions: Restricted to graduate students in the Faculty of Science; graduate students from other faculties considered, space permitting. Enrolment is limited to 12 students. The language of instruction is English and it is not intended as an ESL course. Course is graded pass/fail.) Principles and techniques for clear scientific writing with an emphasis on how to transform complex ideas into direct and precise ones by explaining research to peers and writing for interdisciplinary audiences.

REDM 710 WRITING SCIENCE ARTICLES 2. (3) (Prerequisite: Permission of instructor.) (Restrictions: Restricted to Ph.D. students in the Faculty of Science; M.Sc. students from the Faculty of Science and Ph.D. students from other faculties considered, space permitting. Enrolment is limited to 12 students. The language of instruction is English and it is not intended as an ESL course. Course is graded pass/fail.) Skills for writing and publishing scientific articles, including peer-reviewed manuscripts and short, critical reviews of published articles. Topics include techniques for developing logical arguments and writing publishable manuscripts.

6.2.6 Registration for Two Degree Programs Concurrently

No student may register in two degree programs or in two departments or faculties or two institutions concurrently without special permission granted by the Graduate and Postdoctoral Studies Office. Students are advised that permission is never granted to attempt two **full-time** programs concurrently. Letters of recommendation, including details of the proportions of time that the student intends to allot to each program, must be received from the Chair of each department concerned. Each year, a progress report must be submitted from the two departments concerned to the GPSO before a student in this category will be permitted to register.

6.2.7 Time Limitation

Candidates for Master's degrees must complete the degree **within three years of initial registration**. If the degree is pursued strictly on a less than full-time basis, it must be completed within five years of initial registration.

In exceptional cases, a student who wishes to submit a thesis, or to complete outstanding degree requirements, after withdrawal may do so only on the recommendation of the department concerned. A graduate application must be submitted by stated deadlines and re-admission fees will apply. The final decision rests with GPSO.

By annual registration, **all** doctoral candidates may maintain their connection with the University **for four years** after completing their residence requirements.

The object of these regulations is to encourage candidates to complete their theses and qualify for their degree without undue delay.

Council of the FGSR - February 2, 1996

6.2.8 Withdrawal from a Degree Program

Departments have the right to ask students to withdraw from the program if progress is not satisfactory, or if they have failed two courses required for their program, or for lack of performance in research. Please see [section 6.11 "Failure Policy"](#).

Any student who withdraws from the University **must complete a Withdrawal Form** available from the Graduate and Postdoctoral Studies Office. Fees will then be refunded according to the conditions outlined in [section 6.5 "Course Change Period"](#) and in [section 6.7 "Regulations Concerning Withdrawal"](#).

6.2.9 Late Registration

Students who fail to register during the normal registration period may do so within the period designated by the University for late registration. They will be assessed a late registration fee as listed below:

Returning Students: May register late from Tuesday, July 29 until and including Tuesday, September 2 with the payment of a late registration fee of \$50 (\$20 for Special Students).

New and Returning Students (Fall): Students may register late via Minerva from Wednesday, September 3 until Tuesday, September 16 with the payment of a late registration fee of \$100 (\$40 for Special Students).

New and Readmitted Students (Winter): May register late via Minerva from Tuesday, January 6 until Tuesday, January 20 with the payment of a late registration fee of \$100 (\$40 for Special Students).

Special Late Registration: Students whose records are not available for registration on-line during the late registration period, usually due to late admission, may receive special permission to register in person. This information is included with their letter of acceptance.

6.3 Course Information

6.3.1 Course Numbering

Each McGill course is assigned a unique seven-character course "number".

The first four characters (Subject Code) refer to the unit offering the course.

These codes were implemented in September 2002, replacing the three-number Teaching Unit Codes previously used. A complete list of Teaching Unit Codes and their Subject Code equivalents can be found on the Web at www.mcgill.ca/student-records/transcripts.

The three numbers following the Subject Code refer to the course itself, with the first of these indicating the level of the course.

- Courses numbered at the 100, 200, 300, and 400 levels are intended for undergraduate students. In most programs courses at the 300 level and 400 level are normally taken in the student's last two years.
- Courses at the 500-level are upper-level undergraduate courses that are intended for qualified senior undergraduate students and open to graduate students.
- Courses at the 600 and 700 level are intended for graduate students only.

Two additional characters (D1, D2, N1, N2, J1, J2, J3) at the end of the seven-character course number identifies multi-term courses.

6.3.2 Multi-term Courses

Most courses at McGill are single term (Fall or Winter or Summer) courses with final grades issued and any credits earned recorded at the end of that term. Single term courses are identified by a seven-character course number.

A unit may, however, decide that the material to be presented cannot be divided into single term courses or it is preferable that the work to be done is carried out over two, or three, terms. Under such circumstances, courses are identified by a two-character extension of the course number.

In some cases, the same course may be offered in various ways: as a single term and/or in one or more multi-term versions. The course content and credit weight is equivalent in all modes, the only difference being the scheduling, and students cannot obtain credit for more than one version.

Courses with numbers ending in D1 and D2 are taught in two consecutive terms (most commonly Fall and Winter). Students must register for the same section of both the D1 and D2 components. When registering for a Fall term D1 course on Minerva, the student will automatically be registered for the Winter term D2 portion. No credit will be given unless both components (D1 and D2) are successfully completed in consecutive terms, e.g., Fall 2007 and Winter 2008.

Courses with numbers ending in N1 and N2 are taught in two non-consecutive terms (Winter and Fall). Students must register for the same section of both the N1 and N2 components. No credit will be given unless both components (N1 and N2) are successfully completed within a twelve (12) month period.

Courses with numbers ending in J1, J2 and J3 are taught over three consecutive terms. Students must register for the same section of all three components (J1, J2, J3). No credit will be given unless all three components are successfully completed.

IMPORTANT CONDITIONS FOR MULTI-TERM COURSES

1. **Students must be registered for each component of the multi-term course. Students must ensure that they are registered in the same section in each term of the multi-term course.**
2. **Students must successfully complete each component in sequence as set out in the multi-term course. Credit is granted only at the end of the multi-term course; no credit is given for partial completion.**

6.3.3 Course Terminology

Prerequisite: Course A is prerequisite to course B if a satisfactory pass in course A is required for admission to course B. It is the responsibility of the student to check prerequisites.

Corequisite: Course A is corequisite to course B if course A must be taken concurrently with (or may have been taken prior to) course B.

Credits: The credit weight of each course is indicated in parentheses beside the course title. For D1 and D2 courses the credit weight is indicated after the course number.

COURSE NOMENCLATURE IN PROGRAM DESCRIPTIONS:

Required Course: Courses absolutely required in a program. All students in that program must take this (these) course(s) unless they are granted exemption(s).

Cours obligatoire: Cours foncièrement obligatoire dans un programme. Tous les étudiants inscrits à ce programme doivent suivre ce (ou ces) cours, à moins de bénéficier d'exemptions.

Complementary Course: Courses selected from a restricted list, a particular subject area, or a discipline. In some programs, students must include a number of these in order to meet program requirements.

Cours complémentaire: Cours sélectionnés à partir d'une liste limitée, ou de la liste des cours offerts dans une matière particulière ou dans une discipline. Dans certains programmes, les étudiants doivent inclure un certain nombre de ces cours afin de satisfaire aux exigences du programme.

Note: Complementary courses are not electives. The difference between Complementary courses and Required courses is that Complementary courses offer an element of choice, however small that choice may be. Students may choose from the two (or more) courses specified within Complementary Course segment(s) of a program description, but ONLY from those.

Elective course: courses chosen freely (with advice and approval of the Graduate Program Director and GPSO).

6.3.4 Class Schedule and Course Catalog

Students should consult Class Schedule when preparing to register (www.mcgill.ca/courses). Here they will find up to date information including days and times when courses are offered, class locations, names of instructors, and course pre-requisites. Class Schedule only displays courses that are being offered in the term selected.

For a complete listing of all McGill courses, even if they are not offered in a given year or term, students may consult the Course Catalog at www.mcgill.ca/courses. Searches are conducted by term and provide information such as full course descriptions, course pre-requisites and registration requirements.

6.4 Summer Studies

Registration regulations may change for Summer 2009. Detailed information about summer registration will also be available in March 2009 on the web at www.mcgill.ca/gps/current/records/registrations.

Graduate courses are available in some subject areas during the summer and the *Summer Studies Calendar* should be consulted for a complete listing of undergraduate and graduate level courses.

Students doing graduate work in Education are strongly advised to enrol in summer studies and many programs can only be completed by participation in summer studies.

Registration for courses for graduate students takes place via Minerva for the Summer session. It is the responsibility of the student to register for courses within the deadlines, after completing a Minerva Course Selection Form and obtaining departmental approval.

Students in thesis programs, who pay fees on a per term basis and who have already paid full-time tuition fees during the preceding year are not required to pay for required courses taken in the summer. Students in non-thesis programs will be charged fees for courses taken in the summer. **Registration for "summer studies" should not be confused with registration for a Summer term which has been discussed previously in section 6.2.3 "Summer Registration".**

Many summer courses have limited enrolment and students are advised to register for such courses as early as possible. Graduate students intending to register for restricted undergraduate courses MUST COME IN PERSON to the Graduate and Postdoctoral Studies Office with an approved Minerva Course Selection form, where the course will be added if there is space available in the course.

Please consult the *Summer Studies Calendar* for specific information on course dates and times. Information is also available on the Summer Studies Web site at www.mcgill.ca/summer.

6.5 Course Change Period

During the initial Registration Periods, **see section 6.2 "Registration"**, students may make changes to their course registrations (add or drop courses), subject to the requirements and restrictions of their program and of individual courses.

The Course Change deadline coincides with the deadline for late registration. Please refer to the Calendar of Dates, **section 2, "Calendar of Dates 2008-2009"**.

Students who are registered in the Fall term may continue to add and drop courses that will begin in the Winter term throughout the Fall term until the deadline for course change/late registration in the Winter term.

After the Course Change deadline, courses may be added only with written permission of the instructor and your department, and the approval of the GPSO. A fee will be charged for each course added.

6.6 Auditing of Courses

No auditing of courses is permitted at McGill.

6.7 Regulations Concerning Withdrawal

6.7.1 Regulations Concerning Course Withdrawal

Following the Course Change deadline there is a period of a few days during which students may withdraw, with a grade of W and full refund of course fees, from courses that start in that term.

After the Withdrawal (with refund) deadline, there is a period during which withdrawal from a course will also result in a grade of W but no course fees will be refunded.

Courses that begin in the Fall Term

Deadline for withdrawal (grade of 'W') with refund:

Sunday, September 21, 2008

Deadlines for withdrawal (grade of 'W') without refund:

- Single-term courses: Sunday, October 19, 2008

- Multi-term courses that began in Fall term: Tuesday, January 20, 2009

Courses that begin in the Winter Term

Deadline for withdrawal (grade of 'W') with refund: Sunday, January 25, 2009

Deadline for withdrawal (grade of 'W') without refund:

- Single-term courses: Sunday, February 15, 2009

- Multi-term courses that began in Winter term: Friday, May 15, 2009*

*Please note that students in multi-term courses with course numbers ending in N1 and N2 (begin in the winter, skip the summer, are completed in the subsequent Fall term) may withdraw after May 15 and until the end of the Fall term course change period by contacting their faculty Student Affairs Office.

After the withdrawal (without refund) deadline, but before the end of term, the student may, under exceptional circumstances, be granted permission to withdraw from a course. (Permission will not be granted merely because a student is doing unsatisfactory work.) A grade of W or WF, as appropriate, will appear on the transcript but will not be calculated in the GPA. For further information students should consult their faculty Student Affairs Office.

Note:

1. Students who wish to withdraw from required or complementary courses should also secure permission from their adviser. A course withdrawal form is available from the faculty Student Affairs Office. (Additional restrictions for Music courses are indicated in the Schulich School of Music section.)
2. The responsibility for initiating withdrawal rests solely with the student. Neither notification of the course instructor nor discontinuance of class attendance will suffice. The date on which a student's withdrawal is entered on Minerva is the official date of withdrawal, even if the student stopped attending lectures earlier.
3. Fee refunds, if any, will be in accordance with **section 8.9 "Fees and Withdrawal from the University"**.

6.7.2 Regulations Concerning University Withdrawal

Students considering University withdrawal are strongly urged to consult with their adviser and Student Affairs Office before making a final decision.

Student's responsibility

The responsibility for initiating University withdrawal rests solely with the student. Neither notification of the course instructor nor discontinuance of class attendance will suffice. The date the request for withdrawal is submitted to the GPSO is the official date of withdrawal, even if the student stopped attending lectures earlier.

6.7.3 Deadlines for University Withdrawal

All students who have accessed Minerva to register must officially withdraw within deadlines if they decide not to attend the term(s) for which they have registered. See Withdrawal (W) deadline dates in the Calendar of Dates.

Students who wish to withdraw from the University by the deadlines indicated below must drop or withdraw from all courses on Minerva.

Fall Term:

Deadline for University withdrawal with refund (minus \$100 for returning and \$200 for new students):

Sunday, September 21, 2008

Deadline for University withdrawal without refund:

Sunday, October 19, 2008

Winter Term:

Deadline for University withdrawal with refund (minus \$100 for returning and \$200 for new students):

Sunday, January 25, 2009

Deadline for University withdrawal without refund:

Sunday, February 15, 2009

Students who are blocked from dropping or withdrawing from their last course on Minerva are required to contact their Student Affairs Office.

Special Note for Graduate Students: A Withdrawal form must be submitted to GPSO by the withdrawal deadlines indicated.

6.7.4 Consequences of University Withdrawal

Fee refunds, if any, for the term in which the student withdraws will be in accordance with [section 8.9 "Fees and Withdrawal from the University"](#).

Upon withdrawal, students are required to return their ID card to the University as stated in [section 6.19 "Identification \(ID\) Cards"](#).

Students who withdraw from the University and wish to re-register in a subsequent term must follow the procedures for re-admission, [section 5.1 "Application for Admission"](#).

Students who withdraw during the Fall term are considered withdrawn from the entire academic year, regardless of whether Winter term courses are dropped. If they wish to return for the Winter term, they must follow the procedures for readmission.

6.8 Grading and Grade Point Averages (GPA)

Classification of Marks:

Courses can be graded either by letter grades or in percentages, but the official grade in each course is the letter grade. Beginning in the Fall term of 2002 all verification forms, transcripts and other documents show only letter grades for all subsequent terms.

Grades A through B- are termed satisfactory passes, and F a failure. Certain courses have been approved for Pass/Fail (P/F) grading. Students must obtain grades of B- or better in courses used to fulfill program requirements.

Grades	Grade Points	Numerical Scale of Marks
A	4.0	85 - 100%
A-	3.7	80 - 84%
B+	3.3	75 - 79%
B	3.0	70 - 74%
B-	2.7	65 - 69%
F (Fail)	0	0 - 64%

Letter grades are assigned grade points according to the table shown above. A student's academic standing will be determined based on the basis of a grade point average (GPA), which is calculated by dividing the sum of the credit times the grade points by the total courses GPA credits. GPA credits are the credits of courses with grades that are assigned grade points.

$$\text{GPA} = \frac{\sum (\text{course credit} \times \text{grade points})}{\sum (\text{GPA course credits})}$$

The term grade point average (TGPA) will be the GPA for a given term calculated using all the applicable courses at the same level in that term. The cumulative grade point average (CGPA) will be the GPA calculated using the student's entire record of applicable courses at McGill at the same level effective the Fall 2002 term. If the level is changed (e.g. from Master's to Doctoral), the CGPA will start again. For students with academic information prior to Fall 2002, who are continuing in the same program or are registered in a different program or level post-Fall 2002, the transcript displays a special message regarding the CGPA being calculated effective Fall 2002 onwards. If courses are repeated, all results are included in the GPA calculation. Therefore, grades of F or J continue to be used in the CGPA calculation (and remain on the record) even after the course is repeated or if a supplemental examination is taken.

Other Grades:

IP – **In Progress.** (Master's Thesis Courses Only)

P – **Pass.** Pass/Fail grading is restricted to certain seminars, examinations and projects only. In such cases all grades in these courses are recorded as either Pass or Fail. Not included in GPA calculations.

HH – **To be continued.** The use of this grade is reserved for major research projects, monographs and comprehensive examinations as designated for graduate studies.

J – **Absent:** to be recorded for the student who did not write the final examination and had not been granted deferred status, or who did not complete an essential part of the course requirements without a valid reason. This is a failure and is calculated in the TGPA and CGPA as a failure. (Students may appeal the assignment of the grade of J, but circumstances such as appearing at the incorrect time for an examination would not be sufficient reason for this grade to be replaced by a deferral. Students who have earned sufficient marks to pass the course even though the final examination is not written, may opt to have their grade based on the record to date.)

K – **Incomplete:** deadline extended for submission of work in a course or for the completion of a program requirement such as a Ph.D. language examination (maximum four months). (Need a K contract signed.)

KF – **Incomplete/failed:** failed to meet the extended deadline for submission of work in a course or for the completion of a program requirement. This is a failure and is calculated in the TGPA and CGPA as a failure.

KK – **Completion requirement waived.** This is used in exceptional cases only, with the approval of the Director of the Graduate and Postdoctoral Studies Office. Not calculated in TGPA or CGPA.

KE or K* – **Further extension** granted with the approval of the Director of the Graduate and Postdoctoral Studies Office (maximum two years.) (Need a K contract signed.)

L – **Deferred:** for students whose final examinations or papers have been deferred, for reasons such as illness, at the time of the examination. The "L" grade must be cleared as soon as possible (maximum four months).

A dated medical certificate or appropriate document recommending a deferral must be submitted to the Graduate and Postdoctoral Studies Office with a departmental recommendation for a deferral **before or immediately after** the examination. In particular, such recommendations will not be considered if medical reasons are brought forth after a grade is assigned.

By commencing to write any examination, the student waives the right to plead medical causes for deferral or permission to write a supplemental examination, unless the medical problem occurs in the course of the examination and is documented by examination authorities.

LE or L* – **Further deferral:** permitted to defer examination for more than the normal period.

NA or && – **Grade not yet available.**

NR – **No grade reported** by the instructor (recorded by the Registrar).

Q – Course continued in next term.

Satisfactory/Unsatisfactory – **Not used for graduate students.**

W – **Withdrawn with approval.** A course dropped, with permission, after the change of course period. Not included in GPA calculations.

WF – **Withdrawn failing:** a course dropped, with special permission in exceptional case, after faculty deadline for withdrawal from course, the student's performance in the course at that stage being on the level of an F; not calculated in TGPA or CGPA. (Not used in Music and Graduate Students.)

WL – Withdraw from a deferred examination (approved by GPSO); not calculated in TGPA or CGPA.

W-- or -- – **No grade.** Student withdrew from the University; not calculated in TGPA or CGPA.

6.9 Verification of Student Record

6.9.1 Unofficial Transcripts

Students are responsible for verifying their academic record on Minerva using the unofficial transcript to ensure that they are registered in the proper courses, and that the correct program information and expected term of graduation is appearing on their record.

Graduating students must make sure to verify their record on Minerva prior to the end of term in which they are graduating to ensure that the correct expected term of graduation is indicated on their unofficial transcript; if not, the student may be overlooked for graduation. Any questions or problems with their record should be directed to the Graduate Program Director.

6.10 Changes to Student Records after Normal Deadlines

6.10.1 Student Record Changes

Student record changes include: course add or course drop, course withdrawal, university withdrawal, program change (including changing minors or concentrations).

6.10.2 Registrar Deadlines

Fall term - January 31
Winter term - June 1
Summer term - October 1

6.10.3 Before Registrar Deadlines

For record changes after the normal deadlines published in the calendar, but before the Registrar deadlines above, the student must make a request in writing to the Associate Dean of their faculty or Director of Graduate and Postdoctoral Studies (GPSO) for graduate students (or Director, BCom Program, Desautels Faculty of Management), clearly explaining the reasons why the change could not have been requested prior to these dates. The Associate Dean will then review the request and render a decision. If

permitted, the change will then be processed according to existing faculty and Enrolment Services student record procedures.

6.10.4 After Registrar Deadlines

A change that is requested after the Registrar deadlines above will not normally be considered. In situations where there are "extraordinary personal" or "extraordinary academic" circumstances that could not have been foreseen prior to these deadlines, students may formally request a student record change from the Associate Dean of the faculty or Associate Dean of Graduate and Postdoctoral Studies (GPSO) for graduate students (or Director, BCom Program, Desautels Faculty of Management). If the Associate Dean of the faculty approves the request, the change will then be processed according to faculty and Enrolment Services student record procedures. For all changes other than grade changes, full documentation supporting extraordinary circumstances will be filed by the faculty with Enrolment Services.

6.10.5 Fee Assessment Consequences

When a change to the student record is made, the revised fee assessment will be reflected on the next fee statement.

If a student wishes to contest the fee assessment, he or she must make a request in writing to Enrolment Services. ES, upon reviewing the extraordinary circumstances described in the supporting documentation provided by the faculty, and upon consultation with the Student Accounts Office if necessary, will decide whether or not to consider the request and will advise the student in writing of the outcome.

6.10.6 Student's Citizenship and/or Immigration or Fee Exemption Status

Changes related to student's citizenship and/or immigration or fee exemption status are not handled by the Faculty and are dealt with in [section 6.18, "Legal Documents"](#).

6.11 Failure Policy

Students who have failed one course required by their department while registered as a graduate student may automatically write one supplemental examination, if the departmental policy permits, or retake that course or substitute an equivalent course. For the purposes of this policy, "required course" includes either a course required by the student's program of study, or a course that has been designated by the department for an individual student's program of study. Students with any further failures in that course, including the supplemental, or a failure in any other course, will be required to withdraw from their program of study. When a student retakes a course, he/she is required to pay the fee charged for the course in question. Ph.D. students and Master's students in thesis programs can also be required to withdraw from their program of study for documented lack of performance in research.

The failure policy does not pertain to the failure of comprehensive examinations, doctoral oral defenses, or thesis failures. In the case of a failed thesis or defense, the Thesis Failure Policy, detailed in the Thesis Guidelines, applies. In the case of a failed comprehensive examination, the Ph.D. Comprehensives Policy applies.

(Senate, October 11, 2000.)

(Revised, GPS Council, February 10, 2003)

Procedure to follow in cases of failure:

The procedure in cases of initial failure is as follows: the failing grade is to be recorded and a letter sent to the Graduate and Postdoctoral Studies Office indicating that a supplemental examination is to be given under the Failure Policy. If the supplemental is passed, the second grade should be submitted. The same procedure applies for a recommendation of a retake or a substitution.

In the event of a failure of a supplemental exam, the department should request, in writing, that the student withdraw (with a copy of said letter forwarded to the GPSO).

Similarly, in the event of a failure in a second course, a written request for withdrawal (copied to the GPSO) should be sent to the student.

Note: A student in a graduate program who has failed one course while being a Special Student in a graduate studies will have this failure count as a first failure in a related graduate program. Any further failure will require withdrawal from the program of study.

6.12 Language Policy

The main language of instruction at McGill is English. Every student has a right to write essays, examinations, and theses in English or in French except in courses where knowledge of a language is one of the objectives of the course.

It is recommended that students who lack proficiency in English avail themselves of the opportunity to take an intensive English as a second language course prior to, or early in, their program of studies. Information concerning second language course offerings can be found in the Faculty of Arts section of the Undergraduate Programs Calendar and in the Summer Studies and Continuing Education Calendars. There are special language requirements for Faculty of Education students.

6.13 Regulations Concerning Theses

The thesis submission guidelines contain important information regarding procedures and deadlines. Students who are in the process of writing a thesis must consult these thesis submission guidelines in order to adhere to University regulations concerning the submission of a thesis. Thesis submission guidelines and all the forms required for thesis submission are posted on the Web at www.mcgill.ca/gps.

Forms and guidelines are updated as procedures change. Students should keep informed of these changes by referring to the Website.

Dates of submission of theses, convocations, etc. are listed in [section 2 "Calendar of Dates 2008-2009"](#) and are available on the Web at www.mcgill.ca/students-information/dates.

6.14 Graduation

In order to graduate, a student must complete faculty and program requirements. **It is the student's responsibility to ensure that all faculty requirements are met before graduation.** All students should contact their advisers (Music students should contact their Senior Student Adviser, Graduate students should contact their Graduate Program Director) early in the graduating year with any questions as to whether they will meet the necessary program requirements by graduation time.

6.14.1 Apply to Graduate

Students in non-thesis programs (master's, certificates, diplomas) must use Minerva to apply to graduate. It is your responsibility to inform us of your intention to graduate.

Deadlines:

- Students who intend to graduate at the end of the fall term (courses completed December for June convocation) must apply on Minerva by the end of November.
- Students who intend to graduate at the end of the winter term (courses completed April for June convocation) must apply on Minerva by February.
- Students who intend to graduate at the end of the summer term (courses completed by August for October convocation) must apply on Minerva by March.

Students who have missed these deadlines must follow the procedures on the web at www.mcgill.ca/gps/program/nonthesis.

The Application for Graduation is available on Minerva for students in non-thesis programs who have registered for their final year. For more information on how to apply on Minerva, go to www.mcgill.ca/minerva-students/records/graduation.

Graduation Fee

All students are charged a compulsory transcripts and diploma charge in each term of registration. This will entitle students to order transcripts free of charge as well as cover the costs of graduation.

6.14.2 Graduation Approval Query

Graduating students may view the status of their graduation record on Minerva as part of the Faculty review and approval process. The menu option called "Student Graduation Query" is accessed via the Student Records menu option on Minerva, and becomes available to graduating students approximately 3-4 weeks before the "degree granted" notation is updated on their records.

If all requirements for graduation are met, the student's record on Minerva will be updated with the "degree granted" notation at the appropriate time:

- late February, if term of graduation is Fall (Convocation in Spring)
- late May, if term of graduation is Winter (Convocation in Spring)
- late October, if term of graduation is Summer (Convocation in Fall)

Note: Information regarding the Convocation ceremonies can be obtained on the McGill Website at www.mcgill.ca/convocations.

6.14.3 Replacement Diploma

There are several instances when students might request a replacement diploma: if your diploma was lost, damaged, or if the name on the diploma should be changed. Students must make a request in writing and should also include a certified cheque or money order for the amount of CDN \$60 made payable to McGill University. Students should refer to the sections below to determine which situation applies to them. All requests should be sent to:

Enrolment Services
 Duplicate Diploma Request
 McGill University
 James Administration Building, Room 205
 Montreal QC H3A 2T5
 E-mail: registration@mcgill.ca

Please note that requests made on behalf of a student must be accompanied by a signed letter of authorization from the student.

To replace a lost diploma: Students must provide a sworn affidavit from a notary, a lawyer or a commissioner of oaths certifying that the diploma is lost. The affidavit should include: full name; student number; address; phone number; date of birth; degree granted/year granted; reason for a replacement diploma.

To replace a damaged diploma or change the name on the diploma: Students must send or deliver the original diploma. Include clear and complete photocopies of legal documents supporting the name change. Please refer to [section 6.20.1, "Legal Name"](#) for the list of acceptable documents. Please note that the name change must be processed in the system before a duplicate diploma can be issued. Students must enclose a letter containing the following important information: full name; student number; address; phone number; date of birth; reason for a replacement diploma; new spelling/grammar changes.

6.14.4 Dean's Honour List

Only graduate students who have completed their program within the University's time limitation for their program are considered for the Dean's Honour List designation.

The criteria for inclusion in the Dean's Honour List is as follows:

Master's Thesis Candidates:

Truly outstanding student recommended by the department.

6.15 Policy Concerning Access to Records

Statements of account and all other correspondence are sent directly to students who retain full control as to who has access to their records or accounts. (Officers and members of the University staff may also have access to relevant parts of such records for recognized and legitimate use.) No progress report or any other information is sent to parents and/or sponsors unless specifically requested by the student in writing.

In accordance with the Act Respecting Access to Documents held by Public Bodies and the Protection of Personal Information (the "Access Act") personal information, including transcripts of academic records, may be released only with the authorization of the student. When a student applies to McGill, he/she authorizes the University to release certain personal information (name, address, telephone number, e-mail address, date of birth, program and student status) to the persons and bodies listed below.

The following persons and bodies are included in the authorization:

- libraries of other Quebec universities with which McGill established reciprocal borrowing agreement (ID number and bar code may also be disclosed to such libraries)
- the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS), in order to create, validate and/or modify the student's Permanent Code
- the appropriate authorities involved with the external or internal funding of the student's fees (financial records may also be disclosed to such authorities)
- the Association of Universities and Colleges of Canada
- the Association of Registrars of Universities and Colleges of Canada and the Conférence des recteurs et des principaux des universités du Québec, or the member institutions of these organizations, for the purpose of admissions operations and the production of statistics
- the school(s) or college(s) which the student attended
- students and alumni who have volunteered to speak with admitted students
- the Student Associations recognized by McGill University for the category(ies) of students to which the student belongs
- the McGill Alumni Association
- professional bodies or corporations (e.g., engineers, dentists)
- McGill Network and Communications Services for the purposes of listing the student's McGill e-mail address in an on-line e-mail directory.

Students who choose not to authorize the University to disclose personal information to the organizations mentioned above in h, i, j and k must complete and submit an Opposition Form. The Opposition Form is available at Enrolment Services.

6.16 Transcript of Academic Record

6.16.1 Unofficial Transcripts

Students who require a copy of their student record can view and print their own unofficial transcript by accessing Minerva. This applies to records from 1976 to present. For pre-1976 records, an official transcript must be ordered.

6.16.2 Official Transcripts

Official transcripts can be ordered on-line via **Minerva** by going to Student Menu->Student Records Menu->Request Printed/Official Transcript. Students who cannot access Minerva should fill out the "Request for Release of Official Document" form available on-line at www.mcgill.ca/student-records/transcripts or in person at Enrolment Services at the address below. Transcript requests may be submitted by mail, by fax, or in person but must be signed by the student. To protect privacy, we do not accept telephone or e-mail requests.

Enrolment Services
James Administration Building
845 Sherbrooke Street West, Room 205
Montreal, Quebec H3A 2T5
Fax: (514) 398-8939

6.16.3 General Information

Transcripts are free of charge.

Official transcripts are sent directly to the addresses provided by the student. Official transcripts in sealed envelopes can be given to those requesting them.

Requests are processed in 3 to 5 working days, somewhat longer for pre-1976 records and at peak times.

Enrolment Services is not responsible for transcripts that are lost or delayed in the mail.

The University will issue only complete transcripts recording all work attempted and results obtained in any and all programs. In no circumstances will partial transcripts be issued.

Official transcripts will NOT be issued for students registered on or after September 2001 who have failed to provide the information and/or documents necessary to obtain or verify their Permanent Code.

Transcripts will not be issued if you owe fees or fines over \$30.

Official transcripts are produced on secure paper that cannot be copied.

6.16.4 Course Numbering on the Transcript

Prior to September 2002, course numbers had a seven-character designation beginning with the three-number code for the teaching unit/department. The next three digits specified the course, with the first of these indicating its level. The final character was a letter indicating the term, or terms, during which the course was offered. For example:

107-200A = Philosophy (107) course (200) in Fall term (A);
301-202B = Architecture (301) course (202) in Winter term (B);
154-230D = Economics (154) course (230) extending for two terms, Fall and Winter (D).

A list of the former Teaching Unit Codes and their Subject Code equivalents is available on the Web at www.mcgill.ca/student-records/transcripts.

6.17 Academic Integrity

Communicating about academic integrity is an essential way to foster it. In submitting work in their courses, students must understand the meaning and consequences of plagiarism and cheating; these are considered to be extremely serious academic offences. Students who have any doubt as to what might be considered plagiarism in preparing an essay or term paper should consult the instructor of the course to obtain appropriate guidelines. There is a student guide to the meaning of plagiarism; students should consult the academic integrity Website at www.mcgill.ca/integrity.

Links to instructional tutorials are also provided on this Website. Strategies to prevent cheating are also provided on the Integrity Website. The possession or use of unauthorized materials in any test or examination constitutes cheating. Responses on multiple-choice examinations are normally checked by the exam security computer monitoring program. The program detects pairs of students with unusually similar answer patterns on multiple choice exams. Data generated by the exam security computer monitoring program can be used as admissible evidence either to initiate or corroborate an investigation or a charge of cheating under Section 16 of the Code of Student Conduct and Disciplinary Procedures.

The Code of Student Conduct and Disciplinary Procedures includes sections on plagiarism and cheating. The Code is included in the *Handbook on Student Rights and Responsibilities*, which is available through the academic integrity Website or at www.mcgill.ca/secretariat/handbooks/student.

6.18 Legal Documents

6.18.1 Why Do We Collect Legal Documents from You?

Your **tuition fees** at McGill will vary according to whether you are a Quebec student, a Canadian out-of-province student, or an international student, as per [section 6.18.2 "What Documents Do We Need from You?"](#) Fee schedules are listed in [section 8 "Fees and Expenses"](#).

Some of the documents we ask from you help us obtain your **Permanent Code** from the Government of Québec. This unique 12-character code, issued by the Ministry of Education, is obligatory for all students registered in a Quebec Institution.

If you have previously attended school in Québec, you already possess a Permanent Code - you can find it on your school report card or your CEGEP or university transcript. Students can also check if McGill has received their Permanent Code after they have accepted the University's offer of admission on Minerva under the Personal menu.

Students can consult their tuition and legal status (including their Permanent Code) on Minerva. Select **Student Menu -> Student Accounts Menu -> View your Tuition and Legal Status**.

6.18.2 What Documents Do We Need from You?

Follow instructions in the **first** row of this table that applies to you. **Send clear, legible copies of documents (not originals)**.

Quebec and Canadian-Out-Of-Province Students

You have applied to McGill from CEGEP or you already have a student record at McGill	<ul style="list-style-type: none"> Usually no documents are required for your Canadian and/or Quebec status, as per our records or as ascertained from the Quebec Ministry of Education (MELS).
You have applied to McGill from another Quebec University	<ul style="list-style-type: none"> Canadian birth certificate; or Canadian citizenship card (both sides); or Certificate of Indian status card; or Makivik Society card; or Record of Permanent Resident status (note 3) For your Quebec residency status, usually no documents are required, unless we cannot ascertain this from the Quebec Ministry of Education (MELS)
You were born in Quebec	<ul style="list-style-type: none"> Quebec birth certificate (note 1 & 5) Permanent Code Data Form (note 2 & 6)
You were born (or became a Landed Immigrant) in a Canadian province other than Quebec	<ul style="list-style-type: none"> Canadian birth certificate; or Canadian citizenship card (both sides); or Certificate of Indian status card; or Makivik Society card; or Record of Permanent Resident status (note 3) Permanent Code Data Form (note 2 & 6)

You are a Quebec resident through one of the other situations outlined by the Ministry of Education	<ul style="list-style-type: none"> Canadian birth certificate; or Canadian citizenship card (both sides); or Certificate of Indian status card; or Makivik Society card; or Record of Permanent Resident status (note 3) Permanent Code Data Form (note 2 & 6) Attestation of Residency in Quebec Form (note 6) Other supporting documents, depending on which situation you checked on the above Attestation of Residency form
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International Students

You will be in Canada for less than 6 months (i.e. for only one academic semester)	<ul style="list-style-type: none"> Visitors Permit issued by Citizenship and Immigration Canada at your port of entry into Canada Photo page of your passport and the page stamped by Citizenship and Immigration Canada at your port of entry Permanent Code Data Form (note 2 & 6)
You will be in Canada for more than 6 months (i.e. for two or more consecutive academic semesters)	<ul style="list-style-type: none"> Certificate of Acceptance of Quebec (CAQ) Permanent Code Data Form (note 2 & 6) Study Permit issued by Immigration Canada (note 4)

Note 1: You may alternatively supply your Quebec baptismal certificate if it was issued **prior to January 1, 1994** and clearly shows where you were born and that your baptism occurred no more than 4 months after your birth.

Note 2: Permanent Code Data Form (signed) is usually required. If the names of your parents appear on your birth certificate, or if you have already provided us with your Permanent Code, you do not need to supply this form.

Note 3: Proof of Permanent Resident status can be proved by an IMM 5292 document together with the Permanent Resident card (copy of both sides required). Alternatively, you may provide the IMM 1000 document along with the PR card (copy of both sides required).

Note 4: If you are a refugee, you should instead provide your Convention Refugee status document.

Note 5: Usually we need your birth certificate to prove your place of birth in Quebec. If you already have a valid MELS Permanent Code, but we are still showing you as being charged Canadian fees, we will accept a Canadian passport that shows your birth place in Quebec as proof that you qualify for Quebec residency.

Note 6: The links to download and print the **Permanent Code Data and Attestation of Quebec Residency** forms can be found at www.mcgill.ca/legaldocuments/forms.

Fee Exemptions

Exemptions from international tuition fees may be claimed by students in certain categories. As well, both international and non-Quebec Canadian students or Canadian Permanent Residents in certain language courses (in some cases programs) leading to a degree in French may be eligible for a fee exemption from international or the non-Quebec Canadian rate. Please note that the list of language course (in some cases, programs) is limited and subject to change by the Ministère de l'Éducation, du Loisir et du Sport. Students, if eligible for one of the exemption categories, are then assessed at the Quebec student rate. A list of categories and the required application forms are available at www.mcgill.ca/student-records/fees/exemption and also at Enrolment Services where the application forms must be submitted. An exemption will not be granted unless the application form is submitted.

6.18.3 Have We Received Your Documents?

Quebec/Canadian/International Fees

Once received, it usually takes us about a week to record your documents and update your file accordingly.

- Check your tuition status on **Minerva** student accounts menu: **Student Menu->Student Accounts Menu->View your Tuition and Legal Status**.
- Check the phrase: *Fees currently calculated according to rules for...* This will tell you if you are assessed as: International student, Canadian student, or a Quebec student.
- The University has implemented e-billing as of the 2005-2006 academic year. A paper fee statement will no longer be

mailed via Canada Post. For more information please refer to the following Website:

www.mcgill.ca/student-accounts/e-bill.

If you do not agree with the assessment, notify us right away. We cannot accept changes or offer you a lower tuition rate after the last day of classes at the end of the term, as the government does not allow us to amend our files at that point.

Permanent Code

It can take anywhere from one week to four weeks for the Ministry to verify or issue your Permanent Code.

Check your Permanent Code on Minerva: **Personal Menu**

->**Name Change** or alternately via **Student Menu->Student Accounts Menu->View Tuition Fee and Legal Status**. If your 12-character Permanent Code appears there, your documents are in order. If not, you have not yet provided us with your documents listed above or we have not yet received confirmation from the Ministry that your documents are sufficient for creation of a Permanent Code.

6.18.4 What Are the Consequences of Not Providing Your Documents?

All proofs of citizenship, requests for Quebec residency, international fee exemption, and immigration status changes must be received by the end of the last day of classes of a current term to take effect for that term. **All documents received after that date will be updated and lower your fees for the following term only.**

We cannot issue you an ID card without having received your documents. Your ID card is essential to use many services on campus, and to sit for your final exams.

If your Permanent Code has not been issued by October 15 (Fall term) or February 15 (Winter term) we will put a hold on your record, which will prevent you from registering or dropping any courses, and will prevent you from obtaining your official transcript, until our record has been put in order. For students in short programs, this action may be taken earlier in the term.

Should your tuition status be reduced as a result of the document review process, any late payment or interest charges accumulated on the difference will also be waived.

6.18.5 Where Do I Send my Documents?

Send in all your documents after you have been accepted to McGill and before you arrive on campus. **Do not send us originals.** Please fax or mail a clear and legible photocopy. Write your McGill ID on the documents so that we can match them to your record. The sooner you submit your documents, the sooner we can update your status and ensure that your record is in order.

By E-mail:

You may submit your legal documents electronically by following these steps:

1. **Save the attached file in an accepted format:**
 - Standard PDF (.pdf) - encrypted PDF's will not be accepted
 - Tagged image format (.tif, .tiff; for scans)

(Due to the possibility of malicious content, Microsoft Word Documents (.doc), Hypertext files (.htm, .html) or any other format will not be accepted. Do save in an accepted format and do not just rename the file extension.)

2. **Ensure that the resolution used is no less than 300 dpi** for an electronic replica (scan) of documentation (e.g., scan of your birth certificate). Preferred file size is 100Kb per image.
3. **Address your e-mail to legaldocumentation@mcgill.ca and attach your relevant scanned document(s).** Files should be sent as attachments to your e-mail and not as part of the e-mail body.
4. **Put your First Name, Last Name, and McGill ID number in the subject line of your e-mail.**
Note: Individual e-mail size (including your attachments) should not exceed 5 MB (5120 KB).

By Mail:

Enrolment Services
Documentation Centre
688 Sherbrooke Street West, Suite 1460
Montreal, QC H3A 3R1 CANADA

By Fax:

(514) 398-3227

In Person or by Courier:

Enrolment Services
James Administration Building, Room 205
845 Sherbrooke St. West
Montreal, QC H3A 2T5 CANADA

If there is a problem with your documents, you may contact us at:

Telephone: (514) 398-4474

E-mail: admissions@mcgill.ca

6.19 Identification (ID) Cards

Students registered at McGill are required to present an ID card when writing examinations and when using libraries, Student Services, certain laboratories, and many residences.

An ID card cannot be issued until at least 3 hours after the student has registered. When requesting the card, new students must present Permanent Code information and proof of legal status in Canada (for a list of documents please see [section 6.18 "Legal Documents"](#)).

ID cards will not be issued if any of the legal documents are missing.

Registered students may obtain an ID card at these times and locations:

Quebec CEGEP students: Thursday, June 10 to Friday, August 29th, 2008, Open 9:00 a.m. to 5:00 p.m. (note that we are closed on: Monday June 23rd & Tuesday June 24th, Monday, June 30th & Tuesday, July 1st and week-ends). You are encouraged to come during this period to avoid line-ups later in August. No international students can be carded before August 20.	Enrolment Services, James Administration Building, Room 205
Canadian and Quebec students: Tuesday, July 29th to Tuesday, August 19th, 2008, Open 9:00 a.m. to 5:00 p.m. (except week-ends). You are encouraged to come during this period to avoid line-ups later in August. No international students can be carded before August 20.	Enrolment Services, James Administration Building, Room 205
All students, including international students: Monday, August 20 to Friday, August 29th, 2008. Open 9:00 a.m. to 5:00 p.m. including Saturday and Sunday, August 23-24.	Lorne M. Trottier Building 3630 University Street
Starting Tuesday, September 2, 2008, Normal office hours.	Enrolment Services, James Administration Building, Room 205

ID Card Schedule for the Macdonald Campus:

Quebec CEGEP students (newly registered), may obtain an ID card from the Student Affairs Office, Room 106, Laird Hall. Office hours are from 9:00 a.m. to 4:00 p.m., Monday through Thursday and 9:00 a.m. to 3:00 p.m. on Friday throughout the Summer. (Please note that the Student Affairs Office will be closed for the statutory holidays of Tuesday June 24th as well as Tuesday July 1st).

Canadian and Quebec Students, may obtain an ID card during the weeks of August 4 to 8, 11 to 15, 18 to 22, 25 to 29, from the Student Affairs Office, Room 106, Laird Hall. Those students missing any of the dates noted will be able to obtain their ID cards during Orientation activities.

International Students, may obtain their ID cards as of August 20, 2008 from the Student Affairs Office, Room 106, Laird Hall.

As of Tuesday, September 2nd, 2008, ID cards may be obtained from the Macdonald Campus Student Affairs Office during normal office hours.

Notes:

- students who do not register for consecutive terms should retain their ID card to avoid having to replace it when they re-register.
- if your card has expired there is no charge for a replacement as long as you hand in the ID card.
- if you change programs or faculties there is no charge as long as you hand in the ID card.
- if your card has been lost, stolen or damaged, there is a \$20 replacement fee.
- students who need security access to labs or other facilities should refer to www.mcgill.ca/security/services/access.

The Student Identification Card is the property of the University, is to be used by the cardholder only, and is not transferable. Students withdrawing from all of their courses must attach their ID card to the withdrawal form or return their ID card to Enrolment Services (or the Faculty of Agricultural and Environmental Sciences, Student Affairs Office, Macdonald Campus).

6.20 Name

6.20.1 Legal Name

All students are registered under their legal name as shown in one of the following documents:

1. Canadian birth certificate.
2. Canadian Immigration Record of Landing (IMM1000 or IMM5292 and Permanent Residence card, both sides).
3. Canadian Immigration Study or Work Permit document.
4. Certificate of Acceptance of Quebec (CAQ).
5. International passport (for Canadians, a Canadian citizenship card is required. Note that a Canadian passport is not acceptable).
6. Letter from international student's consulate or embassy in Canada.
7. Marriage certificate issued outside of Quebec* (translated into English or French by a sworn officer if in another language).

In the case of a variation in the spelling of the name among these documents, the University will use the name on the document that appears first on the above list.

Note: This is the name that will appear on the student's degree, diploma or certificate on graduation, and on the student's transcript, and used by the Ministère de l'Éducation, du Loisir et du Sport (MELS) to create a Permanent Code.

* Quebec marriage certificates are only acceptable if issued prior to 1984.

6.20.2 Preferred First Name

Students can provide a preferred first name at the time of admission on their web application and following that by sending a signed request to Enrolment Services, James Administration Building, Room 205, for the name to be updated on their file.

The preferred first name is included on class lists (in brackets alongside the legal name) for use by instructors. Students should note that their legal name will be the name that will appear on their transcript and diploma.

6.21 Verification of Name

Students should verify the accuracy of their name on McGill's student records via Minerva. Any necessary corrections to formatting, e.g., changing case (upper/lower), adding accents and spacing, can be made on Minerva under the **Personal Menu -> Name Change Form**.

Students **cannot** change the name on their record via Minerva. Requests for such changes must be made by presenting official documents (see section 6.20.1 "Legal Name") in person at Enrolment Services, James Administration Building, Room 205.

6.22 E-mail Communication

E-mail is an official means of communication between McGill University and its students. All students are assigned a McGill e-mail address. They should view and verify their McGill e-mail address on Minerva, under the Personal menu. As with all official University communications, it is the student's responsibility to ensure that time-critical e-mail is accessed, read, and acted upon in a timely fashion. If a student chooses to forward University e-mail to another e-mail mailbox, it is that student's responsibility to ensure that the alternate account is viable.

It is a violation for any user of official McGill e-mail addresses to impersonate a University officer, a member of the faculty, staff or student body, in line with the McGill University "Code of Conduct for Users of McGill Computing Facilities" and relevant federal and provincial legislation.

The E-mail policy is available at www.mcgill.ca/email-policy. Find more information on E-mail at www.mcgill.ca/it under "Email and Calendaring". Please see section 4.5 "For your Information Technology (IT) needs".

6.23 Updating Personal Information

It is important that all students keep their official records up to date, especially their mailing or student billing address as these are used by the University year round. If address information on file is invalid, incomplete or missing, a student's mail will be held. Once a valid address has been updated, future mail will be sent to the student.

Students must update their addresses and/or telephone number and emergency contact information on Minerva in the Personal Menu tab.

Students who are away from campus and do not have access to the Internet may request changes by writing to their Student Affairs Office or to Enrolment Services. A written request must include the student's signature.

Changes to personal information requiring verification of official documents, e.g., change of name or citizenship or correction of birth date, must be reported to Enrolment Services as soon as possible. Such changes can only be made in person at Enrolment Services, James Administration Building, Room 205. Macdonald campus students can request changes in person at the Student Affairs Office, Laird Hall, Room 106.

6.24 Authorization, Acknowledgement and Consent

When applying for admission to the University, all students acknowledge that they are bound by and undertake to observe the statutes, rules, regulations, and policies in place from time to time at McGill University and the faculty or faculties in which they are registered, including those policies contained in the University Calendars and related fee documents. Their obligation as a student commences with their registration and terminates in accordance with the University's statutes, regulations, and policies.

Students should verify any information or statement provided as part of their application, realizing that an admission granted based on information in their application or supporting documents that is incorrect or untrue may be revoked at the sole discretion of the University.

6.25 Student Rights and Responsibilities

The *Handbook on Student Rights and Responsibilities* is published jointly by the Office of the Dean of Students and the University Secretariat. A compendium of regulations and policies governing student rights and responsibilities at McGill, it is distributed to new students at the Dean of Students' Orientation Sessions on both downtown and Macdonald campuses.

The Handbook is also available on the Web at www.mcgill.ca/deanofstudents/rights.

6.26 Proper Use of Computing Facilities

Students are required to comply with the Code of Conduct for Users of McGill Computing Facilities as approved by the University Senate. The Code is published in the *Handbook on Student Rights and Responsibilities*.

This policy (or code) is also posted on the CIO Website at www.mcgill.ca/cio/e-policies.

6.27 Non-Smoking Policy

Quebec law prohibits smoking in public buildings.

6.28 Health Professions - Immunization Requirement

A compulsory immunization program exists at McGill for students in the health professions, including Dietetics. New students in those programs must complete the immunization program well before classes begin. Further information is available from the Student Health Service, (514) 398-6017.

6.29 Health Insurance - International Students

By Senate regulation, all students (full-time, part-time, special, exchange and visiting) and their accompanying dependants who do not have Canadian citizenship or Permanent Resident status must participate in the University's compulsory sickness and accident plan. For enrolment procedures and details on the health insurance plan, students should consult the International Student Services Website. For information concerning rates, see [section 8.7 "Other Fees"](#).

All inquiries related to this University policy must be directed to International Student Services.

International Health Insurance

Telephone: (514) 398-6012

E-mail: international.health@mcgill.ca

Website: www.mcgill.ca/internationalstudents/health

6.30 Health Insurance - Canadian Residents

Canadian students from outside the province of Quebec should check with their own provincial Medicare office to ensure the validity of their health coverage while studying at McGill.

Canadian students who have been living abroad may not be eligible for provincial health insurance coverage. To ensure adequate health insurance coverage, you may enrol in the group plan offered through International Student Services. Please note that this option is ONLY available during the first month of your first semester at McGill.

Graduate students classed as Canadian full-time or additional session/non-thesis extension as well as all Postdoctoral candidates are automatically covered by their society's Health and Dental Plan (PGSS). Students without valid Canadian Medicare, please see ["International Students"](#), [section 7.3](#). In 2007-2008 this plan costs \$639 (single coverage). Students not charged during the Fall term for insurance fees can choose to enrol directly at the PGSS office during the January adjustment period. For details on what is covered by this plan as well as opt-out procedures, please refer to the information contained at www.pgss.mcgill.ca.

6.31 Special Medical Needs

Students who have particular medical needs are requested to have their physician submit appropriate information on a confidential basis to the Student Health Service; see [section 4.2.3 "Student Services – Downtown Campus"](#) for contact information on the downtown campus and see [section 4.2.4 "Student Services – Macdonald Campus"](#) for Macdonald campus contact information.

6.32 Minerva

Minerva is McGill's Web-based information system serving students, staff and faculty. To access Minerva students should go to www.mcgill.ca/minerva and click on the login icon. Once logged in to Minerva, students can view class schedules, including course descriptions and spaces available in course sections; register and make course changes; view their unofficial transcript and degree evaluation reports; view their Permanent Code, citizenship and Quebec residency status and fee information; update their personal information such as address, telephone number and emergency contacts; apply to graduate; view their graduation status and convocation details; view their McGill log-in information to access the Internet and e-mail; order official transcripts; retrieve tax receipts; submit an on-line course evaluation; apply to McGill and view their application status. In addition, students in some faculties can change their major or minor programs; and apply for an Exchange program using Minerva.

6.33 myMcGill

Launched in April, 2006, myMcGill is McGill's own Web portal, giving students and staff a personalized interface to McGill's information systems.

myMcGill offers an integrated McGill Web experience by offering Single-Sign-On (SSO) to several McGill Web systems. This translates into users accessing these systems without being prompted for additional or subsequent logins. It also provides direct (one click) access to functions within the back end systems without having to go to the front screen of these systems and navigate through multiple menus. To log into myMcGill go to: <http://my.mcgill.ca> or from the McGill homepage (www.mcgill.ca), click on the myMcGill tab at the top right hand corner of the page.

7 Student Services and Information

7.1 Fellowships, Awards and Assistantships

Graduate and Postdoctoral Studies Office
(Fellowships and Awards Section)
James Administration Building, Room 400
845 Sherbrooke Street West
Montreal, Quebec H3A 2T5

Telephone: (514) 398-3990

Fax: (514) 398-2626

E-mail: graduate.fellowships@mcgill.ca

Website: www.mcgill.ca/gps (under Funding: Fellowships and Awards)

Graduate Fellowships and Awards Calendar:

www.mcgill.ca/courses (under Graduate Fellowships and Awards Calendar)

The Fellowships and Awards Section of the Graduate and Postdoctoral Studies Office provides information on many sources of support for Canadian and non-Canadian students, both new to McGill and continuing. Further information on these and other sources of funding can be found various publications on the Fellowships and Awards Web pages. The Graduate Fellowships and Awards Calendar lists all internal awards as well as numerous external awards.

Entrance Fellowships are awarded on the basis of the application for admission, upon nomination by academic departments – please contact the proposed academic department directly for further information.

Research Assistantships, Teaching Assistantships and stipends from professors' research grants are handled by individual academic departments at McGill. Fellowships, assistantships and stipends are used to make funding packages for graduate students. All assistantship and stipend inquiries should be directed to departments.

As of September 2007, we offer the **McGill International Doctoral Awards (MIDAs)**. All international Doctoral students registered full-time at McGill (Ph.D./D.Mus/DCL in years 1 to 4) pay the same tuition as Quebec doctoral students. International students whose international tuition supplement is paid by an external source (e.g. fellowships that include direct payment of tuition and third party billing contracts) will not be eligible for these awards.

A small number of citizens from countries whose governments have entered into agreements on tuition fees with Québec may be exempted from the supplemental tuition fees normally required of international students. All French citizens and a limited number of citizens of a country in the list which can be found at www.mels.gouv.qc.ca/ens-sup/ens-univ/droits_scolarité-A_pays-organisations.pdf are eligible for such exemptions. For more information and the necessary application materials, see this MELS Website: www.mels.gouv.qc.ca/ens-sup/ens-univ/droits_scolarité-A.asp. The list of organizations where students should apply can be accessed from this Website.

Differential fee waivers for International students provide eligible non-Canadian graduate students with waivers of the international tuition fee supplement. There are no application forms for differential fee waivers, since these are awarded on the basis of departmental nominations made to the Fellowships and Awards Section. Eligible students should contact their McGill department. As of May 2007, summer DFW's are applied primarily to eligible Master's students, while Fall and Winter term DFW's are applied primarily to eligible doctoral students as part of the MIDAs program.

7.2 Student Financial Assistance

Citizens and Permanent Residents of Canada

Need-based student financial aid programs are offered by the Federal/provincial governments. Applications should be submitted directly to the province (or territory) of residence. Application forms are available from the governmental aid authorities as well as the Scholarships and Student Aid Office. Information on governmental student aid and links to sites can be found on McGill's Financial Aid Website at www.mcgill.ca/studentaid.

Citizens and Permanent Residents of the United States

McGill University participates in the **Federal Family Education Loan Program (FFELP)**. American students in need of financial assistance may apply for Stafford loans (subsidized and unsubsidized) and Grad Plus loans. Complete instructions can be found on McGill's Student Financial Aid Website at www.mcgill.ca/studentaid.

McGill Financial Aid

The Scholarships and Student Aid Office also administers the University's need-based financial aid program, which includes short term loans to cover emergency situations, limited bursary assistance, and a Work Study program. All applicants for aid must first apply for the maximum government assistance for which they may be eligible. Applications can be found on the Financial Aid Menu on Minerva.

Scholarships and Student Aid Office,
Brown Student Services Building,
3600 McTavish Street, Montreal, Quebec H3A 1Y2
Telephone: (514) 398-6013/6014
E-mail: student.aid@mcgill.ca
Website: www.mcgill.ca/studentaid

7.3 International Students

All students who are not citizens or Permanent Residents of Canada are required to obtain the necessary immigration documents (CAQ, Study Permit, Entry Visa when required) **prior to entering the country. Do not leave home without proper documentation. You cannot change your status from Visitor to Student in Canada. Please note that students who have been accepted to programs that will be completed in less than 6 months have the option of studying without the CAQ and Study Permit (visiting, special).**

Quebec Acceptance Certificate for Studies – The process to come to Canada begins with an application for Quebec Acceptance Certificate for Studies. There is a \$100 processing fee for this document. Details on how and where to apply for the CAQ are provided with the McGill Admissions package.

Study Permit – Approved by Immigration Canada through a Canadian Embassy or Consulate. (There is a processing fee of \$125 on all applications for Study Permits.)

A citizen of the United States, Greenland and/or St.Pierre-Miquelon is permitted to obtain the Study Permit at a Port of Entry, if in possession of the required supporting documents.

Applying to McGill from within Canada (outside Quebec) – Students transferring from another Canadian institution outside Quebec to McGill should send their documents and CAQ application to the Montreal address of Immigration Quebec.

Students must normalize their status with Quebec and Canada Immigration prior to attending any classes at McGill.

For further information, or if there is an emergency, contact the International Student Services Office by telephone during regular office hours, 09:00 to 17:00, or by e-mail.

International Student Services:

Telephone: (514) 398-4349

E-mail: international.students@mcgill.ca

Compulsory Health Insurance – By Senate regulation, all students who do not have Canadian citizenship or Permanent Resident status, as well as their accompanying dependents, must participate in a compulsory health insurance plan administered by the University.

When registering by Minerva, students will be directed to the International Student Services Web page for enrolment procedures and schedule.

For information concerning rates, see www.mcgill.ca/internationalstudents/health. All inquiries related to this University policy must be directed to the International Student Services Office.

Health Insurance:

Telephone: (514) 398-6012

E-mail: international.health@mcgill.ca

International Student Services, William and Mary Brown Student Services Building, 3600 McTavish Street, Suite 3215, Montreal, Quebec H3A 1Y2.

Website: www.mcgill.ca/internationalstudents

7.4 Student Rights and Responsibilities

The Handbook on Student Rights and Responsibilities (green book) is available on the McGill Website, www.mcgill.ca/student-services or from the Office of the Dean of Students.

7.4.1 Office of the Dean of Students

William and Mary Brown Student Services Building
3600 McTavish Street, Suite 4100
Montreal, QC H3A 1Y2

Telephone:

Dean/Associate Dean: (514) 398-4990

E-mail: deanofstudents@mcgill.ca

Website: www.mcgill.ca/deanofstudents

The Dean and the Associate Dean of Students coordinate and promote initiatives concerned with important aspects of the student

experience, such as advising, academic integrity, student discipline, student recognition programs, and outreach to families, the McGill community and the broader local community.

7.4.2 Office of the Executive Director, Services for Students

William and Mary Brown Student Services Building
3600 McTavish Street, Suite 4100
Montreal, QC H3A 1Y2

Telephone:

General Information: (514) 398-3825

Website: www.mcgill.ca/studentsservices

The Executive Director, Services for Students (EDSS), coordinates all student services at McGill to help promote student success and well-being. The EDSS is available to provide assistance and/or information on almost all aspects of non-academic student life. Concerns of an academic nature will be directed to the proper individual, office or department.

7.5 Student Services – Downtown Campus

Unless otherwise indicated, all Student Services on the Downtown Campus are located in the William and Mary Brown Student Services Building, 3600 McTavish Street, Montreal, Quebec H3A 1Y2.

A list of services available is given below. For further information refer to the Student Services Website: www.mcgill.ca/studentsservices or the address indicated above.

Student Services

General Information: (514) 398-8238

Website: www.mcgill.ca/studentsservices

Career and Placement Service (CAPS): provides a range of services to McGill students, and recent graduates, in the field of student and graduate employment.

Brown Student Services Building, Suite 2200 (514) 398-3304

E-mail: careers.caps@mcgill.ca

Website: www.caps.mcgill.ca

Chaplaincy Service: concerned with the spiritual and mental well-being of all students.

Brown Student Services Building, Suite 4400 (514) 398-4104

E-mail: chaplaincy@mcgill.ca

Website: www.mcgill.ca/chaplaincy

Counselling Service: assists with personal, social, and emotional problems as well as vocational and academic concerns.

Brown Student Services Building, Suite 4200 (514) 398-3601

E-mail: counselling.service@mcgill.ca

Website: www.mcgill.ca/counselling

First Peoples' House: fosters a sense of community for Aboriginal students studying at McGill.

3505 Peel Street (514) 398-3217

E-mail: firstpeopleshouse@mcgill.ca

Website: www.mcgill.ca/fph

First-Year Office: helps ease the transition of all students new to McGill. Coordinates "Discover McGill", a one-day, campus-wide University and faculty orientation.

Brown Student Services Building, Suite 2100 (514) 398-6913

E-mail: firstyear@mcgill.ca

Website: www.mcgill.ca/firstyear

Health Services and Dental Clinic: provides access to experienced physicians, nurses and health educators who offer health services and information in a confidential atmosphere. Also operates a laboratory offering a wide array of testing, and a dental clinic.

Brown Student Services Building, Suite 3300 (514) 398-6017

Website: www.mcgill.ca/studenthealth

International Student Services: offers support to international students on non-academic matters (immigration, health insurance, etc.), runs a Buddy Program and an orientation program.

Brown Student Services Building, Suite 3215 (514) 398-4349

E-mail: international.students@mcgill.ca

Website: www.mcgill.ca/internationalstudents

Mental Health Service: a psychiatric clinic which offers easily accessible treatment for mental health problems.

Brown Student Services Building, Suite 5500 (514) 398-6019

Website: www.mcgill.ca/mentalhealth

Scholarships and Student (Financial) Aid Office: provides assistance in the form of loans, bursaries, and work study programs to students requiring financial aid.

Brown Student Services Building,
Suite 3200

(514) 398-6013/6014

(514) 398-4807 (Scholarships)

E-mail: student.aid@mcgill.ca

Website: www.mcgill.ca/studentaid

Student Housing (Off-Campus): maintains computerized lists of available off-campus student housing.

Student Housing Office, 3641 University Street (514) 398-6010

E-mail: offcampus.housing@mcgill.ca

Website: www.mcgill.ca/offcampus

Residences: offers accommodation for approximately 2,400 students.

Student Housing Office

(514) 398-6368

E-mail: housing.residences@mcgill.ca

Website: www.mcgill.ca/residences

Office for Students with Disabilities: coordinates services to meet the special needs of students with disabilities.

Brown Student Services Building, Suite 3100 (514) 398-6009

E-mail: disabilities.students@mcgill.ca TDD: (514) 398-8198

Website: www.mcgill.ca/osd

Tutorial Service: sponsors an extensive tutorial program for students.

Brown Student Services Building, Suite 4200 (514) 398-6011

E-mail: tutoring.service@mcgill.ca

Website: www.mcgill.ca/tutoring

7.6 Student Services – Macdonald Campus

While students who study on the Macdonald Campus may make full use of all Student Services available at McGill, the the Office of the Executive Director of Services for Students offers students direct access to the services listed below.

Further information can be found on the Web at www.mcgill.ca/macdonald-studentservices and the Student Services Website, www.mcgill.ca/studentsservices.

Unless otherwise indicated, Macdonald Campus services are located in the Centennial Centre, Room CC1-124, 21,111 Lakeshore Road.

Telephone: (514) 398-7992

Fax: (514) 398-7610

E-mail: stuserv.macdonald@mcgill.ca

Career and Placement Service (CAPS): provides a range of services to McGill students, and recent graduates, in the field of student and graduate employment.

Telephone: (514) 398-7582

Website: www.caps.mcgill.ca/macdonald

Counselling Services: A professional counsellor is available three times a week offering counselling for personal, social and emotional concerns as well as for academic and vocational concerns. Appointments are required.

Telephone: (514) 398-7992

Health Service: A referral service is available Monday through Friday. A nurse/health educator is on campus Mondays, Tuesdays and Wednesdays and a physician may be seen by appointment on specified dates.

Telephone: (514) 398-7565

Off-Campus Housing: maintains computerized lists of available off-campus student housing.

Website: www.mcgill.ca/offcampus

Telephone: (514) 398-7992

Student (Financial) Aid Office: Information about government aid, McGill loans and bursaries, and the Work Study Program can be obtained at the Centennial Centre. During the academic year (September to April) an Administrator visits the campus every Wednesday to help students with financial problems.

Telephone: (514) 398-7992

7.7 Residential Facilities

7.7.1 University Residences – Downtown

Residence Admissions Office

3641 University Street

Montreal, QC H3A 2B3

Telephone: (514) 398-6368

Fax: (514) 398-2305

E-mail: housing.residences@mcgill.ca

Website: www.mcgill.ca/residences

McGill Residences collectively house approximately 2,300 undergraduate students in dorms, apartments and shared-facilities houses. McGill offers six dormitory-style residences with full meal service. These more traditional residences house, almost exclusively, first-year students. McGill's apartment-style residences and shared-facilities houses are popular with first-year students seeking a different style of residence living. Student Animators (Floor Fellows) and Academic Staff (Directors) provide support to all undergraduate residents and live in all McGill Residences. An elected Residence Council serves as the voice of students. All residence rooms have telephone and high-speed network access jacks, which are available at extra cost.

7.7.1.1 Dormitory-style Residences

McGill offers six dormitory-style residences with full meal service. The Bishop Mountain Residences (Gardner, McConnell, Molson and Douglas Halls) are located on the slope of Mount Royal, overlooking the campus, and house both male and female students. Royal Victoria College (RVC), the all-women's residence, is located one block from the McGill gates. McGill's newest residence hall is fully co-ed and is located a short walk from the main campus. The New Residence Hall is located 5 easy blocks from campus.

Rooms at RVC and the Bishop Mountain Residences are mostly single occupancy. The New Residence Hall offers mostly double rooms. Each student is provided a bed, a desk, chair, chest of drawers, closet and small fridge (one fridge per double room). In all halls residents are responsible for the cleanliness of their rooms. Common bathrooms and showers are located on each floor, except in the New Residence Hall where there are private bathrooms in each room. Each hall has card-operated automatic washers and dryers, as well as ironing facilities. Pay telephones are located in each building. In addition, all rooms are wired for a private telephone and Internet service. There is limited storage space for ski equipment, trunks, and suitcases in every hall. All halls have TV and recreation rooms.

There are on-site cafeterias and the meal plan is compulsory for students living in the dormitory-style residences.

7.7.1.2 Apartment-style Residences

Solin Hall is a modern award-winning apartment-style residence that has two-, three- and four-bedroom apartments. Located four short Metro stops west of the main campus, Solin features large common areas (TV and games rooms) and a computer lab and houses entirely first-year students. Each apartment has its own

living room, dining room, kitchen and bathroom(s), with basic furniture such as stove, fridge, table, chairs, sofa, lamps and drapes. Bedrooms are furnished with bed, desk, chair and chest of drawers. All apartments and public area floors are carpeted. Shopping areas are within walking distance from the Hall. Limited indoor parking is available.

The Greenbriar Apartments residence building is located one block from the main campus. It houses mostly first-year and a small number of upper-year undergraduate students in self-contained studio and double-occupancy, one-bedroom apartments. Apartments have fully equipped kitchens (stove, fridge, sink) and are furnished with bed, desk, table, chairs, drawers and blinds.

Although these residences do not offer meal plans, residents may purchase one at the residence cafeterias.

7.7.1.3 Shared-facilities Houses

McGill Residences also offers a number of beautifully renovated older buildings, each housing between 13 and 30 first-year students. These shared-facilities houses are all located within a few blocks of the main campus and have single- and double-occupancy bedrooms with shared kitchens, bathrooms and common areas. Bedrooms are furnished with desks and chairs, beds (many are loft beds), chest of drawers, closet and blinds. Common areas are also fully furnished. Although these residences do not offer meal plans, residents may purchase one at the residence cafeterias.

7.7.1.4 Residence Fees

Residence fees for the 2008-2009 session had not been set at the time this Calendar went to print. Fees for the 2007-2008 session were as follows:

Rates for Gardner, McConnell, Molson and Douglas Halls ranged from \$9,372 to \$10,224 for a single room. Rates include the mandatory 5-day per week meal plan. The rates at Royal Victoria College include a mandatory 7-day per week meal plan and range from \$11,018 to 11,196 for single rooms and \$10,400 for double rooms. These rates are for the regular session, September 1 to April 30.

At the New Residence Hall room rates, including mandatory meal plan, were \$10,762, per person for double rooms and \$11,770 for a single room. These rates are for the regular session, September 1 to April 30.

The rooms in Solin Hall and the Greenbriar apartments are leased on an 11-month basis (September 1 to July 31). The room rates were \$7,647 for a single room and \$5,929 for a double room in a multi-bedroom apartment at Solin Hall. Single-occupancy studio apartments at Greenbriar were \$8,838 and double-occupancy one-bedroom apartments were \$6,074 per person. Rates do not include meal plan.

Shared facilities houses are also leased on an 11-month basis (September 1 to July 31). Room rates ranged from \$7,738 to \$8,332 for a single room and from \$5,357 to \$5,929 for a double room, depending on the dimensions of the room. Rates do not include meal plan.

7.7.1.5 Meal Plans

Residents at Molson, McConnell and Gardner Halls take their meals together in a large centrally located dining hall. Douglas Hall and RVC have their own dining areas. RVC offers 19 meals per week (7 days per week), while the Bishop Mountain Residences offer 15 meals per week (Monday to Friday). Bag lunches and bag dinners are available. There are kitchenettes in all the Halls where residents may keep food and prepare snacks or meals at any time.

Residents of the New Residence Hall have access to the on-site cafeteria with extended hours, 7 days per week. The meal plan allows them to eat at certain on-campus cafeterias as well. There are kitchenettes on each floor where residents may prepare hot or cold snacks at any time.

Solin Hall, the Greenbriar Apartments and the shared-facilities houses do not offer meal plans. The apartments and houses have fully equipped kitchens where students prepare their own meals. However, residents are welcome to purchase a meal plan at the residence cafeterias.

7.7.1.6 Student Government

Each hall has a Residence Council, elected at the start of the academic year. It is the job of Council to gather hall opinions, supervise financial affairs, and organize sporting and recreational activities within the residences. McGill's residences are run for the convenience and advantage of the students living in them. Rules and regulations are decided upon and administered by the students themselves.

Note: All fees include an activity fee of \$20 collected by the University on behalf of the Residence Council of each hall, and is included in the residence fees.

7.7.2 University Residences – Macdonald Campus

Campus Housing Office

P.O. Box 188,

Macdonald Campus of McGill University

Sainte-Anne-de-Bellevue, QC H9X 3V9

Telephone: (514) 398-7716

Fax: (514) 398-7953

E-mail: residences.macdonald@mcgill.ca

Website: www.mcgill.ca/macdonald-residences

Residence life is an integral part of Macdonald Campus activities. Laird Hall, with a capacity 250 students, is arranged on a co-educational basis and provides accommodation for undergraduate, graduate, and Farm Management Technology students. Residents enjoy comfortable rooms, modern kitchens, cozy lounge facilities, and other amenities that help make their residence life a complete and meaningful part of their university experience. All dorm rooms have telephone and high-speed network access jacks, which are available at extra cost.

The EcoResidence, Canada's first ecologically friendly student residence and winner of the Prix d'excellence from the Ordre des architectes du Québec, accommodates 100 students. The EcoResidence is a unique initiative that recycled two buildings and incorporated ecological construction technology. This type of accommodation will appeal to students who enjoy independent living in self-contained apartments of two or six single-bedroom units. Each unit is built on a split-level concept with large, airy common living areas and fully equipped kitchens.

7.7.2.1 Residence Fees – Macdonald Campus

Residence fees are paid separately from tuition in accordance with regulations of the Fee Payment Option selected at the time of signing a Residence Lease.

The residence fees for the 2008-09 session had not been set at the time this Calendar went to print. The 2007-08 session rates for Laird Hall are (double occupancy) \$2,480 and (single occupancy) \$2,760. Rates for the EcoResidence vary from \$400 to \$412 per month. An updated fee sheet will be available with the residence application forms when an offer of accommodation is made.

There is no meal plan offered on the Macdonald Campus. Meals are available on a cash basis from the Centennial Centre cafeteria. The cafeteria is open for breakfast and lunch only, 5 days per week, exclusive of Saturday, Sunday, and holidays designated by the University. For budgeting purposes, the cost of meals per session is approximately \$3,000.

7.7.2.2 Residence Occupancy – Macdonald Campus

The residence fees cover the period (August 24, 2008 to May 2, 2009). Students must vacate their rooms at the end of the lease term. Only under exceptional circumstances will a student be granted permission to arrive prior to beginning date of the lease or remain in residence during the summer months. In these cases, students must apply to the Campus Housing Office and an additional fee will be charged if permission is granted.

Students may request permission to extend their stay in residence (at the normal weekly charge) if they are taking extended courses after the regular session, employed on the Campus, or registered for summer courses.

International students or those coming from a distance may be admitted early in exceptional circumstances. Permission from the Campus Housing Office must be obtained prior to the student

leaving home. Student Officers may be admitted before the opening date of courses, if permission is granted by the Campus Housing Office.

7.7.2.3 Facilities for Non-Resident Students – Macdonald Campus

Common rooms for studying are provided in the Centennial Centre. Lockers are available in the Macdonald-Stewart Building. These may be rented at the Students' Society Office in Centennial Centre. Meals may be obtained from the Snack Bar facility of the Centennial Centre and the Link Café located on the ground floor between the Macdonald-Stewart Building and Barton Library. The Snack Bar is open for breakfast and lunch only, Monday through Friday. The Link Café is open Monday through Thursday 8:00 a.m. to 8:00 p.m. and Friday 8:00 a.m. to 3:30 p.m., exclusive of Saturday, Sunday, and holidays designated by the University.

Note: Non-resident students may not stay overnight in any residence without permission of the Campus Housing Office.

7.7.2.4 Student Parking – Macdonald Campus

Students who hold parking permits will be allowed to park automobiles on Macdonald Campus provided they observe the parking regulations and other applicable rules. Permits must be obtained from the Campus Security Office, Laird Hall, Room 101, during regular office hours.

7.8 Athletics

Downtown Campus

Athletics: offers programs in recreational, intercollegiate, instructional, intramural and sports clubs.

Athletics Complex, 475 Pine Avenue West (514) 398-7000

E-mail: athletics@mcgill.ca

Website: www.athletics.mcgill.ca

Macdonald Campus

Athletics: Athletics offices are located in the Stewart Athletic Complex, just west of the Centennial Centre. Available at no charge to Macdonald students is a wide selection of activities, as well as the use of an excellent array of equipment. Facilities include a gymnasium, pool, weight room (with monitors on hand four evenings per week), arena, tennis courts, playing fields and large expanses of green space.

In addition to providing many open times for your enjoyment, there are also instructional, recreational, intramural and intercollegiate activities. There are nominal fees for instructional courses.

Stewart Athletic Complex (514) 398-7789

Website: www.agrenv.mcgill.ca/society/athletic

7.9 Ombudsperson for Students

The position of Ombudsperson for Students is filled on a half-time basis by an academic staff member. The Ombudsperson receives complaints from students and assists in the resolution of those complaints through informal means including information, advice, intervention, and referrals with a view to avoiding the more formal grievance procedures that already exist in the University.

The Office of the Ombudsperson is a confidential, independent, and neutral dispute resolution service for all members of the student community. Please call (514) 398-7059 for an appointment. Office of the Ombudsperson, Brown Building, Room 5202

Website: www.mcgill.ca/ombudsperson.

7.10 Extra-Curricular Activities

There are over 250 activities and clubs which students may join. These include international clubs; religious groups; political clubs; fraternities; communications groups such as Radio McGill, the *McGill Tribune*, and the *McGill Daily*; and some 50 miscellaneous groups (e.g., science clubs; literary, theatrical and musical societies; a chess club; and the McGill Outing Club).

The University Centre, 3480 McTavish Street, provides club rooms for these activities in a four-storey building with cafeterias, a ballroom, lounges and an experimental theatre. Activities for graduate students are centred in David Thompson House at 3650 McTavish Street. On the Macdonald Campus facilities are located in the Centennial Centre (refer to FAES section).

7.11 Bookstore

The McGill University Bookstore stocks new and used textbooks, a full range of books for the academic and professional community, stationery supplies, and McGill insignia clothing and gift items.

3420 McTavish Street Telephone: (514) 398-7444
Website: www.mcgill.ca/bookstore

Macdonald Bookstore
Centennial Centre Telephone: (514) 398-8300
Website: www.mcsc.mcgill.ca/bookstore.html

7.12 Computer Store

The McGill Computer Store, located on the second floor of the University Bookstore, sells a full range of PC, Macintosh and Unix hardware, computer software and consumer electronics at educational prices.

3420 McTavish Street Telephone: (514) 398-5025
Website: www.mcs.mcgill.ca sales.mcs@mcgill.ca

7.13 Day Care

The McGill Childcare Centre is an independently run centre which can accommodate approximately 100 children, ranging in age from 4 months to 5 years. As placements are limited, especially for certain age groups, early application is suggested. The Centre is located at:

3491 Peel Street, Montreal, QC H3A 1W7
Telephone: (514) 398-6943

A Campus Day Care Centre, located adjacent to the Macdonald Campus, is an independently run centre which can accommodate approximately 60 children, ranging in age from 4 months to 5 years. In addition, 50 children can be accommodated in Home Day Care within the neighbourhood. Preference is given to the Campus community. Early application is recommended. The Centre is located at:

1 Maple Avenue, Ste. Anne de Bellevue H9X 2E3
Telephone: (514) 398-7951

For Home Day Care information:
Telephone: (514) 457-7953

8 Fees and Expenses

The University reserves the right to make changes without notice in the published scale of fees. (Note: The information in this section was prepared in early February 2008. Fees for the 2008-09 year will be finalized in the late spring.)

Further information regarding fees can be found on the Student Accounts Website www.mcgill.ca/student-accounts.

8.1 Fee Information Booklet

The *Fee Information Booklet* will be available on the Student Accounts Website www.mcgill.ca/student-accounts/documents in early June. This link will also be sent via the McGill e-mail address shortly after students have confirmed their acceptance of the offer of admission. It contains additional information as well as any fee adjustments which may have been made after the publication of this Calendar. Students are bound by the policies and procedures contained therein. In the event of any discrepancy, the *Fee Information Booklet* supersedes the Calendar.

8.2 Access to Fee Information

Students can view their Account Summary by Term on Minerva. The Fall 2008 term fees will be accessible as of August 1st.

8.3 Tuition Fees

Tuition fees vary according to the residence and citizenship status of the student. The rates described below only refer to credit activities.

Quebec Students

Tuition fees for Quebec students who are Canadian citizens or Permanent Residents are \$62.27 per credit or \$1,868.10 for 30 credits.

In accordance with provincial government requirements, students must provide proof that they qualify for assessment of fees at the Quebec rate; see [section 6.18.2 "What Documents Do We Need from You?"](#) for details.

Note: Students who do not submit appropriate documentation by the stipulated deadline are billed at the non-Quebec Canadian or the international rate, depending on the documentation submitted.

If proof of status is submitted after a student has been billed, but before the document submission deadline, the tuition supplement will be waived. Should your tuition status be reduced during the evaluation period, any late payment and/or interest charges accumulated on the difference will also be waived.

Non-Quebec Students (Canadian or Permanent Resident)

Tuition fees at the Master's level for non-Quebec students who are Canadian citizens or Permanent Residents are \$179.28 per credit (\$62.27 Quebec rate plus \$117.01 Out of Province supplement) or \$5,378.40 for 30 credits. At the Ph.D. level, tuition fees are the same as for Quebec students.

In accordance with provincial government requirements, students must provide proof that they qualify for assessment of fees at the non-Quebec Canadian rate; see [section 6.18.2 "What Documents Do We Need from You?"](#) for details.

Note: Students who do not submit appropriate documentation by the stipulated deadline will be billed at the international rate.

If proof of status is submitted after a student has been billed, but before the document submission deadline, the tuition supplement will be waived. Should your tuition status be reduced during the evaluation period, any late payment and/or interest charges accumulated on the difference will also be waived.

International Students (2007-2008 rates)

At the time of publishing, any increases to tuition fees for International students had not been announced. Students should check on the Student Accounts Website (www.mcgill.ca/student-accounts) where any announcements will be immediately posted as soon as information is received.

Tuition fees at the Master's level for International students are \$399.53 per credit (\$62.27 Quebec rate plus \$337.26 International supplement) or \$11,985.90 for 30 credits; at the Ph.D. level tuition fees are \$10,773.15 per year (\$1,868.10 Quebec rate plus \$8,905.05 International supplement). Certain graduate programs charge fees at a different rate.

As of September 2007, all international Doctoral students registered full-time (Ph.D./D.Mus/DCL years 1 to 4) at McGill pay the same tuition fees as Quebec Doctoral Students. For more information, please refer to the MIDAs awards in the Graduate Fellowships and Awards section of the graduate calendar. Students will be charged the full rate, and then credited by an amount equivalent to the International supplement (a tuition charge which is regulated by the MELS).

The international fees which are listed in [section 8.12 "Yearly Fees and Charges"](#) are representative of fees that students could expect to be charged. Any fee increases will be announced as soon as they are known in the Spring.

Exemption from International Tuition Fees may be claimed by students in certain categories. Such students, if eligible, are then assessed at the Quebec student rate.

A list of these categories and the required application forms can be obtained from Enrolment Services. Information is also available on the Web at www.mcgill.ca/students.

See [section 8.11.4 "Graduate Awards/Teaching Assistantships"](#).

8.4 Documentation

For more information on documentation, see [section 6.18 "Legal Documents"](#).

8.5 Compulsory Fees (2007-2008 rates)**Student Services Fees**

Student Services fees are governed by the Senate Committee on the Coordination of Student Services, a parity committee composed equally of students and University staff.

The fee, complemented by revenue from the Quebec government, the University, and the generosity of donors, supports Student Health (including Dental), Mental Health, Counselling and Tutorial, Chaplaincy, Career and Placement, Student Aid and International Student Services, the Office for Students with Disabilities, First-Year Office (including the Francophone Assistant), Off-Campus Housing, and the First Peoples' House. The Office of the Dean of Students also administers the academic integrity process as described in the *Handbook of Student Rights and Responsibilities*.

Athletics Fee

The Athletics fee covers athletics facilities, campus recreation (intramurals, fitness & recreation courses, drop-in recreation, etc.), and intercollegiate sports at both the Downtown and Macdonald campuses.

Student Society Fees

Student Society fees are compulsory fees collected on behalf of student organizations. Fees must be approved by the student body through fee referenda according to the constitutional rules of the association or society.

Graduate students classed as Canadian full-time or Additional session/non-thesis extension as well as all Post-doctoral candidates are automatically covered by the PGSS Health and Dental plan, which in 2008-09 will cost \$374 (\$183 Health; \$191 Dental).

Changes to Student Society fees are voted upon by the students during the Spring referendum period.

Note: For International students, the student society fee includes the PGSS Dental Insurance plan of \$191. International students will also be obliged to participate in the University's compulsory International Health Insurance Plan, which at the 2007-08 rate, costs \$639 for single coverage. For more information, please contact International Student Services, (514) 398-6012.

8.6 Administrative Charges

(Fees that follow are an **estimate** based on the expected cost of living index as calculated by Statistics Canada. These figures will be updated and available on the Student Accounts Website, www.mcgill.ca/student-accounts, based on the index at the end of January 2008.)

Registration Charge

The University charges a per credit registration charge to all students in courses and programs. This is assessed as follows:

Graduate students whose fees are charged on a per credit basis: \$7.02 per credit to a maximum of \$105.30 per term

Graduate students whose fees are charged on a flat rate basis (per term):

Full-time / additional session / non-thesis extension \$105.30
Half-time \$52.65

Post-Graduate Medical Education:

40-52 weeks pay \$105.30; 1-39 weeks pay \$52.65

Transcripts and Diploma Charge

The University charges a per credit transcripts and diploma charge to all students. This entitles students to order transcripts free of charge as well as cover the costs of graduation and is assessed as follows:

Graduate students whose fees are charged on a per credit basis: \$1.22 per credit to a maximum of \$18.60 per term

Graduate students whose fees are charged on a flat rate basis (per term):

Full-time / additional session / non-thesis extension \$18.60
Half-time \$9.30

Post-Graduate Medical Education:

40-52 weeks pay \$18.60; 1-39 weeks pay \$9.30

Information Technology Charge

The purpose of the information technology charge is to enhance certain technology services provided to students as well as to provide training and support to students in the use of new technology. The fee is assessed as follows:

Graduate students whose fees are charged on a per credit basis: \$6.86 per credit to a maximum of \$102.90 per term

Graduate students whose fees are charged on a flat rate basis (per term):

Full-time / additional session / non-thesis extension \$102.90
Half-time \$51.45

Post-Graduate Medical Education:

40-52 weeks pay \$102.90; 1-39 weeks pay \$51.45

Copyright Fee

All Quebec universities pay a per credit fee to Copibec (a consortium that protects the interests of authors and editors) for the right to photocopy material protected by copyright.

Graduate students whose fees are charged on a per credit basis: \$.78 per credit to a maximum of \$11.70 per term

Graduate students whose fees are charged on a flat rate basis (per term):

Full-time / additional session / non-thesis extension \$11.70
Half-time \$5.85

8.7 Other Fees

International Student Health and Accident Plan (compulsory) (based on 2007-08 rates)	
Single	\$639
Dependant (one student with one dependant)	\$1,794
Family (one student with two or more dependants)	\$3,408
Application for Admission*	
• All graduate programs except Management programs	\$80
• Management programs	\$100
Reconsideration of Application to Associate Dean (Graduate and Postdoctoral Studies)	\$40
Admission appeals charge (to the University Admission Appeals Committee)	\$100
Late Registration	
<i>After regular registration deadline:</i>	
• All eligible returning students, except Special students and graduate part-time students	\$50
• Special students and graduate part-time students	\$20
<i>As of the second day of classes:</i>	
• All students except Special students and graduate part-time students	\$100
• Special students and graduate part-time students	\$40
Late Course Change Fee (each change after deadline for course change)	\$25
Minimum Charge upon withdrawal (or, for newly admitted students, the deposit, whichever is higher)	\$100
Re-reading Examination Paper (refundable in some faculties)	\$35
Supplemental Examination	\$35
Thesis Examination Charge (and resubmission fee, if applicable)	
- Master's thesis	\$75
- Ph.D. thesis	\$100
Duplicate Student ID Card	\$20
Late Payment – charged on balances >\$100 as of the end of October (end of February for the Winter term)	\$25
Interest on outstanding balances (interest rate revised on June 1):	
1.24% per month or 14.9% annually	
Returned cheque	\$20
Faculty of Music Fees:	
- Audition Fee	\$60
- Supplemental Practical Examination in Music.	\$150

* All students making application to the Graduate and Postdoctoral Studies Office are required to pay this fee, including those already registered at McGill.

If a department or an applicant defers an admission within the following year, the application fee need not be paid again.

8.8 Billings and Due Dates

Confirmation of Acceptance Deposit

In certain graduate departments, new students are required to make a deposit on tuition shortly after receiving notice of their acceptance to the University. Students will be required to confirm their acceptance of the offer of admission on www.mcgill.ca/minerva/applicants and pay the required deposit by credit card (Visa or Mastercard) at that time.

Invoicing of Fees

Fees are assessed on a term by term basis.

Electronic billing is the official means of delivering fee statements to all McGill University students. All charges to the student's account, including tuition, fees, health insurance and other miscellaneous charges are on your e-bill. E-bills are generally produced in the first few days of the month and an e-mail notification that the

e-bill is ready to be viewed on Minerva is sent to the student's official McGill e-mail address. Charges or payments that occur after the statement date will appear on the next month's statement, but may be immediately viewed on the Account Summary by Term on Minerva (this is the on-line dynamic account balance view).

Interest *will not* be cancelled due to non-receipt of fee invoices. Students should access the Student Accounts Website at www.mcgill.ca/student-accounts for information on payment due dates.

Term	Payment Due Date
Fall term	
Returning students	August 29, 2008
Students new to the University in Fall	September 29, 2008
Winter Term	
Returning students	January 6, 2009
Students new to the University in Winter	January 30, 2009

Late Payment Fees: Students who still have an outstanding balance greater than \$100 on their account as of October 30th (February 28th for the Winter term) will be charged a late payment fee of \$25 over and above interest.

8.8.1 Guest Access on Minerva

Students may choose to give access privileges to a guest within Minerva. These privileges include viewing e-Bills/Account Summaries, Tax Receipts and e-payment.

A new web page at www.mcgill.ca/student-accounts/guest describes how students can set up this access. Students are asked to provide certain information about the individual for whom they wish to provide access to their fee-related information. The guest will be contacted by e-mail and provided with a link which they must use within a designated time period.

Students may revoke these access privileges at any time. At the same time, note that Student Accounts staff may respond to questions from your authorized guests regarding the information to which you have given them access.

If students do not wish to give a guest access privileges to Minerva, they may still enter alternative student billing e-mail addresses to which Student Accounts will send a copy of the monthly e-bill notification. However if someone has been granted access as a guest and their guest e-mail is the same as a student billing e-mail address, the University will de-activate the student billing e-mail address in order to only notify your guest about the billings once.

Students are cautioned NOT to share their own PINS with anyone, and guest access allows information about your fee account to be passed to a guest without giving away your PIN.

8.9 Fees and Withdrawal from the University

All students who have accessed Minerva to register must officially withdraw in accordance with [section 6.5 "Course Change Period"](#) and [section 6.7 "Regulations Concerning Withdrawal"](#) if they decide not to attend the term(s) for which they have registered. **Otherwise they will be liable for all applicable tuition and other fees.**

Students who have accessed Minerva and who drop their last course from September 1st through to the withdrawal period with full refund, must submit a signed withdrawal form to be withdrawn from the University. They will be automatically charged a minimum charge of \$100 (or their deposit fee if newly admitted, whichever is higher) to cover administrative costs of registration.

Students who discontinue their classes without taking steps to drop their courses and submit a withdrawal form will be liable for all applicable tuition and other fees.

8.9.1 Fee Refund Deadlines

The deadline dates for course refunds are independent of the deadline dates given for withdrawal from courses. See [section 6.2.3 "Summer Registration"](#) for information about fee refund after withdrawal from a Summer Term of Residence for newly admitted graduate students only.

Fall Term – up to and including September 21:

Returning students – 100%* refund (Less minimum charge of \$100 in the case of complete withdrawal.)

New students – 100%* refund (Less registration deposit or \$100, whichever is higher)

Fall Term – after September 21: No refund.

Winter Term – up to and including January 25

Returning students – 100%* refund (Less minimum charge of \$100 in the case of complete withdrawal.)

New students – 100%* refund (Less registration deposit or \$100, whichever is higher)

Winter Term – after January 25: No refund.

* Including tuition fees, society and other fees, student services, registration and transcripts and diploma charges, and information technology charge.

8.10 Other Policies Related to Fees

8.10.1 Overdue Accounts

All tuition and fees assessed by the University must be paid in full or arrangements must be made to settle the debt.

Students' accounts are considered **delinquent** if they are not paid in full within 60 days after the bill is issued. A financial hold will be placed on such accounts, preventing students from obtaining official academic transcripts and from accessing Minerva for any registration functions.

Interest: Interest is charged on overdue balances at the monthly rate of 1.24% multiplied by the balance outstanding at the end of the month (14.9% annually). The rate is evaluated each Spring, at which time it is set for the following academic year.

Students are advised to regularly verify their account balance via Minerva.

The University has no obligation to issue any transcript of record, award any diploma, or re-register a student in the case of non-payment of tuition fees, library fees, residence fees or loans on their due date.

Information for Registered Students

Students who have registered in a given term and who have amounts owing from previous terms must either pay their accounts or make payment arrangements with the Student Accounts Office before the end of the course add/drop period. Students in financial difficulty should first consult the Student Aid Office (Brown Student Services Building, Room 3200; (514) 398-6013) to discuss the possibility of obtaining financial aid.

Failure to pay the previous term's fees or to make arrangements to settle the debt prior to the add/drop deadline will lead to cancellation of registration in the current and subsequent terms.

Information for Students who are no Longer Registered

The delinquent accounts of students who fail to settle their debt or reach a suitable arrangement and of students who fail to provide the Student Accounts Office with up-to-date contact information, will be referred to a collection agency. **Where neither the University nor the collection agency is able to collect on the account, the University reserves the right to have the student reported to a credit bureau.** Students should be aware that the University is entitled to use all legal means to obtain payment and that students will be responsible for all costs associated with such actions.

8.10.2 Canceling Registration for Non-Payment

In accordance with the fee policy as stated in [section 8.10.1 "Overdue Accounts"](#):

The Student Accounts Office will make all reasonable efforts to notify students with a delinquent student account, and who have more than \$100 outstanding from the previous term, that their registration will be cancelled for non-payment. The cancellation will be made effective the last day of the drop/add period unless the account has been settled or payment arrangements have been made with the University by then. After the add/drop deadline, students who pay or make payment arrangements with the Student Accounts Office and who want to confirm that their registration for the current or subsequent term(s) should be re-instated must complete the www.mcgill.ca/files/student-accounts/RequestforReinstatementForm.pdf and submit it to the Student Accounts Office, which will forward it to Enrolment Services for approval and processing.

8.10.3 Acceptance of Fees vs. Academic Standing

Acceptance of fees by the University in no way guarantees that students will receive academic permission to pursue their studies. If it is subsequently determined that the academic standing does not permit the student to continue, all fees paid in advance will be refunded on application to the Student Accounts Office.

8.10.4 Fees for Students in Two Programs

Students in two programs normally are billed additional fees for their second program. Depending on the level of the two programs, e.g., one program at the undergraduate vs. one program at the graduate level, students may incur both society and faculty fees and/or additional tuition fees. Consult the student accounts Website for further details.

Students in two programs may consult Enrolment Services for information on tuition fees. Adjustments to bills will be made throughout the term when fees cannot be automatically calculated.

8.10.5 Senior Citizens

Senior citizens aged 65 and over who require financial aid should be aware that such aid will be available for students enrolled full-time in degree programs. Students in need may contact the Scholarship and Student Aid Office for more information at (514) 398-6013.

8.10.6 Québec Exchange (Inter-University Agreements)

Students taking courses as part of the Inter-University Agreement are required to pay the fees at their home university. The Agreement, therefore, relates solely to the transfer of academic credits. Students taking courses as part of the Inter-University Agreement are required to pay additional course charges that are compulsory upon registration in a particular course. Such additional course charges may represent special activity charges or course materials. The University reserves the right to refuse course registrations in non government-funded activities.

8.11 Deferred Fee Payment

8.11.1 Students with Sponsors

Students whose fees will be paid by an outside agency such as the Department of Veterans Affairs, CIDA, a foreign government, or their University department (i.e., teaching assistants or demonstrators), must have written evidence to that effect. Sponsors and students alike must inform the University that a sponsorship is taking place so that the contract may be initiated and the student's fee account affected. Notification to the University should occur at least one month prior to the beginning of the term in which the contract is to take effect. Full documentation on the procedure as well as the forms required to be completed are found at www.mcgill.ca/student-accounts/third.

When a third party has agreed to pay fees on behalf of a student, payment will be recorded on the fee account, thereby reducing the balance the student must pay. The University reserves the right to insist upon payment. If the third party does not pay the promised fees within 90 days of invoicing, the student will be responsible for paying the fees plus the late

payment fee and accrued interest.

8.11.2 Students Receiving McGill Scholarships/Awards

Fall Term: McGill scholarships or awards normally are credited to the recipient's fee account by mid-August. These awards have the effect of reducing the student's outstanding balance.

Winter Term: Students can view upcoming Winter term scholarships or awards on Minerva once processed by the Student Aid Office. These awards are future-dated and will be released to the student's fee account by January 2.

8.11.3 Students Receiving Government Aid

Students are encouraged to pay their tuition promptly upon receipt of their government assistance. Interest on outstanding tuition is charged monthly beginning in August for returning students and in September for new students. Students who have applied for government assistance for full-time studies by June 30 (June 1st for US students) will be entitled to an exemption of interest and late payment charges effective upon receipt of their aid at either the Student Aid Office or the Macdonald Campus Student Services.

Students are reminded that tuition and student housing fees have first call upon financial aid received from any source.

8.11.4 Graduate Awards/Teaching Assistantships

Graduate students who are recipients of awards where funds are paid directly to them (e.g. FRSQ, FQRNT, etc.) are normally required to pay their fees by the payment due dates. Students who are dependent on the income received from either Teaching Assistantships, stipends and/or fellowships in order to pay their tuition should consult with the office responsible for their pay (either with their graduate department or on the GPSO web site) to see if they qualify for a deferral of their fees. Arrangements can then be made with the department to request a deferral through the Student Accounts Office and the department will normally recommend that the student arrange for regular deductions at source to pay tuition. To initiate these deductions, fill out the form "Student Fee Payroll Deduction Authorization" found at www.mcgill.ca/student-accounts/forms.

As of September 2007, all international Doctoral students registered full-time (Ph.D./D.Mus/DCL, years 1 to 4) at McGill pay the same tuition fees as the Quebec Doctoral students. For more information, please refer to the MIDAs awards in the Graduate Fellowships and Awards section of the graduate calendar.

8.12 Yearly Fees and Charges

In thesis programs, students are charged a flat rate based on 15 credits per term.

In non-thesis programs, students are charged a flat rate (based on 15 credits per term) if they are registered full-time, or a per credit rate if they are registered for less than 12 credits.

In the M.B.A., M.L.I.S., S.T.M., M.A. Counseling Psychology - Non-thesis, M.Sc.A., Nursing, M.Sc.A. Occupational Therapy, M.Sc.A. Physical Therapy and M.Ed. programs, students are charged per credit.

Part-time, Qualifying, Special, Diploma and Certificate students will be charged tuition fees at the per credit rate and will be subject to student society fees, student services fees, registration, transcripts and diploma charges, and information technology charges.

Note: The following tables reflect the 2008-09 tuition fees for Quebec and non-Quebec Canadians. In the case of International students, tuition fees and Student Services/Athletics fees are quoted at the 2007-08 rates, as they have not been finalized at the time of publication. Student Society fees reflect the 2008-09 rates. Administrative charges incorporate an estimate of the increase which will be due to the cost of living index, to be fixed in late February 2008. Any changes to fees subsequent to the publication date will be updated as they are confirmed via the Student Accounts Website: www.mcgill.ca/student-accounts.

Fees and Charges (based on 30 credits) *	Quebec Students	Non-Quebec Canadians		International Students all programs except those listed below	
	Master's and Ph.D.	Master's	Ph.D.	Master's	Ph.D.
Tuition					
Full-time	1,868.10	5,378.40	1,868.10	11,985.90	10,773.15
Half-time	934.05	2,689.20	934.05	5,992.95	5,386.58
Additional Session / non-thesis extension	1,868.10	1,868.10	1,868.10	1,868.10	1,868.10
Society Fees (see Note 1 and Note 2)					
Full-time	515.04	515.04	515.04	332.04	332.04
Half-time	134.12	134.12	134.12	134.12	134.12
Additional Session / non-thesis extension	448.88	448.88	448.88	265.88	265.88
Student Services / Athletics					
Full-time	445.00	445.00	445.00	445.00	445.00
Half-time	267.00	267.00	267.00	267.00	267.00
Additional Session / non-thesis extension	148.00	148.00	148.00	148.00	148.00
Registration Charge / Transcripts & Diploma					
Full-time	247.80	247.80	247.80	247.80	247.80
Half-time	123.90	123.90	123.90	123.90	123.90
Additional Session / non-thesis extension	247.80	247.80	247.80	247.80	247.80

Fees and Charges (based on 30 credits) *	Quebec Students	Non-Quebec Canadians		International Students all programs except those listed below	
	Master's and Ph.D.	Master's	Ph.D.	Master's	Ph.D.
Copyright Fee					
Full-time	23.40	23.40	23.40	23.40	23.40
Half-time	11.70	11.70	11.70	11.70	11.70
Additional Session / non-thesis extension	0.00	0.00	0.00	0.00	0.00
Information Technology Charge					
Full-time	205.80	205.80	205.80	205.80	205.80
Half-time	102.90	102.90	102.90	102.90	102.90
Additional Session / non-thesis extension	205.80	205.80	205.80	205.80	205.80
Total					
Full-time	\$3,305.14	\$6,815.44	\$3,305.14	\$13,239.94	\$12,027.19
Half-time	\$1,573.67	\$3,328.82	\$1,573.67	\$6,632.57	\$6,026.20
Additional Session/non-thesis extension	\$2,918.58	\$2,918.58	\$2,918.58	\$2,735.58	\$2,735.58

*Note that students registered non-resident pay fees of \$200 per year.

Note 1: Macdonald Campus students' Student Society fees vary from the above as follows at both the doctoral and Master's level:

Quebec/Canadian – Full-time: \$551.10; Half-time: \$177.10; Additional session/non-thesis extension: \$495.50.
International – Full-time: \$368.10; Half-time: \$177.10; Additional session/non-thesis extension: \$312.50.

Note 2: The following programs/departments have additional annual Student Society/departmental fees: Biology: \$20; Biomedical Engineering: \$10; Chemical Engineering: \$15; Education: \$20; Electrical Engineering: \$30; Information Studies: \$15; Law programs – \$152 (designated for computer facilities, Career and Placement Office, and society fees); M.B.A. programs: \$168 (designated for Computer Room improvement, Student Council, and Career Development); Mechanical Engineering: \$20; Music: \$72; Neuroscience: \$20; Physics \$30; Urban Planning: \$180 (Computer Fee - Engineering).

- 1) Additional session and Continuing (thesis program): no tuition charged for the summer term
- 2) Non-Thesis extension: students in non-thesis programs are charged per credit during the summer terms. Non-Thesis extension is not available as a status in the summer.

As of March 2008

CERTAIN SPECIAL PROGRAMS CHARGE DIFFERENT FEES

M.B.A. (Master's in Business Administration)

International Students (based on 30 credits per year)

Full-time Tuition	\$20,000.00
Society Fees	500.04
Student Services / Athletics	445.00
Registration / Transcripts & Diploma	247.80
Copyright Fee	23.40
Information Technology Charge	205.80
Total Fees	\$21,422.04

International Master's Program for Practising Managers

All students – IMPM: \$50,000.00 U.S.; IMPM Health Sector: \$42,500.00 CDN

Master in Manufacturing Management

The tuition fees over the program (normally 4 terms) will total \$25,000. Other fees are estimated to be as follows for the Fall and Winter terms:

	Quebec/ Canadian	International
Student Society	\$515.04	\$332.04
Student Services / Athletics	445.00	445.00
Registration / Transcripts & Diploma	247.80	247.80
Copyright Fee	23.40	23.40
Information Technology Charge	205.80	205.80
Total Other Fees	\$1,437.04	\$1,254.04

9 Postdoctoral Research

9.1 Postdocs

Postdocs are recent graduates with a Ph.D. or equivalent (i.e. Medical Specialist Diploma) engaged by a member of the University's academic staff, including Adjunct Professors, to assist him/her in research.

Postdocs must be appointed by their department and registered with the Graduate and Postdoctoral Studies Office in order to have access to University facilities including libraries, computer facilities, etc.

9.2 Guidelines and Policy for Academic Units on Postdoctoral Education

The general guidelines listed below are meant to encourage units to examine their policies, procedures, and privileges for postdoctoral education. Every unit hosting Postdocs should have explicitly stated policies and procedures for the provision of postdoctoral education as well as established means for informing Postdocs of policies, procedures, and privileges (e.g., orientation sessions, handbooks, etc.), as well as mechanisms for addressing complaints. Academic units should ensure that their policies, procedures and privileges are consistent with these guidelines and the Charter of Students' Rights. For their part, Postdocs are responsible for informing themselves of policies, procedures and privileges.

1. Definition and Status

- Postdoctoral status will be recognized by the University in accordance with Quebec provincial regulations. Persons may only be registered with postdoctoral status for a period of up to five years from the date they were awarded a Ph.D. or equivalent degree. Time allocated to familial or health leave

(as defined in the GPSO Calendar, General Information, section 10.6 "Health and Parental/Familial Leave of Absence Policy") is added to this period of time. Leaves for other reasons, including vacation leave, do not extend the term. Postdocs must do research under the supervision of one or more McGill professors, including Adjunct Professors. They are expected to be engaged primarily in research with minimal teaching or other responsibilities.

2. Registration

- i. Postdocs must be registered annually with the University through the Graduate and Postdoctoral Studies Office. Initial registration will require an original or notarized copy of the Ph.D. diploma. Registration will be limited to persons who fulfil the definition above and for whom there is an assurance of appropriate funding and where the unit can provide assurance of the necessary resources to permit postdoctoral education.
- ii. Upon registration, the Postdoc will be issued a University identity card by the Registrar's Office.

3. Appointment, Pay, Agreement of Conditions

- i. Upon registration, all Postdocs must be appointed regardless of whether their funding comes from a McGill account. Their appointments may not exceed their registration status.
- ii. In order to be registered as a Postdoc, an individual must be assured of financial support, other than from personal means, during his/her stay in the University equivalent, at the time of appointment, to the minimal stipend requirement as set by the University in accordance with guidelines set by federal and provincial research granting agencies. There are no provisions for paid family leave unless this is stipulated in the regulations of a funding agency outside the University.
- iii. At the outset of a postdoctoral appointment, a written Letter of Agreement for Postdoctoral Education should be drawn up and signed by the Postdoc, the supervisor, and the department head or delegate (see template Letter of Agreement on the Web at www.mcgill.ca/gps/postdoc). This should stipulate, for example, the purpose of the postdoctoral appointment (research and the advancement of knowledge), the duration of the fellowship/stipend, the modality of pay, the work space, travel funds, and expectations and compensation for teaching and student research supervision. Leaves from postdoctoral education must comply with the Graduate and Postdoctoral Studies Policies for Vacation, Parental/Familial, and Health Leave (Graduate and Postdoctoral Studies General Information section 10.3 "Vacation Policy for Graduate Students and Postdocs"). Any breach of these conditions may result in grievance procedures or the termination of the postdoctoral appointment.
- iv. Postdocs with full responsibility for teaching a course should be compensated over and above their fellowship at the standard rate paid to lecturers by their department.
- v. The amount of research, teaching, or other tasks that Postdocs engage in over and above postdoctoral activities should conform to the regulations for Postdocs specified by the Canadian research council of their discipline. This applies to all Postdocs, including those whose funding does not come from the Canadian research councils.

4. Privileges

- i. Postdocs have the same pertinent rights as the ones granted to McGill students in the *Handbook of Student Rights and Responsibilities* (green book), available on the Web at www.mcgill.ca/secretariat/documents.
- ii. Postdocs have full graduate student borrowing privileges in McGill libraries through their identity card.
- iii. As a rule, Postdocs who are Canadian citizens or who have Permanent Resident status may take courses for credit. Admission to such courses should be sought by submitting application documents directly to the appropriate program by the Postdoc. They must be admitted by the department offering the courses as Special Students. These Postdocs may also be enrolled as part-time students in non-degree granting

programs (i.e., graduate diplomas and graduate certificates). They will be charged fees for these courses.

- iv. Postdocs may be listed in the McGill directory. The Computing Centre will grant Postdocs e-mail privileges on the same basis as graduate students upon presentation of an identity card.
 - v. The Department of Athletics will grant Postdocs access to sports facilities upon presentation of their identity card. A fee will be charged on an annual or term basis.
 - vi. Postdocs are mandatory members of the Post-Graduate Students' Society and an annual association fee is automatically charged. Postdocs are permitted membership in the Faculty Club; an annual fee will be charged for this membership.
 - vii. Postdocs are encouraged to participate in the Centre for University Teaching and Learning staff development seminars. They will be accommodated free of charge for courses which are open to faculty members.
 - viii. Postdocs have access to the services provided by the Ombudsperson.
 - ix. Canadian citizens, Permanent Residents, and International Postdocs may enrol in the second language written and spoken English courses provided by Continuing Education, the English and French Language Centre, or the Centre for the Study and Teaching of Writing. They must be admitted by their department as part-time Students. They will be charged a fee for these courses. If the period of studies is longer than six months, International Postdocs must have a CAQ and a Study Permit.
 - x. Postdocs have access to the Student Services. Fees are applicable. Information is available at www.mcgill.ca/student-services.
- ## 5. Responsibilities
- i. Postdocs are subject to the responsibilities outlined in the *Handbook of Student Rights and Responsibilities* (green book), available on the Web at www.mcgill.ca/secretariat/handbooks/students.
 - ii. Each academic unit receiving Postdocs should clearly identify Postdocs' needs and the means by which they will be met by the unit.
 - iii. Each academic unit should consider the availability of research supervision facilities, office space, and research funding before determining the Postdocs that they will accept.
 - iv. Some examples of responsibilities of the department are:
 - to verify the Postdoc's eligibility period for registration;
 - to provide Postdocs with departmental policy and procedures that pertain to them;
 - to oversee registration and appointment of Postdocs;
 - to assign departmental personnel (e.g., Postdoc coordinator and graduate program director) the responsibility for Postdocs;
 - to oversee and sign off on the Letter of Agreement for Postdoctoral Education;
 - to assure that each Postdoc has a supervisor, lab and/or office space, access to research operating costs and necessary equipment;
 - to include Postdocs in departmental career and placement opportunities;
 - to refer Postdocs to the appropriate University policies and personnel for the resolution of conflict that may arise between a Postdoc and a supervisor.
 - v. Some examples of responsibilities of the supervisor are:
 - to uphold and transmit to his/her Postdocs the highest professional standards of research and/or scholarship;
 - to provide research guidance;
 - to meet regularly with his/her Postdocs;
 - to provide feedback on research submitted by the Postdocs;
 - to clarify expectations regarding intellectual property rights in accordance with the University's policy;

- to provide mentorship for career development;
- to prepare, sign, and adhere to a Letter of Agreement for Postdoctoral Education.
- vi. Some examples of responsibilities of Postdocs are:
 - to inform themselves of and adhere to the University's policies and/or regulations for Postdocs for leaves, for research, and for student conduct as outlined in the *Handbook of Student Rights and Responsibilities* and the *General Information, Regulations and Research Guidelines* booklet of the Graduate and Postdoctoral Studies Office;
 - to present themselves for registration to the Graduate & Postdoctoral Studies Office with a complete submission;
 - to sign and adhere to their Letter of Agreement for Postdoctoral Education;
 - to communicate regularly with their supervisor;
 - to inform their supervisor of their absences.
- vii. Some examples of the responsibilities of the University are:
 - to register Postdocs;
 - to provide an appeal mechanism in cases of conflict;
 - to help eligible Postdocs who have non-resident status in virtue of the Quebec Taxation Act to obtain a Certificate of Eligibility to the Quebec Tax Exemption for Postdoctoral Researchers (depending on acceptable fields of research by the Ministry);
 - to provide documented policies and procedures to Postdocs;
 - to provide Postdocs with the necessary information for language courses, housing, immigration, daycare, schooling, and health care information.

Approved by Senate April 2000.

9.3 Vacation Policy for Graduate Students and Postdocs

Graduate students and Postdocs should normally be entitled to vacation leave equivalent to University holidays and an additional total of (15) working days in the year. Funded students and Postdocs with fellowships and research grant stipends taking additional vacation leave may have their funding reduced accordingly.

Council of FGSR April 23, 1999.

9.4 Leave of Absence for Health and Parental/Familial Reasons

A leave of absence may be granted by the Graduate and Postdoctoral Studies Office for maternity or parenting reasons or for health reasons (see [section 10.6 "Health and Parental/Familial Leave of Absence Policy"](#)).

Such a leave must be requested on a term by term basis and may be granted for a period of up to 52 weeks. Students and Postdocs must make a request for such a leave in writing to their department and submit a medical certificate. The department shall forward the request to the GPSO.

Students who have been granted such a leave will have to register for the term(s) in question and their registration will show as "leave of absence" on their record. No tuition fees will be charged for the duration of the authorized leave. Research supervisors are not obligated to remunerate students and Postdocs on leave.

The GPSO has prepared a summary table of various leave policies (paid or unpaid) for students and postdocs paid from the Federal and Quebec Councils through fellowships or research grants. The document is available at www.mcgill.ca/gps/documents/funding under "Information on the Funding Council Leave Policies for Graduate Students and Postdocs".

9.5 Student Services - Downtown Campus

See [section 7.5 "Student Services – Downtown Campus"](#).

9.6 Student Services - MacDonald Campus

See [section 7.6 "Student Services – Macdonald Campus"](#).

10 Graduate Studies Guidelines and Policies

10.1 Guidelines and Regulations for Academic Units on Graduate Student Advising and Supervision

The general guidelines suggested below are meant to encourage units to examine their graduate programs and to specify their own policies and procedures. These guidelines are directed primarily towards thesis programs but will, in part, be appropriate for non-thesis programs as well.

Each academic unit should have explicitly stated policies and procedures regarding the advising and supervising of graduate students, as well as established means for informing students of procedures and deadlines (e.g., orientation sessions, handbooks) and mechanisms for addressing complaints. Academic units should ensure that their policies and procedures are consistent with the Charter of Students' Rights. For their part, graduate students are responsible for informing themselves of these policies and procedures.

1. Assignment of Advisors, Supervisors and Committees

- i. Each unit should designate a member (or members) of the academic staff (usually the graduate program director) to monitor the progress of students throughout the graduate program, to ensure that all conditions of admission and requirements are fulfilled, to provide students with information on their program, their progress through it, sources of and policies on financial support, and to advise them how to resolve problems which may arise during their program.
- ii. As soon as possible, students should have a supervisor who has competence in the student's proposed area of research, and a program or thesis committee. Although procedures and timetables for choosing supervisors and committees may vary across programs, they should be consistent within a particular program and should be made clear to incoming students. Thesis supervisors must be chosen from academic staff in tenure-track positions. Faculty Lecturers and Research Assistants may not act as supervisors but in exceptional cases, may be co-supervisors. Emeritus Professors and Adjunct Professors may co-supervise. Professors (Special Category) may supervise or co-supervise students. In the case of supervision, the academic unit in question must ensure continuity of appropriate supervision of their graduate students.

2. Program

- i. Early in their program, students should be informed of the phases through which they must pass towards the achievement of the graduate degree, the approximate amount of time each phase should take, the criteria for its successful completion, and any deadlines relating to these phases.
- ii. It is important that students are made aware of whatever courses are required to complete their programs, that these courses are available, and that they relate to students' proposed areas of research or to the development of related areas of scholarship.
- iii. Where relevant, students should also be informed early in their program of language requirements or comprehensive examinations. The guidelines, criteria and procedures for comprehensive examinations must be explicit and consistently applied in each program. Academic units should consider the

- rationale for language and comprehensive examinations and how they relate to the objectives of the graduate program.
- iv. Every effort should be taken to ensure that students choose, as soon as possible, realistic and appropriate areas of research commensurate with degree requirements.
 - v. **There must be clear procedures established in every unit by which students receive guidance and constructive criticism on their progress on a regular basis through the program (e.g., regular meetings and/or E-mail communication with supervisors and committees, attendance at research seminars, semester or annual reviews of student progress). In addition to regular meetings between the student and supervisor or advisory/thesis committee, each unit must establish a procedure to provide feedback to thesis students regarding their research progress. At least annually, there must be a meeting between the student, supervisor and advisory/thesis committee or, in the case where there is no such advisory/thesis committee, there must be a meeting between the supervisor and a departmental representative, at which objectives for the upcoming year are established and the prior year's research progress recorded and evaluated. A written record of such meetings must include the signature of the student, supervisor, and the advisory/thesis committee member or a departmental representative, and this record must be retained in the student's departmental file. (The Graduate Student Research Objectives Report Form, the Graduate Student Research Progress Record, and the Graduate Student Research Progress Report Form are to be utilized to keep a record of these meetings.) In the case where the student does not make expected progress, the advisory or thesis committee or, in the case where there is no such advisory or thesis committee, the student, supervisor and a departmental representative must meet at least once per semester for the subsequent twelve months to review progress and if appropriate to set new objectives. On the occasion of a second unsatisfactory progress report, the student may be required to withdraw from the program of study.**
 - vi. Students should be made aware of the cost living in Montreal and of sources of financial support (e.g., teaching or research assistantships, fellowships) and of the facilities available to them (e.g., study space, computers).
 - vii. Students should receive guidance and encouragement in areas relating to their growth in scholarship, professional development and career planning. Examples may include, where appropriate, reporting research, writing abstracts, preparing papers for conference presentation or for publication, writing grant and fellowship applications, conducting a job search, and preparing for job interviews.
 - viii. Units should be sensitive to special academic needs and concerns that may arise in the case of certain students, such as international students or students who undertake graduate studies after a long absence from university.

3. Responsibilities

Each unit should clearly identify the student's supervisory needs at each phase and the means by which these needs will be met. Some functions will be fulfilled by the Chair, some by the graduate program director, some by the supervisor and some by the committee. Each unit should clearly identify the specific responsibilities of each of these, as well as the responsibilities of students themselves.

- i. Each unit should consider the availability of student support, research facilities, space and availability of potential supervisors in determining the number of students admitted into the program.
- ii. Some examples of the responsibilities of the graduate program director are to be knowledgeable about program requirements, the composition of committees, the procedures for comprehensive and oral defense examinations, and other

policies relating to graduate studies; to maintain a dossier on each student's progress; and to be sensitive to graduation deadlines and students' career plans.

- iii. Some examples of the responsibilities of a supervisor are to uphold and to transmit to students the highest professional standards of research and/or scholarship; to provide guidance in all phases of the student's research; to meet with their students regularly; to provide prompt feedback when work is submitted including drafts of the thesis; and to clarify expectations regarding collaborative work, authorship, publication and conference presentations.
- iv. Some examples of the responsibilities of the students are to inform themselves of program requirements and deadlines; to work within these deadlines; to communicate regularly with the supervisor and committee; and to submit progress reports to the supervisor and committee.
- v. The Chair of the unit should ensure that procedures are in place to address serious disagreements that may arise, for example, between a student and a supervisor or between a supervisor and committee members. Such procedures should involve a neutral mediator who will ensure that all sides of a dispute are heard before any decision is made.

4. Quality of Supervision and Teaching

- i. Academic units and the Graduate and Postdoctoral Studies Office should consider ways to assess and improve the quality of supervision and to help new supervisors, e.g., through workshops or mentoring models. Procedures for monitoring the quality of graduate student supervision and for providing constructive feedback for supervisors should be developed.
- ii. Graduate supervision should be recognized as an integral part of the academic responsibility of an academic unit and should be considered in the allocation of workload, as should the teaching of graduate courses.
- iii. Academic units should establish criteria of excellence in supervision and graduate teaching appropriate to their disciplines and should suitably reward those who meet these criteria, e.g., in decisions concerning tenure and promotion, or merit pay awards.
- iv. The maximum number of students under the direction of a single supervisor should be consistent with the ability of the supervisor to provide quality supervision, taking into account the workload of the supervisor and norms of the discipline.
- v. Procedures should be established for ensuring continuity in supervision when a student is separated from a supervisor – for example, when the supervisor takes a sabbatical leave, retires from McGill or changes universities or when the student leaves to complete field work or takes a job before submitting a thesis.

Revised by Council of FGSR, April 23, 1999 and October 6, 2003.

10.2 Policy on Graduate Student Research Progress Tracking

This is a new mandatory policy and procedure to track the research progress of graduate students. The policy is referred to in the amended Guidelines and Regulations for Academic Units on Graduate Student Advising and Supervision in section 2.v. in bold print. Documents to record progress can be found on the GPS Website: www.mcgill.ca/gps/documents/progress.

The following is a summary of the main elements of the new **mandatory** policy. The following steps must be followed for each graduate student in a thesis program:

1. Annually, the student must meet with, at minimum, their supervisor(s) and a departmental representative. This meeting can occur in the context of an annual thesis or advisory committee in those departments that have thesis committees.
2. At the first such meeting (to be held shortly after thesis students begin their programs), written objectives/expectations for the

year must be recorded on the first of the three forms, Form #1 (Graduate Student Research Objectives Report Form). All three people at the meeting must sign this form. A student who does not agree to sign the form must write a statement detailing his/her objections to the expectations recorded on the form.

3. Approximately one year later, and every year thereafter, the student, supervisor(s) and the departmental representative should meet again to review the progress that has been achieved toward the recorded objectives. Prior to the meeting, the student should record his/her accomplishments and progress for the year by completing Form #2 (Graduate Student Research Progress Record). This completed form is then evaluated by the supervisor and the departmental representative on Form #3 (Graduate Student Research Progress Report Form). All parties sign Form #3. A student who does not agree to sign the form must write a statement detailing his/her objections. At this same meeting, objectives for the following year should be recorded on Form #1, as per the procedure described in point 2, above.
4. In the event that recorded research progress is unsatisfactory, a new set of objectives should be developed for the student at the meeting, and recorded on Form #1. These new, or interim, objectives apply only to the next semester. Evaluation of progress should take place after that semester has concluded, following the steps described in point 3, above.
5. In the event that a student has any two unsatisfactory evaluations they may be required to withdraw from their program of study. These two unsatisfactory evaluations need not be successive.
6. All forms are to be kept in departmental files.
7. Departments that already have progress tracking forms may continue to utilize them, but these must conform to the fundamental principles underlying this new policy. Specifically, any departmental procedure or forms to record graduate research progress must:
 - be used **annually**;
 - be used in a meeting with the supervisor and one other departmental representative, and signed by all parties;
 - include a written statement of expectations approximately one year before any evaluation. (Note: This can be one semester in the case of expectations following an unsatisfactory evaluation.);
 - permit the student to submit a minority report and not sign;
 - state clearly that any two unsatisfactory evaluations may be grounds for requiring a student to withdraw.

Please note this new University policy is **MANDATORY**. Students may grieve against a department that fails to adhere to the policy and procedures outlined above.

Senate, September 2003.

10.3 Vacation Policy for Graduate Students and Postdocs

Graduate students and Postdocs should normally be entitled to vacation leave equivalent to university holidays and an additional total of fifteen (15) working days in the year. Funded students and Postdocs with fellowships and research grant stipends taking additional vacation leave may have their funding reduced accordingly.

Council of FGSR April 23, 1999.

10.4 Ph.D. Comprehensives Policy

Preamble

The majority of doctoral programs at McGill require candidates to pass a comprehensive examination or set of examinations or equivalent, such as qualifying examinations, preliminary examinations, candidacy paper, comprehensive evaluation, thesis proposal, etc. The Calendar of the Graduate and Postdoctoral Studies

Office (GPSO) includes the following statement:

A comprehensive examination or its equivalent is usually held near the end of Ph.D. 2. The results of this examination determine whether or not students will be permitted to continue in their programs. The methods adopted for examination and evaluation and the areas to be examined are specified by departmental regulations and approved by the Dean of Graduate and Postdoctoral Studies. It is the responsibility of students to inform themselves of these details at the commencement of their programs.

It is recognized that expectations for the Ph.D. comprehensive will vary according to the needs of the discipline. It is important to make it clear to doctoral candidates what the expectations and procedures are for their Ph.D. comprehensive, and to maintain consistency within a given program.

General Policy

1. At the beginning of the relevant academic year, units must provide doctoral students with a written description of the Ph.D. comprehensive, covering the following issues: objectives and content, format, timing, assessment, grading and reporting, failures. (See below for details.)
2. All units that have a Ph.D. comprehensive must adopt an administrative course number for it, usually XXXX 701. One of the following forms of grading must be adopted and used consistently within the program: Pass/Fail or letter grades. ("Mixed" modes of grading are not permitted, i.e., some students within a program reported on a Pass/Fail basis and others by means of letter grades.)

Specific Issues

Objectives and Content

Units must specify the objectives of the Ph.D. comprehensive. Objectives may include assessing any of the following (or a combination), with a view to determining whether the student demonstrates the necessary research skills and academic achievements to be permitted to continue in the Ph.D. program. (This list is not intended to be exhaustive.)

- knowledge of the discipline (from the point of view of breadth)
- understanding of the proposed field of research
- ability to conduct independent and original research
- a thesis proposal
- professional skills
- ability to present and defend material orally

The content of the comprehensive must be consistent with the objectives and should be appropriately circumscribed. Students must be given an indication of the range of material that may be covered in the examination and suggestions as to how to cover this material (e.g., via reading lists, courses, etc.).

Format

The format of the comprehensive must be clearly stated and must be consistent across students within a particular program. The following list gives some of the more common formats, which are often combined. (This list is not intended to be exhaustive.)

- written examination of a specific duration
- take-home examination
- extended research paper(s)
- written research proposal
- oral exam (which may include or consist of a defense of a research paper or research proposal)

If the comprehensive consists of several parts, the relationship (if any) between them must be made clear.

Timing

Timing of the comprehensive must be specified, including the earliest and latest dates by which the comprehensive is to be completed. Students must be informed of the specific dates of the exam in sufficient time for them to prepare for it.

Given the importance of the Ph.D. comprehensive and the consequences of failure, the exam should be held reasonably early in

the program, so that students do not spend several years preparing for it.

Prerequisites must be specified. For example, clarify whether all course work must have been completed prior to the comprehensive and whether the comprehensive is the final step before thesis research and writing.

Assessment, Grading and Reporting

Evaluation parameters must be made clear, including information about who sets the exam questions and who evaluates the student. If performance is assessed by a committee, clarify how the committee is appointed and who sits on it. In the case of written examinations, clarify whether the grading is done by one or more people.

Where there is more than one component to the examination (e.g., an oral exam plus a written exam), it must be made clear how these components are factored into the final grade. For example, make it clear whether each component counts equally, whether the assessment is global, and whether failure on one part of the comprehensive examination (or on one question) results in an overall failure.

Feedback

The assessment and reasons for the decision must be documented and provided to the student in sufficient detail to allow the student to understand the decision, including identifying strengths and weaknesses. (A number of units have developed short forms specifically for this purpose.) In the case of oral examinations, the student should also be given feedback on presentation, logical exposition, ability to answer questions, etc.

In the case of oral exams, units may wish to consider the following: ensure that there is a reasonably detailed written assessment of the student's performance; tape the oral examination; allow the student to select a faculty member to act as a neutral observer; have one faculty member serve as a neutral chair (equivalent to a Pro-Dean); have an "outside" committee member; have the oral examination open to other students and faculty members.

Plagiarism

McGill University values academic integrity, which is fundamental to achieving our mission of the advancement of learning. Therefore, all students must understand the issues associated with **academic integrity** (see www.mcgill.ca/integrity for more information).

Plagiarism in a Ph.D. comprehensive Examination contravenes McGill University's academic goals and standards. Consequently, any student found guilty of plagiarism under the Code of Student Conduct and Disciplinary Procedures (see the Handbook on Students Rights and Responsibilities available at www.mcgill.ca/secretariat/documents) in a Ph.D. Comprehensive Examination may face very serious penalties, even expulsion from the University without the degree.

Failures

i. Repeats

In the event of a failure, units must allow, without prejudice, one repeat of the comprehensive (in whole or in part). The first time a student fails, the student must be informed in writing by the department that he/she has failed the comprehensive and must be informed of conditions relating to a repeat of the examination. In such circumstances, the grade of HH (continuing) will be used. In the event of a second failure, a grade of F will be reported to the Graduate and Postdoctoral Studies Office and the student will be asked to withdraw from the Ph.D. program.

Conditions for retaking the examination must be clearly stated, including the time frame, potential dates, nature of the re-examination, committee membership, etc.

Units have the right to specify further requirements in the event of failure (e.g., requiring students to take an additional course or courses in areas where they have shown weakness on the comprehensive).

ii. Plagiarism

If plagiarism is suspected, the case will be referred directly to the committee on Student Discipline in accordance with the code of Student Conduct, Part III (article 15) and Part V (A). If plagiarism is established by due University process, the student is considered to have failed the examination, with no possibility of repeat.

iii. Review and Reassessment

Rereads. In the case of written comprehensives, the Graduate Studies Reread Policy applies.

A student who fails an oral examination may request a review. In such cases, the Graduate and Postdoctoral Studies Office will conduct a review of the examination process and procedures.

Other Relevant Policies/Offices

Charter of Student Rights
 Graduate Studies Reread Policy
 Office for Students with Disabilities

Approved by Executive of Faculty of Graduate Studies and Research (FGSR) February 17, 1997 and Council of FGSR March 7, 1997.

10.5 Graduate Studies Reread Policy

This policy applies only in the case of marks given for written work in 600- and 700-level courses. For 500-level courses and below, the reread policy of the appropriate undergraduate faculty applies.

Consultation

In accordance with the Charter of Student Rights, and subject to the conditions stated therein, graduate students have the right, subject to reasonable administrative arrangements, "to consult any written submission for which they have received a mark and to discuss this submission with the examiner". Upon request by the student, the instructor of the course is obliged to conduct this consultation with the student.

(Note: Where materials have been graded by a TA and the student wants a reconsideration of the grade, the faculty member responsible for the course is expected to review the materials and the appropriateness of the grade. This is so even if the materials in question have already been discussed by the TA with the student.)

Verification

In a case where a student feels that totalling errors have been made in arriving at the final grade, the student can request the instructor to carry out a detailed check that all questions have been marked and that the final grade has correctly been computed on the basis of the term work, final examination, etc.

Rereads

According to the Charter, students have the right, subject to reasonable administrative arrangements, "to an impartial and competent review of any mark" (hereafter "reread").

At the time the request for a reread is made, the student should have already met with the faculty member responsible for the course to review the mark, or made a reasonable attempt to do so.

Rereads can only be requested if a change upwards in the letter grade for the course is possible as a result of the reread. Assignments can only be reread if, together, they account for more than 20% of the course grade.

The reread by a second reader is a review of the mark, not the work assigned. It is the second reader's task to determine whether the original mark is fair and reasonable, not to give the work a totally new assessment.

1. The time limit for requesting a reread is within 30 days after posting of the final marks for the course. However, in the case of work which has been graded during the course and returned to the student, students must indicate in writing to the Graduate and Postdoctoral Studies Office within 5 working days of receiving the graded work their intention to request a reread. This

intention must be confirmed within 30 days of the posting of the final marks for the course.

(Note: Material that is returned to a student **cannot be reread** unless arrangements have been made to ensure that the material has not been changed subsequent to the original grading; for example, the student can make a copy for the professor to retain either before handing the material in or immediately upon receiving it back from the instructor or at the point where the professor and student review the work together.

Instructors are strongly advised to write their corrections in red pen and to write comments which help the student to understand the mark assigned.)

- The request for a formal reread must be made by the student in writing to the Graduate and Postdoctoral Studies Office and should specify the reasons for the request. It should include a statement indicating that the student has already met with the faculty member responsible for the course to review the mark or indicating why this has not been possible. The reread fee (\$35 for an exam, \$35 for a paper, \$35 for one or more assignments, to a maximum of \$105 per course) will be charged directly to the student's fee account after the result of the reread is received. No fee will be charged if there is a change upwards in the letter grade for the course.
- Administration of the reread is handled by the Graduate and Postdoctoral Studies Office, not by the department. The Office will contact the department to obtain the work to be reread, a list of potential readers, and details of the marking. All communication with the second reader is conducted by the GPSO.

The second reader is given the original assignment, with marginalia, corrections, summary comments and mark intact, as well as any notes from the instructor pertinent to the general nature of the course or the assignment and grading schemes, etc.

- The student's and the instructor's names are blanked out to reduce the possibility of prejudice and to help meet the requirement of the Charter of Students' Rights that the review be impartial. The rereader's name will not be made known to the student or instructor at any time; the student's name will not be made known to the rereader at any time.
- The second reader should support his or her assessment with a brief memorandum to the Graduate and Postdoctoral Studies Office. As a result of the reread process, the grade may become **higher or lower or remain unchanged**. The grade submitted by the second reader shall replace the original grade. The reread grade cannot be challenged.

In the case of requests for rereads of group work, all members of the group must sign the request, indicating that they agree to the reread. In the event that members of the group are not in agreement, the written request should indicate which students are requesting the reread and which students do not wish for a reread. In such cases, the outcome of the reread (whether positive or negative) will affect only the students in favour of the reread. Neither the reread grade nor the decision to opt in or out of the reread can be challenged.

- The new grade resulting from the review will be communicated to the student in a letter from the Graduate and Postdoctoral Studies Office, with a copy to the academic unit.

Prepared by the Committee on Graduate Programs, Supervision and Teaching

Approved by Council of the Faculty of Graduate Studies and Research, May 12th 1995

10.6 Health and Parental/Familial Leave of Absence Policy

A leave of absence may be granted by the Graduate and Postdoctoral Studies Office for maternity or parenting (interpreted according to McGill's "Parental Leave Policy" for non-academic staff) reasons or for health reasons.

Such a leave must be requested on a term by term basis and may be granted for a period of up to 52 weeks. Students must make a request for such a leave in writing to their department and submit a medical certificate. The department shall forward the request to the GPSO.

During a **leave of absence for parental or familial reasons**, a student will not be eligible to take courses but he/she may request and expect guidance on thesis and research work and will have free access to the University's academic facilities. Library services will continue to be available by registering at the Circulation Desk of the Humanities and Social Sciences Library (McLennan-Redpath). In special circumstances, familial leave may be considered by the GPSO for a student when a close family member is ill.

During a **leave of absence for health reasons**, a student will not be eligible to request guidance on thesis and research work or to take courses. He/she will not have access to the University's academic facilities but Library services will normally continue to be available by registering at the Circulation Desk of the Humanities and Social Sciences Library (McLennan-Redpath).

A medical certificate must accompany such leave requests.

(Council of FGSR - March 1999)

Please refer to section 6.1.10 "Leave of Absence Status" for information regarding registration of graduate students and Postdocs on such leaves.

10.7 Failure Policy

Please refer to **section 6.11 "Failure Policy"**, for information regarding the policy and procedures to follow in cases of failure.

11 Resources for Study and Research

11.1 Libraries

The Library consists of 13 branch libraries, special collections and specialized services located across the University's downtown campus and Macdonald campus, on the shores of Lac St. Louis. Numbering over 6 million items, the Library's vast holdings include 2.5 million books, 250,000 cartographic items and thousands of sound and video recordings. The Library's e-resources are extensive, and include almost 50,000 e-journals, and over 1 million e-books on subjects ranging from early English texts to nutrition.

A comprehensive Website (www.mcgill.ca/library), and a wide range of services link the Library's resources to those who need them for teaching, learning, research and scholarship and is key to finding all the information you need. The online catalogue lists most items held in the Library's collections. Hundreds of databases on topics from art history to zoology guide users to relevant journal articles and research materials, while subject guides on topics like chemistry and social work provide comprehensive and clear direction for users undertaking research. From past examination papers and McGill theses to foreign newspapers, there's an amazing range of online information you can find using the Library's Website.

The expert and friendly staff in each branch library will help you locate information for course work, assignments or research topics. Training is provided at all levels to ensure users are able to find, locate and use information, and information skills programs are undertaken as part of mandatory course curricula. Furthermore, Liaison Librarians proficient in specific disciplinary areas are on hand to assist students and staff. Should you have any queries, assistance is always close by, whether in person, on the phone, or online, via E-mail and online chat.

Opening hours vary for each library but most are open up to 84 hours per week. All branch libraries extend their opening hours during examination periods: to 24hr access in the case of the Humanities and Social Sciences Library. Hundreds of computers are available for e-mail, word-processing, accessing online courses, reading library materials, preparing assignments and

internet searching. Designed to enhance the learning experiences of a diverse range of users, the Library's facilities offer a variety of comfortable and attractive spaces. There are places for quiet individual study, dynamic e-zones, and group study rooms which can be booked for use. Wireless access is available across the library, and printing and copying facilities, operated by a card system, are conveniently located in all libraries. Special facilities are available for the vision and hearing impaired.

Users have access to specialized services such as the Electronic Data Resources Service, which supports empirical and statistical research, and a digitization program highlighting unique scholarly materials. You can borrow from any library, and should be sure to check out the Course Reserve collection in your branch library, where you can find copies of textbooks and high-demand items on course reading lists.

11.2 University Archives

The McGill University Archives (MUA) acquires, preserves and makes available to researchers (including students) of all disciplines more than 5,000 metres of records dating from 1797 to the present. These records document the history of McGill University faculty research, alumni and student organizations, and select Montreal-based organizations, all in a variety of media (including textual records, photographs, slides, audio-tapes, film, video, University publications, and artifacts). The MUA acquires private records to support University research goals and manages the University's corporate memory and information assets through its Records Management Program. The Records Management Program regulates the flow of administrative records and protects vital evidence of University functions and activities according to Quebec archives and records legislation.

The MUA Reading Room is open to the public Monday-Friday, 9:00-12:30 and 1:45 to 4:45; however, appointments are recommended. The MUA Website includes virtual exhibitions, on-line searching of the MUA holdings, digital collections including the largest campus database of digitized images, and access to the McGill History Portal (focusing on historical information about McGill University and its community).

McGill University Archives
McLennan Library - Ground Floor
Telephone: (514) 398-3772
Fax: (514) 398-8456
Website: www.archives.mcgill.ca

11.3 Museums

11.3.1 Redpath Museum

The Redpath Museum exists to foster the study of the history and diversity of the natural world. Its mandate includes geological, biological and cultural diversity. Its collections have been growing for over a century, and provide resources for research and for graduate and undergraduate education in biology, geology, anthropology and other fields. Among the largest collections are fossils from the ancient sea floor of eastern Quebec, the oldest land plants, a vast range of minerals, molluscs from around the world, Egyptian and classical antiquities, and artifacts from Central Africa. The Museum also houses research laboratories and classrooms.

The Museum welcomes McGill students and staff to visit its new permanent exhibit, which presents the history of life through the ages illustrated by material from Quebec and neighbouring regions, besides displays that feature the mineral and mollusc collections. A new ethnology gallery devoted to cultures throughout the world, including ancient Egypt, classical Greece and Rome, Asia, and Africa, has recently been installed.

859 Sherbrooke Street West
Telephone: (514) 398-4086
E-mail: redpath.museum@mcgill.ca
Website: www.mcgill.ca/redpath

11.3.2 McCord Museum of Canadian History

The McCord Museum is home to one of the finest historical collections in North America. It possesses some of Canada's most significant cultural treasures, including the most comprehensive collection of clothing - comprised of over 16,000 garments or accessories - made or worn in Canada; an extensive collection of First Nations artifacts - the most important of its kind in Quebec with a corpus of over 13,000 objects from across Canada; and the renowned Notman Photographic Archives, which contain over 1,000,000 historical photographs and offer a unique pictorial record of Canada from pre-Confederation to the present. The McCord also houses paintings by renowned artists such as Théophile Hamel, Cornelius Krieghoff, James Pattison Cockburn and George Heriot. The Museum's Textual Archives include some 185 linear metres of documents relating to Canadian history. Finally, the McCord's Website (www.mccord-museum.qc.ca) features award-winning virtual exhibitions, innovative learning resources and a vast, searchable database of information on the Museum's collections.

Exhibitions at the McCord provide inspirational and innovative interpretations of the social and cultural history of Montréal, Québec and Canada. In addition to guided tours, school programs, cultural activities and lectures, the McCord offers a range of services including the Museum Café and the boutique.

Researchers welcome by appointment.

690 Sherbrooke Street West
Telephone: (514) 398-7100
E-mail: info@mccord.mcgill.ca
Website: www.mccord-museum.qc.ca

11.3.3 Lyman Entomological Museum and Research Laboratory

Located on the Macdonald Campus, this institution has the largest insect collection of any Canadian university, and is second in both numbers of species and specimens only to the Canadian National Collection of Insects, Ottawa. As its main function is research and teaching, and not exhibition, it is not generally open to the public, but tours are available, by appointment, to interested parties.
Telephone: (514) 398-7914.

11.3.4 Other Historical Collections

In addition to the above, there are other collections and exhibits of a specialized nature, ordinarily open only to students but to which access may be gained by application to the department concerned. These include the Anatomical and Pathological Museums.

The Physics Department has two specialized collections which may be viewed by appointment. The Rutherford Museum contains original apparatus and other items used by Professor Ernest Rutherford in his Nobel Prize-winning research on radioactivity at McGill University, 1898-1907. The McPherson Collection comprises a wide range of historical apparatus and instruments used for measurements and investigations, with special emphasis on 19th-century physics.

12 For your Information Technology (IT) needs

The IT at McGill website, www.mcgill.ca/it, is your one-stop access point for Information Technology resources at McGill.

Visit the IT at McGill website to:

- Get resources, references and links to central IT services at McGill,
- Search the McGill IT Knowledge Base,
- View online video presentations,
- Contact the ICS Service Desk for IT help,
- View IT announcements,
- Find useful tips on keeping your equipment secure and running smoothly.

The following are some of the basic IT services, to get you started.

12.1 Logging In

You need to use your **McGill Username** (usually in the form of firstname.lastname@mail.mcgill.ca) and **McGill Password** to access many central IT services including: the myMcGill portal, myCourses, E-mail, wireless, Virtual Private Network (VPN), and McGill's dialup access service (DAS).

To find out your McGill Username and set your McGill Password:

- 1) Log in to Minerva (using your 9-digit McGill ID number and your PIN).
- 2) Go to the Personal Menu and click "Password for McGill Username".
- 3) Follow the onscreen instructions.

12.2 myMcGill

The myMcGill web portal is the central access point, where you will go to:

- Read your E-mail,
- Check myCourses,
- View and update your student records and account information, with direct links to Minerva,
- Search the McGill Library Catalogue,
- Keep abreast of the latest McGill news,
- And more.

Click **myMcGill** at the top right of any McGill Website (www.mcgill.ca) and sign in using your McGill Username and McGill Password.

12.2.1 Browser compatibility

The myMcGill portal currently supports the latest versions of following browsers:

- IE (Windows)
- Firefox (Mozilla) (Windows/Mac)

Netscape (Windows)

12.3 myCourses

Many of your courses will have online materials or activities such as assignments and readings, the syllabus, project guidelines, discussion forums, calendars, etc.

Access your online course content via myCourses at www.mcgill.ca/mycourses or through the myMcGill web portal.

- Sign in using your McGill Username and McGill Password.
- Click myCourses (WebCT Vista) to enter the site.
- Verify your browser settings using the Check Browser utility at the top right corner of the page.

Find more information on myCourses at www.mcgill.ca/it under "Teaching and Learning".

12.4 E-mail

Your McGill E-mail Address (usually in the form of firstname.lastname@mail.mcgill.ca) is the official way the University communicates with you by E-mail. Please read the Student E-mail Policy at www.mcgill.ca/email-policy. Access your E-mail at <http://exchange.mcgill.ca> or through the myMcGill portal. Verify your McGill E-mail Address on the Minerva Personal Menu.

12.5 Online Student Directory

Opt in to the student directory and make it easier for your fellow classmates to contact you. Find more on this service at www.mcgill.ca/directory/students.

12.6 Getting Connected

You can find more details on the following services at www.mcgill.ca/it, under "Telephone, Network and Wireless":

Wireless - Access the Internet using your laptop or other mobile device from virtually anywhere on campus, through the McGill Wireless Network.

Virtual Private Network (VPN) - You need to establish a VPN connection to access McGill restricted sites and resources (e.g., Library databases) if you connect to the Internet with an Internet Service Provider (ISP) other than McGill's DAS.

Dialup access (DAS) - Access the Internet using your telephone line and a modem, instead of using a high speed ISP.

McGill Residences Telecommunications - For students living in McGill Residences and MORE buildings, there is a Voice and Data (wired and wireless) service.

Computer labs are provided by many faculties and departments for students in their programs. For lab locations, computer availability, software/peripheral availability and more, visit <http://vhd.mcgill.ca/labs>.

"Connectivity@McGill" iCare clinic - Attend this free, hands-on clinic and learn how to configure your computer to connect to the Internet via wireless or modem, and how to set up a VPN connection. Find out how to register at www.mcgill.ca/it, under "IT Service Desk and Training".

12.7 Safe Computing

"Computing Safety" iCare clinic - Attend this free clinic and learn how to prevent being infected by viruses, spyware, adware and other malicious programs. Find out how to register at www.mcgill.ca/it under "IT Service Desk and Training".

Antivirus software from Symantec is free to download from McGill's Software Licensing site at <http://elms04.e-academy.com/mcgill>. Find out how at www.mcgill.ca/it under "IT Security Best Practices". Note: Please uninstall any previous antivirus software from your computer before installing Symantec.

12.8 Need Help?

Welcome New Students - Take an interactive guided tour of IT services at www.mcgill.ca/it, under "ICS Service Desk and Training".

McGill IT Knowledge Base - Search the Knowledge Base at <http://vhd.mcgill.ca/knowledgebase> for answers to commonly asked questions about IT.

12.8.1 Getting Help

Contact the ICS Service Desk by submitting your request via a Web form at <http://webforms.mcgill.ca>, or go to the Service Desk at www.mcgill.ca/it, under "ICS Service Desk and Training".

13 Research Policy, Patents, Postdocs, Associates, Trainees

13.1 Policy on Research Ethics

Please refer to the Policy on Research Ethics available at: www.mcgill.ca/files/secretariat/research-ethics-amended-current.pdf.

13.2 Regulations on Research Policy

Please refer to the Regulations on Research Policy available at: www.mcgill.ca/files/secretariat/research-amended-current.pdf.

13.3 Policy on Student Involvement in Research

The following policy relates specifically to undergraduate and graduate students who are engaged in research as part of their

university programs. Some sections also apply to those cases where an investigator enlists the services of an inexperienced person as assistant, technician, trainee, etc. in connection with a research project.

Health and Safety

- 1) It is the responsibility of the investigator to implement all possible measures that will ensure the health and safety of his/her research colleagues. Such measures include:
 - a) Strict adherence to the safety procedures set forth in the regulations of the building in which the research is being carried out.
 - b) Careful training of all new personnel in the correct usage of equipment and materials.
 - c) Provision of adequate protective clothing, first aid kits, etc. and their regular inspection.
 - d) Clear precautionary labelling of containers of hazardous materials.
- 2) Students, especially undergraduates, tend to have only temporary involvement with a research project and may be absent during routine safety drills. Particularly attention should be given to the instruction of each beginning student. Solitary work in a laboratory containing potential hazards should be strongly discouraged. Research projects shall avoid a requirement for solitary after-hours work.
- 3) Where research projects involve the use of specially hazardous materials (e.g. radioactive, carcinogenic or poisonous chemicals) departments shall ensure that students have signed a statement that they have received and read appropriate health and safety information and shall forward such statements to the Building Director. [Refer to McGill University Manual of Radiation Safety, June 1984.]
- 4) In cases of emergency, both staff and students are required to follow instructions issued by the Building Director or delegate.

Academic Considerations

- 1) When a student assists in a research project, a clear distinction should be made between work for which the student is paid, and research training which contributes to the student's academic program.
- 2) As a general rule, paid work should not be considered eligible for credit towards an undergraduate course. In some departments, different arrangements have traditionally been held; in such departments open discussion should ensure that one policy is applied uniformly throughout the department and disseminated to students.
- 3) When a graduate student is assigned a salary or partial support by the investigator (e.g. from an operating grant or similar fund controlled by the investigator) a clear agreement should be made as to the duties expected of the student in conjunction with the investigator's own research project vis-à-vis the work contributing to the student's thesis.

Secrecy

- 1) When a student begins working with an investigator who may be funded in whole or in part by contracts, consulting agreements or grants from outside agencies, a clear agreement should be made at the outset as to the accessibility of research findings for publication.

McGill's Research Policy prohibits staff researchers from engaging in research which may not subsequently be communicated to the scientific community through the normal channels of meetings and publications. Although exceptions to this rule are occasionally permitted by the Vice-Principal (Research and International Relations), research projects assigned to students should be unrestricted and subject to the usual processes of thesis production and examination.

- 2) If at any time, during the program, the student's own research discoveries or those of other group members lead to a need for limitation on free communication, there should be full discussion by the whole group in concert with the administrative supervisor of the department, institute or faculty, of the reasons

for such a proposal. In the event that a consensus is not reached, the matter shall be referred to the Vice-Principal (Research and International Relations) for resolution.

- 3) When a thesis has been completed and satisfactorily examined, the student may wish to delay its publication or deposition in the McGill and National Libraries for a short period. Such requests may be made, in writing, to the Graduate and Postdoctoral Studies Office. Delays of one, or in exceptional cases, two years may be approved.

Proprietary Research*

*Section 8, 9 & 10 of the Regulations Governing Conflict of Interest in Proprietary Research, November 1985.

- 1) The enterprise in which a member has an economic interest may not employ University students. However, such an enterprise may enter into contractual agreements to this effect with the University or be a partner with the University within a program of one of the granting agencies.

Where such enterprise has made a grant, gift or donation to the University, no payment out of such grant, gift or donation shall be made to the interested member without prior approval of the Principal.

- 2) Members intending to acquire an economic interest in an enterprise shall inform all students who may be affected by their actions at the earliest possible date. Students shall immediately be free to seek the advice of the departmental Chair, the Dean of the Faculty, or the Dean of Graduate and Postdoctoral Studies.
- 3) Where students are employed by such enterprise, the member having an interest therein shall ensure that students who have already done substantial work under their academic supervisor shall be able to continue in their chosen area of research. Where it is possible to differentiate between the project of the thesis student and that of the enterprise in such a way that the student may continue the thesis project unhampered, the Dean of Graduate and Postdoctoral Studies shall arrange for the appointment of a co-supervisor unconnected with the enterprise.

Responsibilities of the Student

Academic freedom brings responsibilities to students and staff alike. Students should realise that the good name and research reputation of the University and its professors rests in large measure upon the quality of research done by its students. Students, as members of the University, have the responsibility to follow the principles set out in the University Research Policy and in the regulations of the Graduate and Postdoctoral Studies Office.

Responsibilities of the University

- 1) The University shall inform students of all appropriate regulations and policies concerning research.
- 2) The University shall provide a safe research environment for student researchers.

13.4 Guidelines for Research Involving Human Subjects

All research involving human subjects conducted at or under the auspices of McGill University require ethics review and approval by a McGill Research Ethics Board (REB) or an REB of a McGill affiliated hospital or an REB recognized by a formal agreement with the University, before the research may begin. Research involving human subjects covers a wide range of activities, encompassing the humanities, the social and behavioural sciences, as well as the biomedical sciences. It may include, but is not limited to, projects where data are derived from: the collection of information through any interaction or intervention with a living individual; the secondary use of data previously collected from human subjects; identifiable private information about an individual; human remains, cadavers, human organs, tissues and biological fluids, embryos or fetuses. The researcher is responsible for consulting

with the REB to clarify what types of activities must be reviewed and what exceptions may exist.

The requirement for ethics review and approval by a McGill approved REB applies to:

- all research conducted by or under the supervision of any member of McGill University, whether the research is funded or non-funded, or conducted on University premises or elsewhere. For the purpose of this document, a member of the University is defined as including academic and non-academic staff, sessional instructors, students, visiting or adjunct scholars, postdoctoral fellows, paid and unpaid research associates and assistants, and any person in a like position, when acting in connection with their institutional role. This applies to new faculty even though their current research may have received ethics approval at a previous institution.
- all student research projects conducted as part of thesis or course requirements.
- pilot studies and feasibility studies.
- all research or subject recruitment conducted by organizations or individuals who are not members of McGill University while on University premises or using University facilities, equipment, or resources (including human resources).
- research that involves the use of the University's non-public information to identify or contact human research subjects.

Researchers must be familiar with the McGill Policy on the Ethical Conduct of Research Involving Human Subjects which describes the administrative structures, procedures and requirements for the conduct of human subject research by McGill members. Researchers must refer to their designated REB for specific guidelines, submission deadlines, application forms, etc. All documents, including the Student Guide to Ethics Review for Human Subject Research, and information on each of the McGill REBs, can be found at www.mcgill.ca/researchoffice/compliance/human. Ethics approvals are only valid for a one-year period. Continuing review and approval is required annually for ongoing projects. If a project has been terminated, and ethics approval is no longer required, a termination form must be submitted to the REB. For further information the Research Ethics Officer can be reached at (514)398-6831.

13.5 Guidelines for Research with Animal Subjects

Policies

The Tri-council (CIHR, NSERC and SSHRC) has established policies requiring that all funded research involving animals complies with CCAC guidelines and policies, as well as applicable provincial laws. The Canadian Council on Animal Care (CCAC) requires that institutions conducting animal-based research, teaching or testing establish a functionally active Institutional Animal Care Committee governed by formal Terms of Reference that are defined in the CCAC Guidelines for the Care and Use of Experimental Animals.

The McGill University Animal Care Committee

The McGill University Animal Care Committee (UACC) is the University body responsible for ensuring the humane care and use of animals in research, teaching or testing. The Committee is responsible for ensuring University-wide understanding of, and compliance with, the applicable requirements concerning the procurement, care and use of animals at McGill University and its affiliated institutions. The University Animal Care Committee reports to the Vice-Principal (Research and International Relations). Its jurisdiction includes a) the teaching and research activities (carried out on the premises or off-site) of all persons in their capacity as faculty, staff or students of the University and its affiliated institutions b) all activities involving animals carried out on University/affiliated institutions premises, using the facilities, equipment or resources, by individuals or organizations who are not formally affiliated.

Facility Animal Care Committees (FACCs) are established for each affiliated hospital and each University campus using animals

in research, teaching or testing. Each FACC ensures that all animals used in research, teaching or testing within its jurisdiction, are used and cared for in accordance with all applicable requirements.

The Animal Compliance Office (ACO)

The ACO is responsible for the regulatory oversight of the Animal Care and Use Program at McGill University and its affiliated institutions. Their professional and clerical staffs provide information and services on all regulatory affairs, training and health and safety programs for technicians, students and academic staff.

The Animal Resources Centre

The Animal Resources Centre serves as the major centre of expertise in laboratory animal science and medicine for the animal-based research and teaching activities at McGill University and its affiliated hospitals. The Centre is responsible for advising on the care and use of experimental animals throughout the University and affiliated hospitals. Their professional, technical and clerical staffs offer a comprehensive range of services to all teaching and research programs using experimental animals. The Centre also provides training and consultation in methods of animal experimentation and in laboratory science for technicians, students and academic staff through workshops, and through individual instructions.

Procedures for Obtaining Approval of Research Projects

All animal-based research must be peer-reviewed and approved by the appropriate FACC prior to the acquisition of animals and the commencement of the research, testing or teaching program. To permit review and approval by the FACC, a completed "Animal Use Protocol" form must be submitted at least two (2) months prior to starting a new project or to the expiration of an approved protocol. Animal Use Protocols are approved for a period of one year and renewed annually. Any change in animal use procedures, research personnel, funding source or title, must be justified in an "Amendment Form" and approved by the appropriate FACC. All teaching, cloning, projects, and those characterized as "Pain and Discomfort" level D will be referred to the UACC Animal Ethics Subcommittee for further review and approval.

Research funds may be withheld by the University administration for projects that are in non-compliance with both University or CCAC guidelines and policies.

Forms can be obtained at www.mcgill.ca/researchoffice/compliance/animal/forms.

Occupational Health Program for Animal Related Activities

Activities involving the care and use of animals in research and teaching pose particular health risks not normally encountered in other activities. The magnitude of risk is dependent on the species involved and the nature of contact (direct or indirect) with animals, their tissues, excreta, body fluids, hair, animal cages and dander. In recognition of its responsibility to provide a safe working environment, McGill University has adopted a policy for protection of faculty, staff, and students from health risks which may result from working with animals or working in animal care activities. The program is optional but strongly suggested for all faculty, staff, and students working with lower species (rodents, fish, frogs, etc...). It is mandatory for all faculty, staff, and students working with non-human primates.

For further information, consult the following Website: www.mcgill.ca/researchoffice/compliance/animal/occupational.

Training of Animal Users

The CCAC has made training mandatory for faculty, staff, and students involved in animal-research, testing and teaching. Everyone listed in an animal use protocol must successfully pass the on-line McGill University course at www.animalcare.mcgill.ca. Additionally, all personnel who will be handling live rodents and rabbits need to take a hands-on workshop. For species other than laboratory rodents and rabbits, the person will need to have received training

from an experienced person (who must meet approval by the Animal Care Committee). For farm animals, fish and wild animals, practical training is obtained through courses available at Macdonald Campus. Details can be obtained at www.animalcare.mcgill.ca/mactrain.htm. The approval of new Animal Use Protocols as well as renewals is conditional on personnel having the necessary training. Everyone listed in the personnel section needs to have passed the theory course and, if handling live animals, have passed the practical course specific to the species involved in the project.

For any further information, consult the UACC Website (www.mcgill.ca/researchoffice/compliance/animal) or e-mail animalcare@mcgill.ca.

13.6 Policy on Intellectual Property

Please refer to the Policy on Intellectual Property available at: www.mcgill.ca/files/secretariat/PolicyonIntellectualProperty.pdf.

13.7 Regulations Governing Conflicts of Interest in Proprietary Research

Please refer to the Regulations Governing Conflicts of Interest in Proprietary Research available at: www.mcgill.ca/files/secretariat/conflicts-proprietary-amended-current.pdf.

13.8 Safety in Field Work

This policy has been established in light of the fact that research and teaching activities performed outside of the University's geographical boundaries may involve particular risks to the participants. It must be recognized that the risks associated with the work performed, the availability of University support services, the level of supervision, accessibility to emergency services, and local government legal requirements may differ significantly from activities carried out on University premises. Reasonable efforts must be made to ensure that all policies pertaining to the safety of University staff and students be used as minimum standards for field work.

The responsibility for ensuring these standards are considered rests on all persons who participate in the teaching and research activities in the field. The University expects those persons who directly supervise and carry out teaching and research in the field to inform the participants of these standards.

The following factors must be considered before undertaking field work:

- i) the state of health and immunization of all participants;
- ii) the risks associated with the work performed and the potential for contact with chemical, physical and biological agents;
- iii) the procedures for responding to accidents involving injuries, damage to property and equipment, and spills or leaks of hazardous materials;
- iv) the availability of first aid care and supplies, and access to emergency medical treatment;
- v) the environmental impact of the work performed;
- vi) the local government legal requirements related to safety;
- vii) the provision of training for all participants in field work regarding the risks associated with such work and the applicable safety measures.

Insurance Considerations for Field Work

Introduction

The following is a brief outline of the types of insurance which should be considered when undertaking field activities. Included is a description of the various policies which the University maintains, as well as additional coverages which are available through separate placement as necessary. For practical reasons, these descriptions are necessarily general, and any specific questions should be directed to the Risk Management and Insurance Department (398-6251).

Property Insurance

Direct physical loss or damage to University-owned equipment and materials are insured under a master policy which covers most situations of fortuitous property loss while located on University property. Coverage for the equipment when removed from University premises is available by contacting the Insurance Office. This coverage can extend to non-owned equipment as well.

Personal property of staff or students is not insured by the University. If desired, individuals should make separate arrangements in order to cover against loss.

Liability Insurance

The purpose of liability insurance is to protect against lawsuits arising from accidental or unintended occurrences to someone else's person or property. The University's Comprehensive General Liability Policy covers all faculty, staff and students while they are performing any activity pertaining to their academic and/or employment duties, including field activities. This policy will defend and indemnify against losses which arise by reason of liability imposed by law.

This policy applied on a worldwide basis and insures specifically against bodily injury, personal injury, death or damage to the property of others. It includes the personal liability of an individual insofar as the conduct which caused the loss was part of the individual's employment or academic duties.

Automobile Insurance

When using automobiles or similar vehicles for field work purposes, special care must be taken to comply with local laws and regulations. The University is unable to provide insurance for vehicles outside Canada and the United States, even though rented or purchased in the University's name. As a result, insurance coverage must be arranged locally to comply with jurisdictional requirements.

When renting vehicles on a short-term/worldwide basis, it is recommended that the Collision Damage Waiver (CDW) be declined in all cases where the corporate American Express card is used as payment. However, third party liability insurance is not considered optional coverage and should form part of the general rental costs. It would be prudent to confirm this fact.

Accident Insurance for Visitors and Students

The University can provide limited Accidental Death and Dismemberment Insurance, including emergency medical coverage, not only for visitors to Canada, but also for students travelling outside Canada. Specific arrangements should be made by contacting the Risk Management and Insurance Department.

Miscellaneous

Certain research situations require special insurance arrangements. The following is a listing of some of the special cases:

1. Use of aircraft: When leasing or chartering aircraft, special liability policies need to be arranged (this does not apply to passage on commercial aircraft).
2. War zones: Insurance policies generally have exclusions in some form regarding war risks, political insurrection, terrorism, etc., which require special policy placements.
3. Marine research: Trips involving ocean-going activities also necessitate special handling.
4. Cash: Whenever possible, it is recommended that credit cards or traveller cheques be used as opposed to carrying significant amounts of cash.

Operational By-laws on International Research and Cooperation Contracts

The Board of Governors has approved operational by-laws on International Research and Cooperation Contracts.

The Risk Management and Insurance Department should be contacted during the development stage of the project, and prior to the signature of the contract for the following reasons:

1. To ensure that the scope of liability contractually acquired does not supersede the limits of existing insurance programs.
2. To review and establish what forms of local (foreign) insurance are necessary where representatives of the University are

established on a long-term or permanent basis in a host country.

In closing, although it is important to include insurance protection for all field situations, common sense and practical considerations for eliminating or reducing risks should always take precedence. While this document provides some general guidelines, please be aware that there are restrictions and exclusions in all insurance policies which may affect coverage. It is strongly recommended that all research supervisors refer specifically to the Risk Management and Insurance Department for clarification of University insurance coverage, and any assistance in arranging whatever special additional coverage may be required.

13.9 Procedure to Obtain Research Support

When a member of the University staff wishes to undertake research involving the use of the University's facilities, or when the funds are to be used to support activities in which students or Post-docs are to be engaged as part of their educational experience, the University considers the activity to be part of its pattern of research. They should refer to guidelines on "Procedures Concerning Research Support - Part II" of the Guide to Sponsored Research at McGill University available on the Web at www.mcgill.ca/researchoffice/policies/sponsored/overview/support or contact the Office of the Vice-Principal (Research and International Relations) at (514) 398-3991.

13.10 Research Grants Office (RGO)

The Research Grants Office is a centralized office that acts as liaison between McGill researchers and external granting agencies/sponsors. RGO is responsible for providing information on sources of funding to the research community at large; assisting principal investigators in identifying research funding opportunities; maintaining and expanding the GENIUS database of research expertise at McGill and its affiliated hospitals; assisting faculty in the preparation and submission of applications; assuring compliance by the University with sponsors' policies and requirements; interpreting for faculty the regulations of the granting agencies; clarifying University policies and procedures for faculty and sponsors; and negotiating the terms and conditions of awards, whenever required.

The Research Grants Office authorizes the Research and Restricted Funds Office to open, renew and revise all internal and external research grant funds, after verification that all required information is on file and complies with the University and Agency policies, regulations and procedures. RGO is also responsible for preparing the annual SIRU report on research funding on campus and at the affiliated hospitals for reimbursement of indirect costs from the Quebec Government. The Office is also responsible for producing annual research statistics for the University, granting agencies, government officials, etc.

It also administers all Internal Research Grants Programs of the Office of the Vice-Principal (Research and International Relations).

13.11 Office of Technology Transfer (OTT)

Reporting to the Vice Principal of Research and International relations, the Office of Technology Transfer is the business office that manages the commercialization of intellectual property emerging from McGill University and its affiliated hospitals. The OTT operates at the interface between the University and industry with the purpose of commercializing inventions and discoveries into tangible products, services or processes that benefit the community and society at large. The OTT promotes awareness of matters of intellectual property among University researchers, fosters business relationships with the private sector, the investment community as well as government agencies on the national and international stage; thereby promoting the University's longstanding reputation as a world leader in cutting edge research. This mission ensures a positive impact from research investment and

secures new investment dollars in basic and applied research. The Office of Technology Transfer is staffed with experienced professionals with advanced degrees and extensive research and business experience in academic institutions and in the private sector. The repertoires of OTT's specialties include the following:

1. Sponsored Research

The OTT negotiates contractual agreements with companies and organizations wishing to engage the specialized research capabilities of McGill University and its affiliated hospitals. These organizations may be government agencies, the private sector as well as non-profit enterprises. The OTT ensures uniform agreements consistent with guidelines, principles, and policies established by contracting agencies as well as the policies of McGill University. Researchers are encouraged to consult the OTT Website www.techtransfer.mcgill.ca.

2. Intellectual Property

McGill's Policy on Intellectual Property provides the framework by which inventions and discoveries are managed and commercialized (www.mcgill.ca/files/secretariat/PolicyonIntellectualProperty.pdf).

University researchers should promptly disclose any invention where commercial potential is recognized. When a Report of Invention is submitted to OTT, its staff undertakes extensive due diligence and evaluation. Where warranted the intellectual property is protected by filing letters of patent or other appropriate measure, including copyrights.

3. Commercialization of Intellectual Property

"Commercialization" generally refers to the translation of intellectual property assets into tangible products, services or processes. Through its extensive network of private sector partners, the OTT promotes technology transfer and the commercialization of innovations and inventions with potential for socioeconomic impact. Further, the OTT provides guidance to entrepreneurial researchers and assists in the process of creating new companies and formulating contractual agreements with venture capital. The principal offices of the Office of Technology Transfer are located at 1555 Peel Street, 11th floor, Montreal, Quebec, Canada H3A 3L8. In addition, field offices are located in the affiliated hospitals and on both campuses.

Telephone: (514) 398-4200

Fax: (514) 398-1482

13.12 Office of International Research (OIR)

The Office of International Research (OIR) plays a strategic role within McGill University in assisting and enhancing international collaborations and outreach. International research and development projects fall under the responsibility of the Vice-Principal (Research and International Relations), who mandates OIR to act as the authorized representative of the University and to ensure that existing guidelines, principles and policies are followed.

OIR provides assistance from project inception to completion by supporting faculty members across McGill's two campuses in all their international activities ranging from fundamental and applied research collaborations, capacity building projects and faculty travel grants to the delivery of teaching programs abroad.

OIR has four main areas of responsibility:

1. Liaison with funding agencies and promotion of the University's international activities and profile to domestic and foreign partners;
2. Coordination and guidance during the preparation of proposals in highly competitive calls;
3. Leadership in negotiating contractual terms and conditions with project partners and funding agencies; and
4. Operational and financial oversight of McGill's international projects. This tracking and advisory function ensures efficient management and allows project teams to dedicate themselves to the academic aspects of their project.

The Office identifies new and non-traditional sources of funding and has been very successful in diversifying the pool of funding

agencies supporting international activities at McGill. It is also responsible for reviewing and establishing general memoranda of understanding.

Office of International Research, 1555 Peel Street, 11th floor,
Telephone: (514) 398-4197 Fax: (514) 398-6878
E-mail: francois.carrier@mcgill.ca
Website: www.mcgill.ca/international

13.13 Postdocs

See [section 9.1 "Postdocs"](#) for information on Postdoctoral Research.

13.14 Research Associates

A Research Associate is a senior career researcher who usually works independently, in most cases has a Ph.D. or equivalent, and is often supported directly by outside granting agencies.

13.15 Academic Trainees

Academic Trainees are persons working, for or without remuneration, to perfect their skills.

Academic Trainees are invited by the University to conduct their activities on campus under academic supervision, and are typically from industry or on an exchange.

"Academic Trainee" is not a work or employee classification; rather it is closer to "stagiaire" in French, a person who is carrying out a "practicum". Academic Trainees are not registered as students, postdocs or graduate students at McGill or elsewhere, but are pursuing further training in their field of expertise. They may not be given other duties/positions at McGill during this period. Academic Trainees must normally provide proof of an existing affiliation and written confirmation that a further training period is required. The nature and duration of the training period must also be specified. The training period is of short duration.

The following are excluded from this classification:

- Research Employees: those employed on grants are classified as research assistants, research associates or academic students.
- Graduate Students: any person registered at another institution in a graduate degree program (whether or not he/she is carrying out research at McGill as part of that graduate program) must register as a Visiting Research Student.
- Postdocs: anyone eligible or no longer eligible to be a postdoc at McGill as defined by the MELS regulations.

14 Governance

14.1 Visitor

The Governor General of Canada

Her Excellency The Right Honourable Michaëlle Jean

14.2 Board of Governors

(As of January 2008)

Robert Rabinovitch; B.Com.(McG.), M.A., Ph.D.(Penn.) **Chair**

Richard W. Pound; O.C., O.Q., Q.C., C.A., B.Com.(McG.),
B.A.(Sir G.Wms.), B.C.L.(McG.) **Chancellor**

Heather Munroe-Blum; O.C., B.A., B.S.W.(McM.), M.S.W.
(W. Laur.), Ph.D.(N. Carolina) **Principal and Vice-Chancellor**

Members

Roshi Chadha
Stuart (Kip) Cobbett; B.A., B.C.L.(McG.)
Lili de Grandpré; B.A.(Western), M.B.A.(McG.)
Darren Entwistle; B.Econ.(C'dia), M.B.A.(McG.)
Morna Flood Consedine; B.A.(C'dia), M.Ed., D.Ed.(McG.)
Trevor Garland; B.Sc.(McG.)
Kohur GowriSankaran; B.A., M.A.(Madr.), Ph.D.(Bombay)
Daniel Guitton; Dipl. IVK(U. Libre de Brux.), B.Eng., M.Eng.,
Ph.D.Eng., Ph.D.Physiol.(McG.)
Eric Maldoff; B.A., B.C.L., LL.B.(McG.)
Michael Meighen; B.A.(McG.)
Jan Peeters; B.Eng.(McG.)
Gary Pekeles; B.Sc.(McG.), M.Sc.(McG.), MDCM(Baylor)
Jeremy Reitman; A.B.(Dart.), B.C.L.(McG.)
Nigel Roulet; B.Sc., M.Sc.(Trent), Ph.D.(McM.)
Maria Ruocco
Michael Richards; B.A., B.C.L.(McG.)
Gerald Sheff; B.Arch.(McG.), M.B.A.(Harv.)
Thierry Vandal; B.Eng., M.B.A.(Montr.)

Student Representatives

Students' Society of McGill (1)
Post-Graduate Students' Society of McGill (1)
Observers
McGill Association of Continuing Education Students (1)
Macdonald Campus Students' Society (1)

14.3 Members of Senate

Ex-officio

The Chancellor
The Chair of the Board of Governors
The Principal and Vice-Chancellor
The Provost, Deputy Provost, and the vice-principals
The deans of faculties
The Dean of Continuing Education
The Dean of Graduate and Postdoctoral Studies
The Dean of Students
The Director of Libraries

Elected Members

63 members elected by the faculties, the University Libraries, the Board of Governors, and administrative and support staff.
Medical Residents or Postdoctoral Scholars Group (1)
Student Members (19)

15 Administration

Heather Munroe-Blum; O.C., B.A., B.S.W.(McM.), M.S.W.
(W. Laur.), Ph.D.(N. Carolina)

Principal and Vice-Chancellor

Anthony C. Masi; A.B.(Colgate), Ph.D.(Brown) **Provost**

Morton J. Mendelson; B.Sc.(McG.), Ph.D.(Harv.)
Deputy Provost (Student Life and Learning)

Jane Everett; M.A.(Car.), Ph.D.(McG.) **Dean of Students**

Kathleen Massey; B.A.(York)
University Registrar and Executive Director of Enrolment Services

Jana Luker; B.A.(Guelph), B.Ed., M.Ed.(Tor.)
Executive Director of Services for Students

William F. Foster; LL.B.(Auck.), LL.M. (Br.Col.)
Associate Provost (Policies and Procedures)

Martin Kreiswirth; B.A.(Hamilton), M.A.(Chic.), Ph.D.(Tor.)
Associate Provost (Graduate Education) and Dean (Graduate and Postdoctoral Studies)

Hélène Perrault; B.Sc.(C'dia), M.Sc., Ph.D.(Montr.)
Associate Provost (Planning and Budgets)

- Chandra Madramootoo; B.Sc., M.Sc., Ph.D.(McG.)
**Associate Vice-Principal (Macdonald Campus) and
Dean (Faculty of Agricultural and Environmental Sciences)**
- Sylvia Franke; LL.B., B.Sc.(Tor.) **Chief Information Officer**
- Johanne Pelletier; B.A., M.A.(McG.) **Secretary-General**
- François R. Roy; B.A., M.B.A.(Tor.)
Vice-Principal (Administration and Finance)
- Lynne B. Gervais; B.A.(C'dia), Dip.Management(McG.)
Associate Vice-Principal (Human Resources)
- Jim Nicell; B.A.Sc., M.A.Sc., Ph.D.(Windsor), P.Eng.
Associate Vice-Principal (University Services)
- Marc Weinstein; B.A., B.C.L., LL.B.(McG.)
**Assistant Vice-Principal
(Development, Alumni and University Relations) and
Director (University Campaigns)**
- Michael Goldbloom; B.C.L., LL.B.(McG.)
Vice-Principal (Public Affairs)
- Richard I. Levin; B.S.(Yale), M.D.(NYU)
**Vice-Principal (Health Affairs) and Dean
(Faculty of Medicine)**
- Denis Thérien; B.Sc.(Montr.), M.Sc., Ph.D.(Wat.)
Vice-Principal (Research and International Relations)
- Mourad El-Gamal; B.Sc.(Ain Shams), M.Sc.(Vanderbilt),
Ph.D.(McG.)
**Associate Vice-Principal (Research and International
Relations)**
- Rima Rozen; B.Sc., Ph.D.(McG.)
**Associate Vice-Principal (Research and International
Relations)**



Table of Contents

Dean's Welcome, page 60

1 Graduate and Postdoctoral Studies Office, Fellowships and Awards Section, page 61

1.1 Location, page 61

1.2 Administrative Officers, page 61

2 Graduate Student Financial Support, page 61

2.1 Information for International Students and Fellows, page 61

2.2 Further Information, page 62

3 External Fellowships, page 62

3.1 Federal Fellowships for Canadian Students and Postdocs, page 62

3.2 Provincial Fellowships for Quebec Students and Postdocs, page 63

3.3 Provincial Fellowships for Students and Postdocs from Other Provinces, page 63

3.4 Industrial Fellowships, page 63

3.5 External Fellowships for International Students and Postdocs, page 64

3.6 Associations and Private or Not-for-Profit Foundations, page 64

4 McGill Graduate Fellowships, page 65

4.1 Recruitment Fellowships, page 65

4.1.1 Richard H. Tomlinson Fellowships, page 65

4.1.2 Max Stern Recruitment Fellowships, page 65

4.1.3 Major Recruitment Fellowships, page 65

4.1.4 Discipline-specific Recruitment Fellowships, page 65

4.2 McGill Major Fellowships, page 66

4.3 Complementary McGill Awards to Major Fellowships, page 67

4.4 Specialized Fellowships, page 67

4.5 Dissertation Fellowships, page 68

4.6 Exemptions from the International Tuition Supplement, page 68

4.7 Graduation Prizes and Awards, page 69

5 Fellowships awarded by Departments and Faculties, page 69

5.1 Multidisciplinary, page 69

5.1.1 McGill Institute for the Study of Canada, page 70

5.2 Agricultural and Environmental Sciences, page 71

5.2.1 Agricultural Economics, page 72

5.2.2 Animal Science, page 72

5.2.3 Bioresource Engineering, page 72

5.2.4 Natural Resource Sciences, page 72

5.2.5 Parasitology, page 72

5.2.6 Plant Science, page 73

5.3 Arts, page 73

5.3.1 Anthropology, page 74

5.3.2 Art History and Communication Studies, page 74

5.3.3 Classics, page 74

5.3.4 East Asian Studies, page 74

5.3.5 Economics, page 75

5.3.6 English and Comparative Literature, page 75

5.3.7 German Studies, page 75

5.3.8 History, page 75

5.3.9 Islamic Studies, page 76

5.3.10 Italian Studies, page 76

5.3.11 Jewish Studies, page 76

5.3.12 Langue et littérature françaises, page 76

5.3.13 Linguistics, page 76

5.3.14 McGill Centre for Research and Teaching on Women, page 76

5.3.15 Philosophy, page 77

5.3.16 Political Science, page 77

5.3.17 Social Studies of Medicine, page 77

5.3.18 Social Work, page 78

5.3.19 Sociology, page 79

5.4 Dentistry, page 79

5.5 Education, page 79

5.5.1 Educational and Counselling Psychology, page 80

5.5.2 Integrated Studies in Education, page 80

5.5.3 Information Studies, page 80

5.5.4 Kinesiology and Physical Education, page 81

5.6 Engineering, page 82

5.6.1 Architecture, page 82

5.6.2 Chemical Engineering, page 84

5.6.3 Civil Engineering and Applied Mechanics, page 84

5.6.4 Electrical and Computer Engineering, page 84

5.6.5 Mechanical Engineering, page 85

5.6.6 Mining and Materials Engineering, page 85

5.6.7 Urban Planning, page 85

5.7 Desautels Faculty of Management, page 85

5.7.1 CA and Public Accountancy, page 85

5.7.2 Masters in Manufacturing Management, page 86

5.7.3 MBA, page 86

5.7.4 PhD (Management), page 87

5.8 Law, page 87

5.9 Medicine, page 88

5.9.1 Internal Studentships, page 88

5.9.2 Multidisciplinary Research Awards, page 89

5.9.3 Multidisciplinary Clinical Awards, page 89

5.9.4 Research Institute Awards, page 90

5.9.4.1 Cancer Centre, page 90

5.9.4.2 Montreal Children's Hospital, page 90

5.9.4.3 Montreal Neurological Institute, page 90

5.9.5 Academic Unit Awards, page 90

5.9.5.1 Biochemistry, page 90

5.9.5.2 Biomedical Engineering, page 90

5.9.5.3 Biomedical Ethics, page 91

5.9.5.4 Communication Sciences and Disorders, page 91

5.9.5.5 Experimental Medicine, page 91

5.9.5.6 Microbiology and Immunology, page 91

5.9.5.7 Nursing, page 91

5.9.5.8 Ophthalmology, page 92

5.9.5.9 Orthopaedic Surgery, page 92

5.9.5.10 Pathology, page 92

5.9.5.11 Pharmacology and Therapeutics, page 92

5.9.5.12 Physical and Occupational Therapy, page 92

5.10 Faculty of Religious Studies, page 93

5.11 Schulich School of Music, page 94

5.12 Science, page 96

5.12.1 Atmospheric and Oceanic Sciences, page 96

5.12.2 Biology, page 97

5.12.3 Chemistry, page 97

5.12.4 Computer Science, page 98

5.12.5 Earth and Planetary Sciences, page 98

5.12.6 Geography, page 98

5.12.7 Physics, page 98

5.12.8 Psychology, page 99

6 Student Financial Assistance, page 99

6.1 Government Student Aid, page 99

6.1.1 Citizens and Permanent Residents of Canada, page 99

6.1.2 Citizens and Permanent Residents of the United States, page 99

6.2 McGill Student Aid, page 100

7 Postdoctoral Fellowships, page 100

7.1 Internal Postdoctoral Fellowships, page 100

7.2 External Postdoctoral Fellowships, page 102

8 Exchange and Travelling Fellowships, page 102

9 Index of Fellowships and Awards, page 108

McGill University:
www.mcgill.ca

Graduate and Postdoctoral Studies Office
www.mcgill.ca/gps/fellowships

Admission:
www.mcgill.ca/applying/graduate

University Calendars:
www.mcgill.ca/courses

Please note that in the body of this Calendar, awards are listed alphabetically by their complete official names. In the index, awards are listed alphabetically by family name of benefactor if applicable.

All efforts have been made to ensure the accuracy of information in this Calendar. However, it is ultimately the responsibility of fellowship and award seekers themselves to verify program deadlines and requirements with the source agencies.

The Graduate and Postdoctoral Studies Office, Fellowships and Awards Section cannot be held responsible for any errors or omissions, but would appreciate being informed of these, for correction or addition in the next edition.

The University reserves the right to make changes without prior notice to the information contained in this Calendar, including alteration of conditions and values of awards.

Dean's Welcome

To Graduate Students and Postdoctoral Fellows:

I am extremely pleased to welcome you to McGill University. With over 250 Doctoral and Master's degree programs, McGill is committed to providing world-class graduate education and postdoctoral training in a full range of academic disciplines and professions. The Graduate and Postdoctoral Studies Office (GPSO) works in collaboration with the Faculties and other administrative and academic units to deliver the very highest level of teaching and research across the University. The GPSO is responsible for the admission and registration of graduate students, disbursing graduate fellowships, supporting postdoctoral fellows, and facilitating the graduation process, including the examination of theses.

As a student-centered research institution, McGill places singular importance upon the quality of graduate education and postdoctoral training. As Associate Provost (Graduate Education), as well as Dean of Graduate and Postdoctoral Studies, I work closely with the central administration, Faculties, graduate students, professors, researchers, postdoctoral fellows, and staff to enhance the graduate and postdoctoral experience and provide a supportive, stimulating, and enriching academic environment. We welcome your input in further improving the graduate student experience and encourage you to bring your ideas forward (write to feedback.gps@mcgill.ca).

McGill is ranked as one of Canada's most intensive research universities and among the world's top 25. We recognize that these successes come not only from our outstanding faculty members, but also from the quality of our graduate students and postdoctoral fellows - a community into which we are very happy to welcome you.

I invite you to join us in advancing this heritage of excellence at McGill.

*Martin Kreiswirth, Ph.D.
Associate Provost (Graduate Education)
Dean, Graduate and Postdoctoral Studies*

1 Graduate and Postdoctoral Studies Office, Fellowships and Awards Section

1.1 Location

Graduate and Postdoctoral Studies Office
Fellowships and Awards Section
James Administration Building, Room 400
845 Sherbrooke Street West
Montreal, Quebec H3A 2T5 Canada
Telephone: (514) 398-3990
Fax: (514) 398-2626
E-mail: graduate.fellowships@mcgill.ca
Web: www.mcgill.ca/gps

1.2 Administrative Officers

Martin Kreiswirth; B.A.(Hamilton), M.A.(Chic.), Ph.D.(Tor.)
**Associate Provost (Graduate Education) and
Dean (Graduate and Postdoctoral Studies)**

Heather Durham; M.Sc.(W. Ont.), Ph.D.(Alta.)
Associate Dean (Graduate and Postdoctoral Studies)

Meyer Nahon; B.Sc.(Qu.), M.Sc.(Tor.), Ph.D.(McG.), Eng.
(*Sabbatical Leave 2008-2009*)
Associate Dean (Graduate and Postdoctoral Studies)

Lisa deMena Travis; B.A.(Yale), Ph.D.(MIT)
**Interim Associate Dean (Graduate and Postdoctoral
Studies)**

Charlotte E. Légaré; B.Sc.(Montr.), M.Sc.(Sher.), M.B.A.(McG.)
Director (Graduate and Postdoctoral Studies)

Lissa B. Matyas; BFA, M.Sc.(C'dia)
Director (Recruitment and Retention)

Claude Lalonde; B.Sc.(Montr.), M.B.A.(McG.)
Manager (Fellowships and Awards)

2 Graduate Student Financial Support

McGill University is committed to helping graduate students finance their education and offers research students the most competitive and generous funding levels in Quebec. We are doing our utmost to provide you with a dependable income for the duration of your graduate studies, through both fellowships and bursaries. Upon admission to McGill, research students are automatically considered for funding and the details of your personalized support package will be confirmed once you have accepted our offer of admission. This funding comes from a number of sources, which may include McGill graduate fellowships, departmental and faculty awards, stipends from research grants or contracts, teaching and research employment, and, in certain cases, exemptions from tuition and ancillary fees. Course-based and professional Master's students are eligible for need-based financial support and some internal fellowships and bursaries.

The following information is intended to help you to understand and provide detailed information on the various forms of graduate student support available at McGill. If you have any questions regarding graduate student support, the staff of the Fellowships and Awards unit of the Graduate and Postdoctoral Studies Office will be more than happy to help you find the answers.

External Fellowships

Funding from external sources may form an important complement to the funding package offered to you by McGill. In the 2007 funding year, Federal and Quebec government agencies granted over 20 million dollars in direct awards to students pursuing grad-

uate studies at McGill. External Fellowships are available from various sources, including government departments and agencies, foundations and private companies. The value of awards offered by these agencies varies from \$15,000 to \$35,000 per year, and up to \$50,000 for health professionals. These awards are often renewable. The deadlines to apply for the majority of external fellowships fall between October and November for fellowships tenable in September of the following year. To view a list of the agencies offering graduate student funding opportunities and individual application deadlines, please see [section 3, "External Fellowships"](#).

For information on funding opportunities to support graduate study and research outside of Canada, please see [section 8, "Exchange and Travelling Fellowships"](#).

Loans and Bursaries

Loans and/or bursaries are administered by the province in which you are legally resident, and are usually restricted to full-time, Canadian students (although certain categories of Permanent Residents may also be eligible). Most loans are granted exclusively on the basis of financial need. To find out more about the application procedures for government loan programs please see [section 6, "Student Financial Assistance"](#) or contact the McGill Student Aid Office at 514-398-6013 or by e-mail at student.aid@mcgill.ca.

2.1 Information for International Students and Fellows

International students on study permits comprise up to twenty-five percent of the graduate student population at McGill University and are integral to maintaining McGill's standing as a world-class, research intensive institution. McGill is committed to supporting its international students and addressing the unique financial concerns of this group. As an international student you may find yourself in a more difficult financial situation than your domestic peers, given that you are ineligible for certain awards and bursaries available only to Canadian students. To help offset this imbalance, McGill offers a number of tuition differential awards and international fee waivers to certain groups of students. These are available through several different programs.

1. **MIDAs:** In September 2007 McGill devoted over \$2 million in new funding directed at international doctoral students. Through the *McGill International Doctoral Awards* (MIDAs) program, McGill undertakes to pay the international tuition supplement on the student's behalf, so that eligible international students will pay tuition equal to that of Quebec students. All international doctoral students whose tuition is not paid by an external source (such as through a fellowship involving the direct payment of tuition or a third party billing contract) are eligible for this program. **No application is necessary and each full-time, eligible student is automatically granted an award that makes up the difference between international and Quebec tuition.**
2. McGill is allotted a number of Differential Fee Waivers (DFWs) from the Quebec Government which are allocated by individual departments to Master's students in the summer term.
3. If you are in a program where your fees are assessed per credit, you may be exempt from the international tuition supplement for certain French language and literature courses.
4. All students from France and a limited number of students from countries party to bilateral agreements with Quebec may be granted exemptions from differential fees. With the exception of French citizens, students must apply to their home country for an exemption concurrent with their application for admission. Please consult [section 4.6, "Exemp-](#)

tions from the **International Tuition Supplement**" to determine if you are eligible for this program.

There are a number of funding programs aimed specifically at international students embarking on study in Canada. These include: the Quebec Merit Fellowships for International Doctoral Students (Programme de bourses d'excellence pour étudiant étranger - PBEEE); the Canadian Commonwealth Scholarship and Fellowship Program; the Government of Canada Awards to Foreign Nationals; the Organization of American States; the Canada-US Fulbright program; and the German Academic Exchange Program (DAAD). Applications for some of these programs must be made through the government of your home country, usually via the Ministry of Education.

Opportunities for employment for international students are now more plentiful than in past years, as immigration officials are authorized to issue work permits for off-campus employment under certain circumstances. For details concerning eligibility and procedure, please consult the International Student Services Website at www.mcgill.ca/internationalstudents/workopportunities.

You can find additional information on opportunities for financial assistance available to international graduate students and fellows in the UNESCO publication *Study Abroad*, available on the Web at www.unesco.org/education/studyingabroad/networking/study.pdf. The Canadian Bureau for International Education (CBIE) also produces a free brochure entitled *Destination Education Canada*, available at www.destineducation.ca. As an international student you will also be pleased to learn that the new Post-Graduation Work Permit Program makes it easier than ever to gain employment in Canada following the completion of your degree. Through this program you can obtain a work permit tenable for three years, with no restriction on the type of employment and no requirement for a job offer or company sponsorship.

2.2 Further Information

There are a number of Web and reference sources available to complement the information contained in this guide:

On the Web

Graduate and Postdoctoral Studies (GPS) at McGill University regularly posts new information concerning graduate funding on our Website at www.mcgill.ca/gps/fellowships. We encourage you to visit this site to find detailed information on fellowship competitions, links to the sites of various funding agencies, and application forms for several McGill fellowships and awards. The Graduate and Postdoctoral Studies Office also publishes a general guide on funding strategies entitled *Making Ends Meet*, which you can download from www.mcgill.ca/gps/fellowships, under *Publications*.

McGill University also subscribes to the SPIN database for sources of research funding, which you can access free of charge from any computer on the McGill domain. This database compiles a list of graduate and postdoctoral fellowships, scholarships, awards and prizes. You will find a link to the SPIN database at www.mcgill.ca/gps/fellowships, under *Information and Publications*.

Reference Sources

We encourage you to consult one or more of the many reference books, materials, Websites and directories on the subject of graduate funding. Many major libraries, including McGill's McLennan Library, house publications listing fellowships and awards for graduate study, including:

- Annual Register of Grant Support;
- Awards for Postgraduate Study at Commonwealth Universities
- Directory of Research Grants;
- The Grants Register;
- Study Abroad;
- Scholarships, Fellowships and Loans.

And should you have any further questions, or wish to speak to someone in person about your funding options, the friendly and knowledgeable staff in the Fellowships and Awards unit of the Graduate and Postdoctoral Studies Office at McGill are here to help you. All current and prospective McGill students are encouraged to visit, call, e-mail or write to obtain further information on appropriate sources of funding for graduate education. If you take the initiative, the GSPO staff can help you go a long way toward finding satisfactory solutions for your funding needs.

3 External Fellowships

This section contains general information on the major funding agencies providing the majority of external awards to Canadian, Quebec or international students and postdocs. A large number of other sources provide external funding. A section on industrial fellowships offers information for students who wish to fund studies and research in partnership with non-university organization in the private (and sometimes public) sector.

3.1 Federal Fellowships for Canadian Students and Postdocs

Graduate and postdoctoral fellowships from the Federal Government granting Councils are normally open only to Canadian Citizens or permanent residents of Canada for research-based studies at the Master's, doctoral and postdoctoral levels. Exceptions on funding for international students will be covered in [section 3.5, "External Fellowships for International Students and Postdocs"](#). Competition rules and regulations are updated annually and available on the agency Websites.

Deadlines are normally in the Fall of the year prior to the academic year for which funding is requested. Several competitions involve a pre-selection by the university where the student is registered in the year or term of application. Students and postdocs may only apply to one federal agency per competition year (August to July); students in disciplines that border the mandate of several agencies (e.g. psychology, geography, cell and molecular biology) must select the agency that funds the specific proposed research.

NSERC - NATURAL SCIENCES AND ENGINEERING RESEARCH COUNCIL OF CANADA

Funds Master's, Doctoral and Postdoctoral Research-based studies in the Natural Sciences and Engineering.

Master's and Doctoral competitions involve a pre-selection by the university where the student was registered in the year of application. Postdoctoral applications are direct to the agency. Deadlines are normally in October.

Value: \$17,300 to \$40,000

Agency information: www.nserc-crsng.gc.ca under *For Students and Fellows and Online Services*

McGill pre-selection information: www.mcgill.ca/gps/fellowships

SSHRC - SOCIAL SCIENCES AND HUMANITIES RESEARCH COUNCIL OF CANADA

Funds Master's, Doctoral and Postdoctoral Research-based studies in the Social Sciences and Humanities.

Doctoral competitions involve a pre-selection by the university where the student was registered in the term of application. Master's competitions involve a pre-selection by the university where the student was registered in the year of application. Deadlines are normally in October and November.

Value: \$17,300 to \$38,000

Agency information: www.sshrc.ca under *Apply for funding*

McGill pre-selection information: www.mcgill.ca/gps/fellowships

CIHR - CANADIAN INSTITUTES OF HEALTH RESEARCH

Funds Master's, Doctoral and Postdoctoral Research-based studies in the Human Health Sciences (broadly defined).

Doctoral and postdoctoral competitions are by direct application to the agency. Master's competitions involve a pre-selection by the university where the student was registered in the term of application. Deadlines are normally in October and February (not all competitions allow for February applications).

Agency information: www.cih-irsc.ca under *Funding Opportunities*

McGill pre-selection information: www.mcgill.ca/gps/fellowships

3.2 Provincial Fellowships for Quebec Students and Postdocs

Graduate and postdoctoral fellowships from the Quebec Government granting agencies are normally open only to Canadian Citizens or permanent residents of Canada who are Quebec residents for research-based studies at the Master's, doctoral and postdoctoral levels. Exceptions on funding for international students will be covered in section 3.5, "External Fellowships for International Students and Postdocs". Competition rules and regulations are updated annually and available on the agency Websites.

Deadlines are normally in the October of the year prior to the academic year for which funding is requested. Applications are online, with supporting documents sent directly to the agency. Students and postdocs may only apply to one Quebec agency per competition; students in disciplines that border the mandate of several agencies (e.g. psychology, geography, cell and molecular biology) must select the agency that funds the specific proposed research.

FQRNT - FONDS QUEBECOIS DE LA RECHERCHE SUR LA NATURE ET LES TECHNOLOGIES

Funds Master's, Doctoral and Postdoctoral Research-based studies in the Natural Sciences and Engineering.

Deadlines are normally in October.

Value: \$15,000 to \$30,000

Agency information: www.fqrnt.gouv.qc.ca under *Bourses*

McGill supplementary information: www.mcgill.ca/gps/fellowships

FQRSC - FONDS QUEBECOIS DE LA RECHERCHE SUR LA SOCIÉTÉ ET LA CULTURE

Funds Master's, Doctoral and Postdoctoral Research-based studies in the Social Sciences and Humanities.

Deadlines are normally in October (Some theme fellowships by ad-hoc calls for applications).

Value: \$15,000 to \$30,000

Agency information: www.fqrc.gouv.qc.ca under *Les programmes*, then *Bourses*

McGill pre-supplementary information: www.mcgill.ca/gps/fellowships

FRSQ - FONDS DE LA RECHERCHE EN SANTÉ DU QUÉBEC

Funds Master's, Doctoral and Postdoctoral Research-based studies in the Human Health Sciences (broadly defined).

Deadlines are normally in October.

Agency information: www.frsq.gouv.qc.ca under *Consulter les programmes/Faire une demande*

McGill pre-selection information: www.mcgill.ca/gps/fellowships

3.3 Provincial Fellowships for Students and Postdocs from Other Provinces

Most fellowship opportunities from other provinces of Canada are only tenable in that province. For special programs providing exceptions to this general rule, please consult your province's funding agency Website.

3.4 Industrial Fellowships

Some government agencies provide funding for research-based studies in an industrial setting.

FQRNT-NSERC BOURSES EN MILIEU PRATIQUE BMP-INNOVATION

Eligibility: Awards are based on a specific research proposal in the Natural Sciences and Engineering involving student, faculty supervisor and collaborating company. All applications require university endorsement and signed commitment from the sponsoring company. Open to Canadian Citizens and Permanent Residents of Canada. This program replaces the NSERC IPS held in Quebec universities.

Value: Minimum \$21,000 per year at the Master's level for up to two years and \$27,000 per year at the doctoral level for up to three years. The sponsoring company's contribution is a minimum of one third of the value.

Deadline: No FQRNT Deadlines. McGill Deadline: 3 months prior to the beginning of term of tenure.

Application: Fellowships Guide and application forms are available only on the Web. A draft agreement satisfying the guidelines of McGill University, FQRNT and NSERC is available from the GPSO Website www.mcgill.ca/gps/documents/nup. The signing authority for the University will rest with the GPSO. Further information available from the GPSO Fellowships and Awards Section or at www.fqrnt.gouv.qc.ca/nateq/bourses/index.htm.

FQRSC-SSHRC BOURSES EN MILIEU PRATIQUE BMP-INNOVATION

Eligibility: Awards are based on a specific research proposal in the Social Sciences and Humanities involving student, faculty supervisor and collaborating company. Basic requirements are much like those of the regular FQRSC Postgraduate Scholarships. All applications require university endorsement and signed commitment from the sponsoring company. Open to Canadian Citizens and Permanent Residents of Canada who are residents of Quebec.

Value: Minimum \$21,000 per year at the Master's level for up to two years and \$27,000 per year at the doctoral level for up to three years. The sponsoring company's contribution is a minimum of one third of the value.

Deadline: No FQRSC Deadlines. McGill Deadline: 3 months prior to the beginning of term of tenure.

Application: Fellowships Guide and application forms are available only on the Web. A draft agreement satisfying the guidelines of McGill University, FQRSC and SSHRC is available from the GPSO Website www.mcgill.ca/gps/documents/nup. The signing authority for the University will rest with the GPSO. Further information available from the GPSO Fellowships and Awards Section or at www.fqrc.gouv.qc.ca under "Programmes", "Bourses".

NSERC/MITACS INDUSTRIAL POSTGRADUATE SCHOLARSHIPS

Eligibility: Awards are based on a specific research proposal involving student, faculty supervisor and collaborating company. Basic requirements are much like those of the regular NSERC Postgraduate Scholarships in the following entry. All applications require departmental endorsement and signed commitment from the sponsoring company. Research must be in the areas covered by MITACS, a Network of Centres of Excellence in the mathematics of information technology and complex systems, which focuses on developing mathematical solutions that address issues in the fastest growing sectors of the nation's economy.

Value: \$15,000 per year (plus \$7,500 from a sponsoring company), for up to three years. In addition, the supervisor receives \$7,500 from MITACS.

Deadline: No NSERC Deadlines. McGill Deadline: 3 months prior to the beginning of term of tenure.

Application: Fellowships Guide and application forms are available only on the Web. A draft agreement satisfying the guidelines

of McGill University and NSERC is available from the GPSO Fellowships and Awards Website www.mcgill.ca/gps/documents/nup. The signing authority for the University will rest with the GPSO. Further information available from the GPSO Fellowships and Awards Section or directly from the Scholarships and Fellowships Division, NSERC, 350 Albert Street, Ottawa, Ontario K1A 1H5.

Tel: (613) 995-9169

E-mail: schol@nserc.ca

Website: www.nserc.ca/sf_e.asp?nav=sfnv&lbi=2c#MITACS

WORLD METEOROLOGICAL ORGANIZATION (WMO)

Eligibility: Open to applicants from developing countries, nominated by their governments, for studies or training in meteorology and operational hydrology at universities or meteorological training institutes in countries where facilities are available.

Value: Normally based on United Nations Development Programme stipend rates.

Application: Submitted by Government of candidate's country through the Director of the Meteorological/Hydrological Service, 41, avenue Giuseppe-Motta, 1211 Geneva 20, Switzerland, or the local United Nations Development Programme office.

3.5 External Fellowships for International Students and Postdocs

International students and postdoctoral trainees should verify with their country's educational authorities for funding opportunities to study abroad. In addition, various sources offer funding opportunities to study in Canada

PBEE - PROGRAMMES DE BOURSES D'EXCELLENCE POUR ÉTUDIANTS ÉTRANGERS

Merit Fellowships for International Students

Eligibility: The program, funded by the Quebec Ministry of Education, Leisure and Sports (MELS) and administered by FQRNT, is open to foreign doctoral students and postdoctoral trainees in all disciplines who are not Canadian citizens or permanent residents of Canada. Students must start in the program for which they receive funding between May and January. Doctoral candidates already in a Quebec university (e.g., already at McGill) are eligible to apply. For postdoctoral trainees and short visits, the students may not already be in the program. Due to the small number of nominations allowed per university, the GPSO will only consider applicants who have an overall First Class academic record (equivalent to 3.7/4.0 and up).

Value:

V1 (Doctoral): \$25,000 per year for three years + differential fee waiver for entire studies + Quebec medicare coverage.

V2 (Postdoctoral): \$35,000 per year for one year, non renewable

V3 (Short Visits): \$3,000 per month for up to 4 months

Deadline: July: Students, with the help of their supervisors, must submit the McGill pre-selection form. If nominated by the university (each Quebec university can nominate four candidates per category), the student may have to submit additional documentation by the agency deadline of November. (Students should consult GPSO Website for exact dates.)

Application: Application information is available on the McGill GPSO Website at: www.mcgill.ca/gps/fellowships or on the FQRNT Website at www.fqrnt.gouv.qc.ca.

CIHR - CANADIAN INSTITUTES OF HEALTH RESEARCH - FELLOWSHIPS PROGRAM (ONLY)

Funds Master's, Doctoral and Postdoctoral Research-based studies in the Human Health Sciences (broadly defined).

The Fellowships program for Postdocs and Health Professionals is open to international students and postdocs. Applicants must be post-PhD or certified health professionals authorized to practice in their countries.

Deadline: Normally October and February

Agency information: www.cihr-irsc.ca under *Funding Opportunities, Fellowships*

FOREIGN AFFAIRS AND INTERNATIONAL TRADE CANADA

The Department of Foreign Affairs and International Trade publishes several funding opportunities for international students interested in studying in Canada:

The Commonwealth Scholarship Program

The Government of Canada Award Program

The Organization of American States Program

Links to various programs regularly updated.

Deadline: Varies

Application: Application information is available at www.scholarships.gc.ca/noncanadians-en.html

COUNTRY-SPECIFIC AGENCIES

List of Quebec Partner Countries: www.mels.gouv.qc.ca/ens-sup/ens-univ/droits_scolaire-a_responsables-pays.pdf

France: Ambassade de France, Ottawa: www.ambafrance-ca.org/spip.php?rubrique386

Germany: DAAD, www.daad.de

Mexico: CONACYT, www.conacyt.mx

United States: Fulbright Programs for US Citizens, www.iie.org

DEVELOPING COUNTRIES FUNDING AGENCY

World Bank - www.worldbank.org/wbi/scholarships

PEO International Peace Scholarships for Women - www.peointernational.org/about

3.6 Associations and Private or Not-for-Profit Foundations

Various foundations offer graduate and postdoctoral funding opportunities. A short list is provided here, but it is in no way exhaustive.

LIST OF ASSOCIATIONS AND FOUNDATIONS FUNDING ALL DISCIPLINES

Fondation Desjardins (Quebec Residents) - www.desjardins.com/fr/a_propos/profil/engagement/bourses

AUCC - www.aucc.ca

British Council - www.educationuk.org

CBIE - www.cbie.ca

Canadian Federation of University Women - www.cfuw.org

Institut de recherche en santé et en sécurité du travail du Québec (IRSST) - Any discipline related to work accidents - www.irsst.qc.ca

International Development Research Centre - www.idrc.ca

IODE War Memorial Scholarships for Doctoral Study - www.iode.ca

Mackenzie King Open Scholarships - www.mkingscholarships.ca; McGill pre-selection: www.mcgill.ca/gps/fellowships

LIST OF HEALTH RESEARCH ASSOCIATIONS AND FOUNDATIONS

CIHR maintains a list of funding opportunities in the Health Sciences: www.cihr.ca/e/783.html

LIST OF HUMANITIES AND SOCIAL SCIENCES ASSOCIATIONS AND FOUNDATIONS

Trudeau Foundation (Doctoral) - www.trudeaufoundation.ca; McGill pre-selection: www.mcgill.ca/gps/fellowships

Canada Council - www.canadacouncil.ca (Fine arts and performing arts)

Sauvé Scholars Foundation - www.sauvescholars.org

Roeher Institute Research Grants In The Field Of Intellectual Disabilities - www.roeher.ca/english/services/scottish.htm

Hannah Institute Fellowships for Postdoctoral Study in the History of Medicine - www.ams-inc.on.ca

Woodrow Wilson International Centre for Scholars - www.wilsoncenter.org

LIST OF SCIENCE AND ENGINEERING ASSOCIATIONS AND FOUNDATIONS

Amelia Earhart Fellowship Awards for Women - www.zonta.org

4 McGill Graduate Fellowships

4.1 Recruitment Fellowships

4.1.1 Richard H. Tomlinson Fellowships

Established in 2000 through a very generous gift from Dr. Richard H. Tomlinson (Ph.D. 1948). Awarded annually by the Graduate and Postdoctoral Studies Office to recruit outstanding students into Master's and Doctoral degree program. Tomlinson fellows who accept a fellowship from an agency external to McGill will be entitled to one-half the full value of the Tomlinson Fellowship.

TOMLINSON MASTER'S FELLOWSHIPS IN THE FACULTY OF SCIENCE

Eligibility: The Tomlinson Faculty of Science Master's Fellowships are for new students accepted into a Master's program in a department within the Faculty of Science.

Value: \$15,000, renewable annually based on satisfactory progress, to a maximum tenure of 2 years for master's level.

Deadline: Varies by department.

Application: Tomlinson fellowship award holders are selected on the basis of nominations made by departments. Applicants for a Tomlinson fellowship to support a Master's or Doctoral program at McGill must submit their application directly to departments by early January, along with their application for admission. www.mcgill.ca/gps.

TOMLINSON DOCTORAL FELLOWSHIPS

Eligibility: The Tomlinson Doctoral Fellowships are for new students accepted into a doctoral degree at any department at McGill University.

Value: \$25,000, renewable annually based on satisfactory progress, to a maximum tenure of 3 years for doctoral level.

Deadline: Varies by department.

Application: Tomlinson fellowship award holders are selected on the basis of nominations made by departments. Applicants for Tomlinson fellowship to support a Master's or Doctoral program at McGill must submit their application directly to departments by early January, along with their application for admission. www.mcgill.ca/gps.

4.1.2 Max Stern Recruitment Fellowships

In addition to the McGill Major Fellowships for continuing graduate students, McGill University provides a small number of recruitment fellowships to selected academic departments for outstanding applicants seeking first admission to graduate studies at McGill during the following academic year. A small number of new non-renewable Recruitment Fellowships will be awarded in 2008-09. These are valued at approximately \$14,000 for one year. All applicants for first-time graduate admission are automatically considered by departments for a recruitment fellowship, if the unit has one to offer. There are no application forms, since awards are based exclusively on departmental nomination.

4.1.3 Major Recruitment Fellowships

BMO FINANCIAL GROUP MAJOR FELLOWSHIPS

Established in 2007 by BMO Financial Group. Awarded by the Graduate and Postdoctoral Studies Office to outstanding graduate students entering any Doctoral degree program, on the basis of academic merit.

Estimated value: \$23,000 each; renewable twice.

SIR YUE-KONG PAO FELLOWSHIPS

Established in 2002 by Anna Pao Sohmen, M.S.W. 1969, in honour of her father, Sir Yue-Kong Pao. Awarded by the GPSO to outstanding graduate students on the basis of academic merit.

Preference shall be given first to students from Ningbo University, and, secondarily, to students from the People's Republic of China. **Value:** \$25,000.

Deadline: February (Confirm precise deadline on GPSO Website). (*Not offered until further notice.*)

Application: Forms and additional information are available from the GPSO Fellowships and Awards Website at: www.mcgill.ca/gps/fellowships.

4.1.4 Discipline-specific Recruitment Fellowships

J.W. MCCONNELL FOUNDATION FELLOWSHIPS IN ENVIRONMENT

Established in 2000 by the J.W. McConnell Foundation to outstanding students entering the first year of a Master's degree in the area of Environmental Studies. Awarded by the GPSO to a graduate student in the area of Environmental Studies.

Value: \$15,000 each; renewable.

LORNE TROTTIER SCIENCE ACCELERATOR FELLOWSHIPS

Established in 2006 by Lorne Trottier, B.Eng. 1970, M.Eng. 1973, D.Sc. 2006. Awarded annually by the Faculty of Science to attract outstanding students into the Faculty's graduate degree programs.

Eligibility: The Lorne Trottier Science Accelerator Fellowships will be awarded to meritorious students accepted into a graduate degree program within the Faculty of Science and are to be combined with funding received by applicants through external programs such as NSERC or FQRNT, as well as with funding received through other sources within the University.

Application: Awardees are selected on the basis of nominations by the Faculty of Science. Applicants must submit their application directly to departments by early January.

Value: May be renewed, at the discretion of the Faculty of Science.

MAX BELL FOUNDATION FELLOWSHIPS

Established in 2000 by the Max Bell Foundation of Calgary in memory of George Maxwell (Max) Bell (1912-1972), B.Com. 1932, Governor of McGill University from 1962-1971, businessman, oilman, newspaper publisher, sportsman and philanthropist.

Awarded by the Graduate and Postdoctoral Studies Office to outstanding entering graduate students studying in the areas of medicine, education, or environment.

Value: Minimum \$20,000; renewable once at the Master's level and twice at the Doctoral level.

MAX STERN MCCORD MUSEUM FELLOWSHIP

Established in 1991 by the trustees of the Max Stern estate.

Eligibility: Offered to meritorious graduate students who are seeking admission in the Faculty of Arts at McGill University and whose research will directly involve the collections of the McCord Museum. Please consult the McCord Museum Website at www.mccord-museum.qc.ca for information on the various collections of the Museum. No citizenship restrictions.

Value: Master's is a minimum of \$15,000, renewable once; Doctoral is a minimum of \$20,000 renewable twice.

Deadline: March (Confirm precise deadline on GPSO Website).

Application: Forms and additional information are available from the GPSO Fellowships and Awards Website at: www.mcgill.ca/gps/fellowships.

WERNER GRAUPE INTERNATIONAL FELLOWSHIPS IN ENGINEERING

Established in 1999 by a generous gift from the late Werner Graupe and the Antje Graupe Pryor Foundation.

Eligibility: Awarded by the Graduate and Postdoctoral Studies Office upon the recommendation of the Faculty of Engineering to an international student from a university in the European Union, enrolling in a Master's or Ph.D. program in Engineering at McGill. Preference is given to students from German and French

universities, particularly Technische Universität Berlin. Students in Chemical and Civil Engineering are not eligible.

Value: \$25,000; renewable once at the Master's level and twice at the Doctoral level.

Deadline: February (Confirm precise deadline on GPSO Website).

Application: Forms and additional information are available from the GPSO Fellowships and Awards Website at: www.mcgill.ca/gps/fellowships.

4.2 McGill Major Fellowships

This program is under review. Please visit www.mcgill.ca/gps/fellowships for the most current information.

McGill Majors are awarded on the basis of nominations by departments.

Description of Individual Major Fellowships

ALMA MATER FELLOWSHIP

Established in 1982 by generous contributions to the Alma Mater Fund from many graduates who designated their gifts to the area of scholarships and student aid.

Eligibility: Open to students in any degree program in the Graduate Studies. No citizenship restrictions.

Value: \$10,000; renewable once.

ARTHUR C. TAGGE FELLOWSHIP IN THE HUMANITIES AND SOCIAL SCIENCES

Eligibility: Tenable by a graduate of any approved university proceeding to a higher degree in any department in the Humanities or the Social Sciences. No citizenship restrictions.

Value: \$10,000, non-renewable. Awarded for one year only.

CARL REINHARDT FELLOWSHIP

Established from the estate of the late Carl Reinhardt, who received Bachelor of Applied Science degrees from McGill University in Civil Engineering (1896) and Mining Engineering (1897).

Eligibility: Open to graduate students in the Departments of Physics, as well as Earth and Planetary Sciences. No citizenship restrictions.

Value: \$10,000; renewable twice.

CHALK- ROWLES FELLOWSHIP

Established by Mary Laura Chalk, McGill's first woman Ph.D. in Physics (1928), in memory of her husband, William Rowles (Ph.D. 1928), Professor Emeritus of Agricultural Physics at Macdonald College.

Eligibility: Open to graduate students in the Department of Physics. No citizenship restrictions.

Value: \$10,000; renewable once.

CLIFFORD C.F. WONG FELLOWSHIP

黃振輝 研究生獎學金

Eligibility: Founded in 1981 by Mr. Clifford C.F. Wong, B. Arch. 1960, to enable a graduate student to pursue studies towards a higher degree at McGill University. First preference will be given to students coming from the People's Republic of China and second preference to students coming from Hong Kong. In the absence of suitable candidates from these two regions, the fellowship would be available to suitable candidates from any country.

Value: \$12,000 plus tuition fees at the non-privatized rate; renewable once.

DALBIR BINDRA FELLOWSHIP

Established in recognition of the late Professor Dalbir Bindra's contribution to teaching and research during his thirty years in the Department of Psychology at McGill.

Eligibility: Open to students registered in any program of the Graduate Studies, with a preference to those from developing countries.

Value: \$10,000; renewable once.

DAVID STEWART MEMORIAL FELLOWSHIP

Established through a bequest by the late Agnes Stewart in memory of her father, David Stewart.

Eligibility: Offered to graduate students in the physical and biological sciences who demonstrate high ability and who are likely to enter a career of university teaching. No citizenship restrictions.

Value: \$10,000; non-renewable.

EILEEN PETERS FELLOWSHIP

Established in 1993 with an endowment from the N.E. Peters Foundation.

Eligibility: Awarded by the GPSO with preference being given to women. Consideration, if appropriate, will be given to students pursuing graduate studies in the Faculty of Medicine or the School of Nursing. No citizenship restrictions.

Value: \$12,000, renewable twice.

ESTERINA AND GAETANO LIBERATORE FELLOWSHIP

Established in 1995 through the generous gift of Luigi Liberatore.

Eligibility: The fellowships may be held by students registered in any graduate program at McGill. No citizenship restrictions.

Value: \$10,000; renewable twice.

FRIENDS OF MCGILL FELLOWSHIP

The fellowship is made available through the McGill Development program by the Friends of McGill Inc., New York.

Eligibility: Open to graduate students in any discipline who are citizens of the United States of America.

Value: \$10,000; renewable once.

GREVILLE SMITH RESEARCH FELLOWSHIP

Eligibility: Three fellowships are endowed by the trustees of the Greville Smith bequest for research by graduate students, one in Engineering, and one in Management, and one in any discipline, for overall excellence. The leadership qualities of the candidate, together with the usefulness to the community of the proposed study, is taken into consideration by the GPSO in their choice of fellows. No citizenship restrictions.

Value: \$15,000; renewable twice.

HAROLD H. HELM FELLOWSHIP

Established in 1960 in honour of Harold Helm, then Chairman of the Executive Committee of the Board of Trustees of Princeton University.

Eligibility: Open to students in any degree program in graduate studies at McGill. No citizenship restrictions.

Value: \$10,000; renewable once.

J.W. MCCONNELL MEMORIAL FELLOWSHIP

Established by the J.W. McConnell Foundation to support graduate studies and research at McGill University, and so to strengthen, in quality and in numbers, the academic staff of Canadian universities and schools.

Eligibility: The fellowships may be held by students registering in any graduate research program (except Medicine) at McGill. No citizenship restrictions.

Value: \$10,000; renewable twice.

LLOYD CARR-HARRIS FELLOWSHIP

Established in 1995 through the generosity of the Lloyd Carr-Harris Foundation.

Eligibility: The fellowships may be held by students registered in any graduate program in the health sciences at McGill. No citizenship restrictions.

Value: \$15,000; renewable twice.

MAX E. BINZ FELLOWSHIP

Established from the estate of the late Max E. Binz, who was born in Switzerland, emigrated to Canada in 1930, established a successful textile company, and became a generous benefactor of McGill University.

Eligibility: The fellowship is open to all students in degree programs in graduate studies. No citizenship restrictions.

Value: \$10,000; non-renewable.

MAX STERN FELLOWSHIP IN HUMANITIES AND SOCIAL SCIENCES

Established through the generosity of the Dr. and Mrs. Max Stern Foundation.

Eligibility: The fellowship may be held by students registered in any graduate program in the humanities or social sciences at McGill. No citizenship restrictions.

Value: \$15,000, renewable twice.

MCGILL ALUMNAE SOCIETY FELLOWSHIP

Established in 1988 to commemorate the 100th anniversary of the founding of the McGill Alumnae Society.

Eligibility: To be awarded to a research student in any faculty who is pursuing studies of benefit or significance to women. Preference will be given to women applicants. No citizenship requirements.

Value: \$10,000, renewable twice.

PHILIP F. VINEBERG GRADUATE FELLOWSHIP

Endowed in 1992 in memory of Philip F. Vineberg, O.C., QC, B.A., M.A., B.C.L., L.L.D., former Professor and Emeritus Governor of McGill University.

Eligibility: Open to graduate students pursuing in an advanced degree in Arts, Education, Law, Library Science, Music, Religious Studies or Social Work, to finance one year of study. Awarded to a graduate student who best exemplifies the qualities of intelligence as demonstrated by academic record and creative thinking; breadth of interest, perspective and tolerance as demonstrated by cross cultural interests; record of service to others; excellence as demonstrated by a record of disciplined undergraduate achievement at another university and the promise of more to come. The fellowship is open to all eligible students with preference to Canadian citizens and Permanent Residents.

Value: \$10,000, non-renewable.

PHILIP P. BAILY FELLOWSHIP

Eligibility: Established in 1995 through a generous bequest by Philip Pendlebury Baily (B.Sc. 1913, M.Sc. 1914) for students registered in any graduate program in the Faculty of Medicine or Science. No citizenship restrictions.

Value: \$12,000, non-renewable.

SAUL HAYES GRADUATE FELLOWSHIP

Eligibility: Established by Edgar and Charles Bronfman in memory of Saul Hayes for graduate students undertaking research with preference to the areas of Civil Liberties and Human Rights. No citizenship restrictions.

Value: \$10,000; tenable for up to four years.

SOLVAY FELLOWSHIP

Eligibility: Offered for the first year of graduate study in any department at McGill. The holder must have graduated in any undergraduate faculty of McGill in the session prior to that for which the award is given, and must obtain permission to proceed to graduate study. No citizenship restrictions.

Value: \$10,000; non-renewable.

4.3 Complementary McGill Awards to Major Fellowships

The Beijing, Neil Croll, SR Telecom and Walter Hirschfeld Memorial Awards are given as award complements to the most highly ranked McGill Major Fellowship awardees, meeting the specific eligibility criteria of each award.

BEIJING MEMORIAL AWARD

Eligibility: Awarded on the basis of academic merit to a student working towards a higher degree at McGill University, with a preference to those from the People's Republic of China.

Application: No application necessary. Awarded by the Fellowships Committee of the GPSO to an outstanding student who has also been awarded a McGill Major Fellowship.

Value: \$1,000.

NEIL CROLL MEMORIAL AWARD

Established in memory of the late Professor Neil Croll, Ph.D., M.D., Professor of Parasitology and Director of McGill International, and a teacher and friend of students from developing countries.

Eligibility: For graduate students, with a preference to those from developing countries.

Value: \$1,000.

Application: No application necessary. Awarded by the Fellowships Committee of the GPSO to an outstanding student who has also been awarded a McGill Major Fellowship.

SR TELECOM AWARDS

Established in 1997 through a generous gift from SR Telecom, Inc.

Eligibility: The awards will be presented each year to enhance major fellowships for students in Engineering and Computer Science.

Value: Minimum \$4,000 each.

WALTER HITSCHFELD AWARD

Established in honour of W.F. Hirschfeld Ph.D., F.R.S., F.R.S.C., a teacher and friend of many such students and former Director of McGill International.

Eligibility: For graduate students, with a preference to those from developing countries.

Value: \$1,000.

Application: No application necessary. Awarded by the Fellowships Committee of the GPSO to an outstanding student who has also been awarded a McGill Major Fellowship.

4.4 Specialized Fellowships**DELTA UPSILON MEMORIAL SCHOLARSHIP**

Founded by the McGill Chapter of the Delta Upsilon Fraternity in memory of its members who gave their lives in the Boer War, the Great War of 1914-18, and the Second War of 1939-45.

Eligibility: Open to students who have received an undergraduate degree from McGill University in any faculty and tenable for graduate study at any recognized university. The necessary CGPA is 3.7 or above.

Value: Average of \$5,000 (awards of lesser value may be made in certain cases).

Deadline: February 1.

Application: Forms and additional information are available from the GPSO Fellowships and Awards Website at:

www.mcgill.ca/gps/fellowships. (Same form as Mackenzie King Open and Travelling Scholarships).

EBEN HOPSON FELLOWSHIP FOR STUDY AT MCGILL

Established through a 1988 donation from the North Slope Borough of Alaska in honour of Eben Hopson, Mayor of the North Slope Borough from 1972 to 1980, to advance the pursuit, promotion and sharing of knowledge in areas of common interest and relevance to the scientific, social and economic development, and the greater welfare of the North Slope Borough and the counties of the Circumpolar North.

Eligibility: Awards will be made for graduate studies at McGill in appropriate areas of Arctic studies, including but not necessarily limited to environmental problems within the Arctic regions, Arctic archaeology and prehistory, social problems of the Arctic (development, impact assessment studies, psychology, rural education, etc.), Arctic health and medicine, communications, indigenous Native Peoples (rights, languages and traditional culture), Humanities and Social sciences and Natural Sciences.

Value: \$6,000. Awards are renewable for a second year for Masters studies and up to a fourth year for Doctoral Studies.

Deadline: To the department in which the applicant intends to study, by March 1.

Application: Application information is available from the GPSO Fellowships and Awards Website at: www.mcgill.ca/gps/fellowships.

JOHN WILLIAMSON FREDERICK PEACOCK MEMORIAL SCHOLARSHIP

Established in memory of Flight Lieutenant John Williamson Frederick Peacock, a member of the Delta Upsilon Fraternity, who was killed in action over Normandy in 1944.

Eligibility: Open to students who have received an undergraduate degree from McGill University in any faculty and tenable for graduate study at any recognized university. The necessary CGPA is 3.5 or above.

Value: Average of \$5,000 (awards of lesser value may be made).
Deadline: February 1.

Application: Forms and additional information are available from the GPSO Fellowships and Awards Website at: www.mcgill.ca/gps/fellowships. (Same form as Mackenzie King Open and Travelling Scholarships).

THOMAS AND WILLA FERGUSON SMYTHE FELLOWSHIP

Eligibility: Founded by a bequest of the late Thomas Harold Smythe for students in any discipline from Botswana, Lesotho, Malawi, Namibia, South Africa, Swaziland, Zambia or Zimbabwe who intend to return to their countries upon completion of their studies in Canada. A strong preference is given to incoming students. Candidates must have been formally granted admission to a McGill graduate program at the time of nomination.

Value: Minimum of \$7,000 plus tuition fees at the non privatized rate; renewable once.

Deadline: March 30 by McGill department.

Application: There is no application form, since this fellowship is based on department nominations.

4.5 Dissertation Fellowships

ROBERT AND MARY STANFIELD DISSERTATION FELLOWSHIP

Established in 1994 through the Robert and Mary Stanfield Foundation.

Eligibility: This fellowship is awarded to an outstanding doctoral student whose research focuses on Canada or some aspects of Northern Studies nearing the completion of Ph.D. degree.

Value: Minimum \$9,000, non-renewable.

Deadline: Normally early April.

Application: See the GPSO Website for details on application/nomination procedures: www.mcgill.ca/gps/fellowships/grad/dissertation.

STANDARD LIFE DISSERTATION FELLOWSHIP

Established in 1997 by a generous donation by the Standard Life Insurance Company.

Eligibility: This fellowship is awarded to an outstanding doctoral student in Health Sciences who will complete their dissertation in the coming academic year and who are not receiving other fellowship funding.

Estimated value: \$5,000.

Deadline: Normally early April.

Application: See the GPSO Website for details on application/nomination procedures: www.mcgill.ca/gps/fellowships/grad/dissertation.

4.6 Exemptions from the International Tuition Supplement

McGill International Doctoral Awards (MIDAs)

As of September 2007, all international Doctoral students registered full-time at McGill will pay the same tuition fees as Quebec Doctoral students. With the new McGill International Doctoral Awards (MIDAs), McGill eliminates a major obstacle in the recruitment and retention of high-quality international Doctoral students.

The Office of the Associate Provost (Graduate Education) is delighted to announce a new award that will eliminate the tuition supplement for all international Doctoral students (PhD/DMus/DCL), effective September 2007. The McGill International Doctoral Award will work along with the existing provincial McGill differential fee waivers and MELS bilateral and special international supplement waivers to exempt all international PhD/DMus/DCL students registered full-time in years 1 to 4 (i.e. PhD1 to PhD4) from the international tuition supplement. (As of PhD5, students are in additional session and not assessed the international supplement.)

International students whose international tuition supplement is paid by an external source (e.g. fellowships that include direct payment of tuition and third party billing contracts) will not be eligible for these awards. Fall and Winter DFWs will work in tandem with this program; Summer DFWs will be used for eligible Master's students.

Internal DFWs

McGill University is allocated a number of Differential Fee Waivers (DFWs) that it allocates through the departments. Summer DFWs are allocated by nomination to eligible Master's degree students and students newly admitted into a Ph.D. program in the Summer term; Fall and Winter DFWs are automatically allocated to eligible doctoral students as part of the MIDAs program. Eligible students should enquire with their department for information regarding how to apply for these waivers in the Summer term.

External DFWs

Differential fee waivers are also available from a number of external sources, including the Ministère de l'Éducation, du Loisir et du Sport du Québec. Please note that the Québec government grants differential fee waivers to staff and dependants of consulates, foreign government offices, international governmental organizations, non-governmental organizations, refugees, immigrants with a work permit containing the case type 07, 08, 20, 22, 23 or 26 with the name of an employer and location that is necessarily situated in Québec, and to those students in MELS-approved inter-university exchanges. For more information on how to qualify for differential fee waivers under these provisions, please see this document:

Politique relative aux droits de scolarité exigés des étudiantes et étudiants étrangers par les universités du Québec, available at the MELS Website: www.mels.gouv.qc.ca/ens-sup/ens-univ/Politique_etudiant_etranger-2007.pdf.

International degree students in a program where fees are assessed per credit and who register in eligible French language and literature courses are exempt from the international supplement for those courses. Please note that the exemption of differential fees for students registered in French language and literature programs has been abolished.

A certain number of citizens from countries whose governments have entered into agreements on tuition fees with Québec may be exempted from the supplemental tuition fees normally required of international students.

The exemption is granted in accordance with the applicable agreement on tuition fees and subject to its terms and conditions, which vary depending on each agreement. The exemption is valid for the normal length of the program of studies concerned (for instance, a Master's degree in Environmental Studies) at a post-secondary institution in Québec, and is granted one semester at a time. From the first semester for which an exemption is granted at a designated institution until the program is completed, the exemption is renewable on a trimester-by-trimester basis as long as a student earns no fewer than 30 credits per year, complies with the

applicable regulations, registers on a full time basis at least for the fall and winter trimesters and pays the tuition fees on the prescribed registration dates.

All French citizens and a limited number of citizens of a country in the list which can be found at www.mels.gouv.qc.ca/ens-sup/ens-univ/droits_scolaire-A_pays-organisations.pdf are eligible for such exemptions.

To apply for an exemption of this type, a student must meet the following conditions: be a citizen of one of the aforementioned countries or governments; be admitted to a program of studies at a post-secondary institution in Québec; be registered on a full-time basis according to the applicable rules at that institution; like any international student, be the holder of a valid passport and residence permit as prescribed by the applicable immigration rules; and, except for French citizens, be recommended for an exemption by the relevant authorities in his or her country-usually the department of education-according to the official procedure described in the next paragraph.

Foreign governments or the bodies that represent them must send, usually through their consulate in Québec or their embassy in Ottawa, to the Direction des affaires étudiantes et de la coopération of the Ministère de l'Éducation du Québec, before June the 15 of each year for the next autumn registrations and before November the 15th for the next winter registrations, a list of the candidates that they recommend be exempted from the requirement to pay supplemental tuition fees, joining with it the proof of admission or registration for each new exemption proposed. The Ministère de l'Éducation then establishes, according to the provisions of the agreement, the final list of the persons to benefit from the exemption during the future trimester concerned. At least 4/5 of the exemptions that are really attributed must be for registrations in french speaking institutions.

For more information and the necessary application materials, see this MELS Website: www.mels.gouv.qc.ca/ens-sup/ens-univ/Politique_etudiant_etrange-2007.pdf.

4.7 Graduation Prizes and Awards

GOVERNOR GENERAL'S GOLD MEDAL

Eligibility: Two medals are presented each year (normally at the Spring convocation) by McGill University, in the name of and on behalf of the Governor General of Canada to the most outstanding graduating Master's or doctoral students (one in Human Sciences and one in Natural Sciences). A maximum of one nomination per McGill department will be accepted each year, based on truly outstanding academic merit. Nominations are reviewed by a GPSO Selection Committee. Nominees for the Governor General's Gold Medal are automatically considered for all the internal Graduation Prizes and Awards listed in this section.

Value: Gold medal with an inscribed booklet.

Deadline: March 31, for departmental nomination to the GPSO Fellowships and Awards Section.

Application: Nomination forms are available on the Web in March. Nominations for the Governor General's Gold medal are often combined with nominations for the Ambridge, Jenckes and MacLachlan prizes described elsewhere in this Calendar. Further details are available from the GPSO Fellowships and Awards Section Website.

D.W. AMBRIDGE AWARD

This award was made possible by a gift to the late Douglas White Ambridge from the employees and shareholders on the occasion of his retirement from the presidency of Abitibi Power and Paper Company Limited on February 1, 1963.

Eligibility: Awarded to a graduate receiving the degree of Ph.D. in the Physical Sciences or Engineering. The winner is selected from candidates nominated by each department whose academic record, including research and thesis, is judged to be outstanding among all those who graduate during the academic year.

Value: \$1,000 plus an engraved plaque.

Deadline: March 31, for departmental nomination in the GPSO Fellowships and Awards Section.

GORDON A. MACLACHLAN PRIZE

Established in 1990, with gifts from individuals and faculties, in recognition and appreciation of Professor Gordon A. MacLachlan's ten years of service to McGill as Dean of the Faculty of Graduate Studies and Research and Vice-Principal (Research).

Eligibility: Awarded annually by the GPSO to the most outstanding graduate receiving a Ph.D. degree during the academic year in any discipline of the Biological Sciences or Health Sciences.

The winner will be selected from candidates nominated by eligible departments, based on the quality of their academic records, the scholarly significance of their research and the excellence of their theses and other publications.

Value: \$1,000.

Deadline: March 31, for departmental nomination to the GPSO Fellowships and Awards Section.

K.B. JENCKES PRIZE

Established in 1990 by an endowment from the estate of the late K.B. Jenckes.

Eligibility: Awarded annually by the GPSO to the most outstanding graduate receiving a Ph.D. degree during the academic year in any discipline in the social sciences and humanities. The winner will be chosen from among candidates nominated by eligible departments and faculties, assessed by the quality of their academic records, the scholarly significance of their research and the stylistic and substantive excellence of their theses and other publications.

Value: \$900.

Deadline: March 31, for departmental nomination to the GPSO Fellowships and Awards Section.

MCGILL ALUMNI ASSOCIATION GRADUATE AWARD

Established in 2005, by the McGill Alumni Association.

Eligibility: To be awarded by the Graduate and Postdoctoral Studies Office to an outstanding graduate receiving the Governor General's Gold Medal.

Value: \$1,500.

Deadline: March 31, for departmental nomination to the GPSO Fellowships and Awards Section.

5 Fellowships awarded by Departments and Faculties

The following pages list over 200 fellowships, awards and bursaries, according to specific discipline, which are administered directly by departments or faculties at McGill University, or are externally funded. Unless otherwise indicated, students should contact the McGill department or faculty office concerned for additional information and application or nomination procedures.

5.1 Multidisciplinary

ARTHUR AND DAWN WESTON FELLOWSHIP IN TEACHING AND LEARNING IN HIGHER EDUCATION

Established in 2007 by Arthur and Dawn Weston. It is awarded by the GPSO upon the recommendation of Teaching and Learning Services to an outstanding full-time graduate student interested in conducting research on university teaching and learning in any faculty.

Value: \$20,000; renewable once at the Master's level, twice at the Doctoral level.

Deadline: Monday March 10, 2008.

Application:

Teaching and Learning Services
Suite MS-12, McLennan Library Building
3459 McTavish Street
Montreal, Quebec H3A 1Y1
Tel.: 514-398-6648
Fax: 514-398-8465
E-mail: tls@mcgill.ca

CANADIAN CHINESE CULTURAL SOCIETY OF MONTREAL INC. SCHOLARSHIP

Eligibility: Founded in 1969, the Canadian Chinese Cultural Society of Montreal Inc. offers an annual scholarship to an undergraduate or graduate student majoring in Chinese Studies. Candidates must be Canadian citizens able to demonstrate financial need and registered as full time students in the third or fourth year of undergraduate studies or in a graduate program.

Value: \$1,000.

Deadline: April 30.

Application: Applications must be sent to the Scholarship Committee of the Society each year in order to be eligible for consideration for the award for the following academic year. The address is: Canadian Chinese Cultural Society of Montreal Inc., Suite 707, 1117 Ste. Catherine Street W., Montreal, Quebec, H3B 1H9. Each applicant should indicate his/her field of studies and plans for the future, as well as a need for financial assistance. The scholarship will be awarded at an official function of the Society during the month of September.

DELISE ALISON GRADUATE PRIZES

Established in 2006 through a bequest by Delise Alison, a retired staff member of the Redpath Museum.

Eligibility: Awarded annually by the Redpath Museum, based on academic standing, to graduate students pursuing research at the Redpath Museum.

Estimated value: \$1,000

KENNETH DOWNES GRADUATE AWARD

Established in 1998 by Kenneth Downes (Class of 1947).

Eligibility: Awarded by the GPSO to an outstanding graduate student.

Value: Minimum \$5,000.

LARS AND ALBERTA FIRING GRADUATE FELLOWSHIPS IN ENGINEERING

Established in 2006 by the late Lars Firing for outstanding graduate students in the Faculty of Engineering.

Eligibility: Awarded by the Faculty of Engineering to students accepted into a graduate degree program, preferably at the doctoral level, in the Faculty of Engineering. Preference will be given to students enrolled in the Department of Chemical Engineering, and also to students pursuing research in any of the following fields: Bioengineering, including Biomedical Engineering; Environmental Engineering; Sustainable Development in Natural Resources; Alternative/Sustainable/Renewable Energy; Transportation Engineering and Pharmaceutical Chemical Engineering. Funding may be combined with that received by applicants through agencies external to McGill or through internal McGill sources.

Estimated value: \$25,000, paid out over two years, provided the holder maintains satisfactory progress.

Application: Applicants must submit their application directly to departments along with their application for admission, by the deadline for financial aid applications.

MARGARET GILLETT GRADUATE RESEARCH AWARDS

Funded by both the McGill Women's Alumnae Society and the McGill Centre for Research and Teaching on Women (MCRTW). These awards are granted by the MCRTW in honour of Dr. Margaret Gillett, now retired, Macdonald Professor of Education at McGill University. Dr. Gillett initiated the Women's Studies program at McGill and was founding director of MCRTW.

Eligibility: For graduate students in any McGill department for research in Women's Studies leading to a degree.

Value: Up to \$1,000, including travel for research purposes.

Deadline: February 28.

Application: Application details and further information may be obtained from the MCRTW, McGill University, 3487 Peel Street, 2nd floor, Montreal, Quebec H3A 1W7 or www.mcgill.ca/mcrtw.

NORTHERN SCIENTIFIC TRAINING PROGRAM

Eligibility: The Northern Scientific Training Program administers grants to graduate and undergraduate students to help cover the field expenses of working in the North. Program funding is derived from the Department of Indian and Northern Affairs, Ottawa.

Value: Approximately \$3,000, awarded for one year only.

Deadline: End of October.

Application: Application forms can be obtained from www.ainc-inac.gc.ca/nstp/nstpb_e.html. Applications should be submitted to Northern Scientific Training Program, c/o Professor Laurie Chan, School of Dietetics and Human Nutrition, McGill University.

RICHARD H. TOMLINSON FELLOWSHIPS IN UNIVERSITY SCIENCE TEACHING

Established in 2003 by a generous gift from Dr. Richard H. Tomlinson, Ph.D. 1948. The awards are for outstanding graduate and postdoctoral students in the Faculty of Science and other faculties, who will be engaged in research in the teaching of science at the university level. Awarded by the Dean of Science on the basis of academic merit upon recommendation from the Director of the Tomlinson University Science Teaching Project.

Professors in the Faculty of Science and other faculties will nominate candidates to the Director of the Tomlinson University Science Teaching Project, who will forward recommendations to the Dean of Science.

Value: Minimum \$17,500; renewable.

Application: For more detailed information, please send an e-mail to: tomlinson.project@mcgill.ca with the words "University Science Teaching Fellowship" in the subject field.

5.1.1 McGill Institute for the Study of Canada

H. ANTHONY HAMPSON AWARD IN THE MCGILL INSTITUTE FOR THE STUDY OF CANADA

Established by family and friends in memory of H. Anthony Hampson (B.A. 1951) who was a leader of McGill capital campaigns and the first President of the Canadian Development Corporation.

Eligibility: The McGill Institute for the Study of Canada will be awarding two H. Anthony Hampson Awards to final year Ph.D. students whose research focuses on some aspects of Canadian Studies and who are actively engaged in writing their thesis.

Value: Minimum \$3,000.

JANET L. MORTON AWARD

Desmond Morton donates this award to the McGill Institute for the Study of Canada in memory of his late wife Janet L. Morton. The award goes to the student with the highest mark in a Canadian Studies course.

Value: \$275.00

JOSEPH AND SANDRA ROTMAN PRIZE FOR STUDENT EXCELLENCE IN PUBLIC POLICY INNOVATION

Established in 2003 by Heather Monroe-Blum and Leonard Solomon Blum and by the University, in honour of Joseph and Sandra Rotman.

Eligibility: Awarded by the McGill Institute for the Study of Canada to a graduate student in the Faculty of Arts whose Master's or Doctoral thesis is judged to have made a distinctive contribution to the understanding or conduct of public policy in Canada.

Value: Minimum \$500.

MCGILL INSTITUTE FOR THE STUDY OF CANADA FELLOWSHIPS

Eligibility: Established in 1994 with contributions from the Bronfman Family Foundation in support of the McGill Institute for the Study of Canada. These fellowships are awarded to students entering a doctoral program in the Faculty of Arts who intend to research some aspect of Canada.

Value: \$5,000.

Deadline: For current competition deadline and application information please consult www.mcgill.ca/misc/fellowships-awards

WARREN FELLOWSHIP IN THE MCGILL INSTITUTE FOR THE STUDY OF CANADA

Established in 2001 through a generous gift from Roger W. Warren, Commerce, 1955.

Eligibility: Awarded by the McGill Institute for the Study of Canada to a deserving First Nations graduate student whose research relates to the study of Canada.

Deadline: February 15.

Value: \$18,000, renewable.

5.2 Agricultural and Environmental Sciences**AMY WONG FELLOWSHIP****梁家康醫生夫婦研究生獎學金**

Established in 1998 by a generous gift from a McGill graduate of Chemical Engineering (Class of 1959) from Hong Kong.

Eligibility: Awarded to a qualified student from China, including Hong Kong, who is an entering postdoctoral fellow, Ph.D. or M.Sc. student conducting agricultural production/food related research in the Faculty of Agricultural and Environmental Sciences. Awarded by the Dean of the Faculty in consultation with the departments. The recipients are expected to return to their home country after the completion of their studies.

Estimated Value: \$20,000. Renewable once at the master's level and twice at the doctoral or postdoctoral levels.

BLAIR POSTGRADUATE FELLOWSHIPS

Eligibility: Established through a bequest to the Faculty of Agricultural and Environmental Sciences from the Blair Farm estate, Chateauguay Valley. Awarded annually to a doctoral candidate whose research has a clear relationship to problems of Quebec farms, with preference for marginal farms in south-western Quebec. M.Sc. students in Agricultural Economics are eligible.

Value: \$5,000; renewable for up to three years.

Application: By departmental recommendation to the Faculty of Agricultural and Environmental Sciences Scholarships Committee. Candidates will be requested to provide a one-page statement explaining how their project relates to the fellowship.

CATHERINE FREEMAN FELLOWSHIP IN HUMAN NUTRITION

Established in 2002 by Catherine Freeman, B.H.S. 1941, for an outstanding graduate student in the School of Dietetics and Human Nutrition.

Eligibility: Awarded by the Faculty of Agricultural and Environmental Sciences Scholarships Committee on the recommendation of the School.

Award: Minimum \$10,000.

DONALD MACKENZIE MUNROE FELLOWSHIP

Established in 2006 by Principal Heather Munroe-Blum, O.C., Ph.D., F.R.S.C., on behalf of herself and her brothers: Robert, Ross, Donald, John and James, in memory of their father, Donald Mackenzie Munroe. Awarded by the Graduate and Postdoctoral Studies Office to an outstanding graduate student in the Faculty of Agricultural and Environmental Sciences upon joint recommendation of the Faculty of Agricultural and Environmental Sciences and the McGill School of Environment.

Value: \$20,000 renewable once at the Master's Level and twice at the Doctoral level.

ELIZABETH AND ANDRE ROSSINGER FELLOWSHIP IN CANADIAN RURAL SUSTAINABILITY

Established in 2005 by Elizabeth Taylor Rossinger, S.W. 1951, for an outstanding graduate student working on projects related to Canadian rural sustainability in the Faculty of Agricultural and Environmental Sciences. Awarded on the basis of academic merit by the Office of Graduate and Postdoctoral Studies on the recommendation of the Scholarships Committee of the Faculty of Agricultural and Environmental Sciences.

Value: Minimum \$10,000 plus a mandatory contribution from the supervisor's research funds to provide a minimum annual income equivalent to an NSERC Post Graduate Scholarship (PBS); renewable once at a Master's level, twice at a Doctoral level.

HUGH BAILY AWARD

Established through a legacy by Philip Pendlebury Baily (B.Sc. 1913, M.Sc. 1914) in memory of his brother, Hugh Reginald Dowson Baily (Agriculture 1916), the first member of the University to give his life in the war of 1914-18.

Eligibility: Awarded to a graduate student in an agriculture-related field through the Faculty of Agricultural and Environmental Sciences. Preference will be given to students completing their dissertation who require less than one year of support.

Value: \$750.

Application: By departmental recommendation to the Faculty of Agricultural and Environmental Sciences Scholarships Committee.

MACDONALD CLASS OF '44 ROWLES GRADUATE BURSARY

Established by the Class of '44 in honour of William and Laura Rowles to recognize with respect the affection and friendship, which the Rowles have shared with Macdonald students and graduates through the years.

Eligibility: Awarded to Macdonald graduate students who are in good academic standing and have demonstrated financial need. Preference will be given to Canadian students.

Value: \$750.

Application: By departmental recommendation to the Faculty of Agricultural and Environmental Sciences Scholarships Committee.

MARIAN AND RALPH SKETCH FELLOWSHIP

Established in 2001 through a bequest from Marian Howard Sketch, in memory of her husband, the late Ralph M. Sketch B.S.A. '31, to encourage and support a student from China studying in a program offered on the Macdonald Campus. Awarded by the Scholarships Committee, Faculty of Agricultural and Environmental Sciences; tenable for two years at the M. Sc. Level or three years at the Ph. D. level.

Value: \$10,000, plus a mandatory contribution from the supervisor's research fund to provide a minimum annual income of \$15,000.

"OLD SUN" SCHOLARSHIP

Established in 1994 and increased with an additional contribution in 2006 in celebration of Macdonald's 100th anniversary by Joy Harvie Maclaren, B.Sc. (Nutr.)1944, LL.D 2000, in recognition of her 50th anniversary of graduation from Macdonald College and in honour of her late father, Eric Harvie. Colonel Harvie was given the honorary name of "Old Sun" in recognition of his efforts in promoting the mandates of Treaty No. 7 which was signed in 1874 by Blackfoot Chiefs Old Sun and Crowfoot in agreement with the Queen and Canadian government for land, peace and education.

Joy Maclaren has passionately continued the work of her late father and has supported numerous health, education and social initiatives across Canada in aid of Canada's Inuit and Aboriginal peoples. Her involvement has also encouraged greater communication and the sharing of wisdom amongst all people. In recognition of her work and commitment towards Canada's First People,

the Blackfoot, the Mohawk and the Ojibway bestowed upon Joy Maclaren the honorary name "New Sun".

Eligibility: Preference will be given to Canadian Aboriginal and Inuit students, studying nutrition, dietetics, agriculture or environmental sciences on the Macdonald Campus. Community involvement and/or leadership through extracurricular activities is encouraged.

Value: \$10,000. May be renewed for a maximum of two years subject to satisfactory standing and full-time status.

Application: Awarded by the Faculty of Agricultural and Environmental Sciences Scholarships Committee, after department invitation of candidates to apply.

ROTARY CLUB OF MONTREAL INTERNATIONAL AGRICULTURAL AWARD

Established by the Rotary Club of Montreal in 1997 to provide opportunity for international students in agriculture to study at McGill.

Eligibility: Awarded to an international student for graduate level studies at the Macdonald Campus in the area of agriculture and food production. Preference will be given to entering students from Asia, Africa or the Caribbean, who require additional financial assistance and who intend to return to their home country to train others.

Value: \$5,000. Renewable for one year in the M.Sc. program and two years in the Ph.D. program.

Application: By departmental recommendation to the Faculty of Agricultural and Environmental Sciences Scholarships Committee.

WALTER M. STEWART POSTGRADUATE SCHOLARSHIP IN AGRICULTURE

From a fund established by the late Walter M. Stewart.

Eligibility: Awarded annually to students studying at the postgraduate level at Macdonald Campus. Preference will be given to graduates of Quebec universities. If there are insufficient suitable candidates at the postgraduate level in a particular year, funds will be awarded to undergraduate students in the Faculty of Agricultural and Environmental Sciences who have achieved high academic standing.

Application: By departmental recommendation to the Faculty of Agricultural and Environmental Sciences Scholarships Committee.

Value: \$5,000 awards, totalling \$25,000.

5.2.1 Agricultural Economics

LEWIS A. FISCHER MEMORIAL BURSARY IN AGRICULTURAL ECONOMICS

Established through donations in recognition of Dr. Fischer's contributions to the Department of Agricultural Economics from 1959 to 1989.

Eligibility: Awarded to a graduate student in Agricultural Economics, based on academic achievement and financial need. Preference will be given to an international student.

Value: \$1,000.

Deadline: April 1.

Application: By departmental recommendation to the Faculty of Agricultural and Environmental Sciences Scholarships Committee. For more information contact the Department of Agricultural Economics.

SIR VINCENT MEREDITH FELLOWSHIP IN AGRICULTURAL ECONOMICS

Eligibility: Offered to an outstanding student admitted to the graduate program in Agriculture Economics. The recipients of this fellowship may be expected to participate in the teaching program of the department.

Value: \$15,000 (two installments) renewable once on the basis of satisfactory progress.

Deadline: April 1.

Application: Apply to the Program Director (Agricultural Economics) in the Department of Natural Resource Sciences. Entering

graduate students should submit their fellowship application with application for graduate studies.

5.2.2 Animal Science

AJINOMOTO HEARTLAND/HALCHEMIX SCHOLARSHIP

Awarded to a graduate student in animal and poultry science who is conducting research in the field of amino acids in the nutrition of monogastric livestock. Preference will be given to a Ph.D. candidate.

Eligibility: Awarded by the Faculty of Agricultural and Environmental Sciences Scholarships Committee on the recommendation of the Department of Animal Science.

Value: \$500.

5.2.3 Bioresource Engineering

GENERAL ELECTRIC AWARD IN ENVIRONMENTAL ENGINEERING

Established in 1997 by a generous gift from the General Electric Foundation.

Eligibility: Awarded by the GPSO to full-time graduate students in the Environmental Engineering Master's program on the recommendation of the program Advisory Committee.

Value: \$6,000.

5.2.4 Natural Resource Sciences

E. MELVILLE DUORTE AWARD

Established by an endowment to honour the late E. Melville DuPorte, B.S.A., S.Sc., Ph.D., and D.Sc., long-time Professor of Entomology at Macdonald College and a respected leader and researcher.

Eligibility: Awarded to a student demonstrating excellence in the first year of graduate studies in Entomology in the Department of Natural Resource Sciences.

Value: \$500.

Application: By departmental recommendation to the Faculty of Agricultural and Environmental Sciences Scholarships Committee.

MARGARET DUORTE FELLOWSHIPS

Established by a bequest of the late Margaret DuPorte, B.Sc.(Agr.) 1936.

Eligibility: Awarded to students in the M.Sc. or Ph.D. programs in the Department of Natural Resource Sciences for graduate studies in Entomology.

Value: Two awards of \$8,000 each.

Application: By departmental recommendation to the Faculty of Agricultural and Environmental Sciences Scholarships Committee.

TOMLINSON CENTENNIAL FELLOWSHIP IN FOREST ECOLOGY

Established in 2006 by Dr. Richard Tomlinson in honour of Macdonald Campus' hundredth anniversary and the long career in forest research of his brother, Dr. George Tomlinson. Awarded to an outstanding graduate student working in the area of forest ecology in the Department of Natural Resource Sciences. Awarded on the basis of academic merit by the Graduate and Postdoctoral Studies Office on the recommendation of the Scholarships Committee of the Faculty of Agricultural and Environmental Sciences.

Estimated Value: \$15,000; renewable once at the Master's level, twice at the Doctoral level.

5.2.5 Parasitology

AMY WONG BIOTECHNOLOGY AWARD

黃辛炯僖夫人生物技術獎

Established in 1998 by a generous gift from a McGill graduate of Chemical Engineering (Class of 1959) from Hong Kong.

Eligibility: Awarded by the Institute of Parasitology to a qualified student from China, including Hong Kong, who is an outstanding

student entering the Biotechnology Graduate Certificate Program or M.Sc. (A) in Biotechnology, renewable once at the Master's level. Preference will be given to students entering at the certificate level. The recipients are expected to return to their home country after the completion of their studies.

Estimated value: \$9,500.

LYNDEN LAIRD LYSTER MEMORIAL FELLOWSHIP IN PARASITOLOGY

The award was established in 1972 by Arthur J. Lyster to be awarded to an undergraduate student in the Faculty of Agricultural and Environmental Sciences who has demonstrated excellence in Parasitology courses offered by the Faculty. The award may be granted to an in-course student or to a graduating student.

Eligibility: Awarded by the fellowships committee of the Institute of Parasitology to new applicants for graduate studies in parasitology who are nominated by the academic staff of the Institute. The fellowship will be awarded on the basis of strong academic standing and financial need. With other considerations being equal, preference will be given to candidates from (a) the Eastern Townships; (b) the Province of Quebec; and (c) Canada in that order. Should there be no suitable candidate from Canada, the award will be open to any resident of the British Commonwealth or suitable person.

Value: \$14,000.

ROBERT P. HARPUR FELLOWSHIP IN PARASITOLOGY

Established in 2005 by bequest from Robert P. Harpur, M.Sc. 1947, Ph.D. 1949, a former faculty member at the Institute of Parasitology. Awarded by the Graduate and Postdoctoral Studies Office, upon recommendation from the fellowships committee of the Institute of Parasitology in the Faculty of Agricultural and Environmental Sciences, to a newly admitted student for graduate studies in Parasitology. The Fellowship will be awarded on the basis of academic excellence and research potential.

Value: Minimum \$11,000 plus a mandatory contribution from the supervisor's research funds to provide a minimum annual income of \$16,000. Renewable once at the Master's level and twice at the Doctoral level.

5.2.6 Plant Science

CASPER W. OWEN FELLOWSHIP

Eligibility: Graduate students, both M.Sc. and Ph.D. level, enrolled or planning to enrol in Plant Science are eligible for this award but preference will be given to entering students. Applicants should have outstanding academic records or equivalent research experience.

Value: \$10,000 (two instalments); renewable once. The department will ensure that the holder of the fellowship has an academic income of at least \$16,000.

Application: Apply to the Department of Plant Science. Entering graduate students should submit their fellowship application with application for graduate studies.

FREDERICK DIMMOCK MEMORIAL FELLOWSHIP

Established in 1988 by an endowment in memory of the late Frederick Dimmock, a graduate of Macdonald College (1923).

Eligibility: Awarded annually by the Plant Science Department to a postgraduate student pursuing an aspect of research on grain crops.

Value: Approximately \$4,000.

Application: By departmental recommendation to the Faculty of Agricultural and Environmental Sciences Scholarships Committee.

PLANT SCIENCE POSTGRADUATE AWARD

This memorial award was established by the family and friends of the late Robert Klinck, a former student.

Eligibility: Awarded to a student who has successfully completed at least one year of post-graduate studies in the Department of Plant Science and who has demonstrated good citizenship in the Department.

Value: Approximately \$1,200.

Application: By departmental recommendation to the Faculty of Agricultural and Environmental Sciences Scholarships Committee.

ROLAND LOISELLE PRIZE IN PLANT GENETICS

Established in 2000 in honor of Roland Loisel (B.Sc. Agr. 1949, M.Sc. 1951).

Eligibility: Awarded by the Department of Plant Science to a graduate student who is conducting research in plant genetics. The award is renewable for one year in an M.Sc. program and two years in a Ph.D. program subject to satisfactory progress reports from the supervisory committee. The recipient must be a citizen or Permanent Resident of Canada.

Application: By departmental recommendation to the Faculty of Agricultural and Environmental Sciences Scholarships Committee.

Value: Minimum \$2,000.

5.3 Arts

ABNER KINGMAN FELLOWSHIPS IN ARTS

Established in 2008 in memory of Abner Kingman, B.A. 1908, to commemorate the 100th anniversary of his convocation. Awarded by the Graduate and Postdoctoral Studies Office to full-time students in a doctoral degree program in Art History, Canadian Studies, Economics, English, History, Philosophy or Political Science. Awarded on the basis of academic merit on the recommendation of the Faculty of Arts. Whenever possible, the Fellowships will be awarded to at least one international student each year.

Estimated value: \$20,000; renewable once.

ARTS AND SCIENCE CLASS OF 1966 AWARD

Established by the Arts and Science Class of 1966 on the occasion of its 25th anniversary of graduation.

Eligibility: Open to graduate students in Arts or Science to pursue research at the Redpath or McCord Museum. Candidates are selected on the basis of academic merit by a committee named by the Deans of Arts and Science.

Value: \$4,000 for one year only.

Application: There are no application procedures. Further information can be obtained from the Offices of the Dean of Arts and Dean of Science, from the Faculty of Arts Website at www.mcgill.ca/arts, or from Josie D'Amico at (514) 398-4215.

GORDON J.A. WHITEHORNE RECRUITMENT FELLOWSHIP

Established in 2001 by the estate of Gordon James Alexander Whitehorne (B.A. 1938) for an outstanding student entering a doctoral program in the Faculty of Arts. Awarded on the basis of academic excellence by the Faculty of Arts.

Value: \$5,000.

HELLER FAMILY FELLOWSHIPS IN ARTS AND SCIENCE

Established in 2007 by William Jacob Heller, B.Com. 1978 for outstanding doctoral students in the Faculty of Arts and the Faculty of Science. Awarded by the Graduate and Postdoctoral Studies Office upon the recommendation of the faculties of Arts and Science.

Value: \$10,000 each; renewable twice.

MCCALL MACBAIN FELLOWS

Established in 2007 through a generous gift from John McCall MacBain, B.A. 1980 and Marcy McCall MacBain. Awarded by the Graduate and Postdoctoral Studies Office on the recommendation of the Faculty of Arts to outstanding graduate students in any graduate degree program in the Faculty.

Value: \$15,000 per year.

MCCALL MACBAIN FELLOWSHIPS IN ARTS

Established in 2007 through a generous gift from John McCall MacBain, B.A. 1980 and Marcy McCall MacBain. Awarded by the Graduate and Postdoctoral Studies Office on the recommendation of the Faculty of Arts to outstanding graduate students in any graduate degree program in the Faculty.

Estimated Value: Amounts vary depending on the funding situation of the candidate.

MR. AND MRS. JOHNSON NG WAI YEE FELLOWSHIP

Eligibility: Established in 2003 by the Ng Family Trust in honour of Mr. and Mrs. Johnson Ng Wai Yee for an outstanding student from a developing country. Awarded by the Faculty of Arts Fellowships Committee on the basis of academic merit to a student, subject to international fees and from a developing country, who is entering the first year of a Master's or Ph.D. program in the social sciences in the Faculty of Arts.

Value: Minimum \$10,000; renewable.

SAUL AND FREDA FRANKEL PRIZE

Established in 2000 by Professor Saul Frankel (B.A., M.A., Ph.D. McGill), McGill professor in the Departments of Economics and Political Science from 1952 to 1969. Awarded to a graduating Honours or first-year M.A. student for an outstanding research paper on a topic in the 'history of ideas'. Awarded by the Faculty of Arts Scholarships Committee upon recommendation from an adjudicating committee.

Value: \$1,000.

5.3.1 Anthropology

BRUCE AND BARBARA TRIGGER GRADUATE PRIZE IN ARCHAEOLOGY

Established in 2007 in memory of Professor Bruce G. Trigger, McGill archaeologist, and his wife Dr. Barbara M. Welch (Trigger), geographer.

Eligibility: Awarded by the Department of Anthropology to one or more outstanding students in any graduate degree program who are pursuing archaeological fieldwork.

Value: Up to two awards of not less than \$2,000 each.

RICHARD F. SALISBURY PRIZE IN ANTHROPOLOGY

In memory of Dean Richard Salisbury, founder of the McGill Department of Anthropology and colleague and teacher from 1962 to 1989.

Eligibility: Awarded by the Department of Anthropology for the best thesis of the year in Anthropology either at the M.A. or the Ph.D. level.

Value: \$200.

5.3.2 Art History and Communication Studies

BRAM GARBER FELLOWSHIP IN ART HISTORY

Established in 1988 in honour of Bram Garber, this tribute to a well known and respected member of the Canadian business community was provided by the generous gifts of family and friends.

Eligibility: Students pursuing graduate studies in Art History at McGill, Faculty of Arts are eligible.

Value: \$4,000.

Application: Awarded by the Graduate and Postdoctoral Studies Office upon the recommendation of the Department of Art History and Communication Studies.

JEAN DE GRANDPRÉ PRIZE

Established by the Chancellor of McGill University, Jean de Grandpré; the Chrysler Corporation and Bell Canada.

Eligibility: Awarded by the Department of Art History and Communication Studies to a graduate student in Communications who has done outstanding work in the field.

Value: \$500.

MCGILL- CANADIAN CENTRE FOR ARCHITECTURE COLLECTION RESEARCH GRANTS PROGRAM

Established in 2006 through a partnership with the Department of Art History and Communication Studies and the Canadian Centre for Architecture, we can offer up to four one-month fellowships to cover research in the CCA's extensive holdings. To learn more about their holdings, visit their Website at <http://cca.qc.ca>.

Eligibility: Doctoral students in Art History or Communication Studies who have passed their comprehensive exams (Art History) or passed their prospectus (Communication Studies).

Stipend: \$2000 per month for up to four months

Residency: Fellows will be expected to work full-time on their research at the CCA during the period of their fellowship. The CCA will provide the student with access to their collections and staff, and space to conduct their work. Each year the department will offer up to a total of \$8000 in grant money.

5.3.3 Classics

MCAUGHTON FELLOWSHIPS IN CLASSICS

Eligibility: Awarded annually, on the basis of merit, promise and need, to students in their first year of the M.A. or Ph.D. program in Classics. These awards may be renewed for a second year at the discretion of the Department of History.

Value: Two awards, \$2,000 each.

Deadline: None.

Application: None: on the basis of the candidate's application for graduate studies.

5.3.4 East Asian Studies

CANADIAN CHINESE CULTURAL SOCIETY OF MONTREAL INC. SCHOLARSHIP

Eligibility: Founded in 1969, the Canadian Chinese Cultural Society of Montreal Inc. offers an annual scholarship to an undergraduate or graduate student majoring in Chinese Studies. Candidates must be Canadian citizens able to demonstrate financial need and registered as full time students in the third or fourth year of undergraduate studies or in a graduate program.

Value: \$1,000.

Deadline: April 30.

Application: Applications must be sent to the Scholarship Committee of the Society each year in order to be eligible for consideration for the award for the following academic year. The address is: Canadian Chinese Cultural Society of Montreal Inc., Suite 707, 1117 Ste. Catherine Street W., Montreal, Quebec, H3B 1H9. Each applicant should indicate his/her field of studies and plans for the future, as well as a need for financial assistance. The scholarship will be awarded at an official function of the Society during the month of September.

PAUL HSIANG GRADUATE FELLOWSHIP IN CHINESE POETRY AND LITERATURE

Established by the endowment of the late Professor Paul Hsiang to support scholarly research in traditional Chinese poetry, poetics and literature. Awarded by the Graduate and Postdoctoral Studies Office upon the recommendation of the Department of East Asian Studies, on the basis of academic merit.

Estimated value: \$15,000; renewable once at the Master's level and twice at the Doctoral level.

PROFESSOR PAUL T.K. LIN FELLOWSHIP

Eligibility: Established in 2003 by an anonymous gift in honour of Professor Paul T.K. Lin, the first Director of the Centre for East Asian Studies at McGill. Awarded by the Faculty of Arts on the recommendation of the Department of East Asian Studies to a student entering the Department's Master's or Ph.D. program. Preference shall be given to students from the People's Republic of China.

Value: Estimated \$5,000; renewable.

5.3.5 Economics**ALLEN OLIVER FELLOWSHIPS IN ECONOMICS AND POLITICAL SCIENCE**

Established by Mrs. Frank Oliver, of Edmonton Alta, in proud and loving memory of her son, the late Allen Oliver, M.C., B.A. Lieutenant, 26th Battery, C.F.A., who was killed in action at the Somme on November 18, 1916. Lieutenant Oliver was an honours graduate in 1915 in the Department of Economics and Political Science.

Eligibility: Awarded to the student who stands highest in first class honours in the Departments of Economics and Political Science at the final B.A. examination. The holder is required to pursue studies in Economics and Political Science at McGill or elsewhere.

Value: Two awards of \$2,500 (one in political science; one in economics).

Application: Awarded by Faculty of Arts on the recommendation of the departments of Economics and Political Science.

MIRIAM AND PHILIP VINEBERG GRADUATE FELLOWSHIP IN ECONOMICS

Eligibility: Established by Philip Vineberg for the purpose of enabling a student of academic distinction to pursue studies towards a graduate degree in Economics at McGill University.

Value: \$1,200; renewable for a second year subject to high academic performance.

Application: Awarded by the Department of Economics.

NATHAN BRECHER FELLOWSHIP IN ECONOMICS AND POLITICAL SCIENCE

Founded by a bequest of the late Nathan Brecher for the purpose of enabling a student of academic distinction in Economics or Political Science to pursue studies towards a graduate degree at McGill University.

Value: Up to \$3,500.

Application: Awarded by the GPSO on the recommendation of the departments of Economics and Political Science.

5.3.6 English and Comparative Literature**HUGH MACLENNAN FELLOWSHIP FOR THE STUDY OF ENGLISH**

Established in 1993 from the estate of Hugh MacLennan.

Eligibility: Awarded by the GPSO to students in the Faculty of Arts, with preference being given to the study of English, on the recommendation of the department. No citizenship restrictions.

Value: \$20,000; renewable.

MARY KEENAN SCHOLARSHIP IN ENGLISH

Eligibility: Awarded by the Department of English to a student proceeding at McGill from the B.A. to the M.A. in English.

Value: \$500.

SLAVA KLIMA PRIZE FOR EXCELLENCE IN ENGLISH LITERARY STUDIES

Established in 2002 by a bequest from Slava Klima, former professor of English Literature.

Eligibility: Awarded by the Department of English to an outstanding doctoral student in literature.

Value: Minimum \$1,250.

5.3.7 German Studies**DEUTSCHE GESELLSCHAFT ZU MONTREAL SCHOLARSHIP**

Eligibility: Canadian citizen or Permanent Resident pursuing graduate studies in German language and literature, including German Canadian studies.

Value: \$2,000.

Application: Awarded by the Department of German Studies.

HANS AND EUGENIA JÜTTING FELLOWSHIP

Established in 2000 by Hans Jütting and Eugenia Jütting, friends of McGill University.

Eligibility: Awarded to a meritorious student in German Studies.

Value: Two awards of \$4,000 each.

Application: Awarded by the Department of German Studies.

5.3.8 History**DAISY A. LATIMER MEMORIAL PRIZE IN HISTORY**

Established in 1987 in memory of Daisy Latimer (B.A. 1971) by her devoted friend and former husband, Michael P. Paidoussis, and a few of her closest friends.

Eligibility: Awarded by the Department of History to the student completing the best M.A. thesis in History, preferably in European or Latin American History, proceeding to doctoral studies at McGill or at another distinguished university. A fine literary style in the thesis is a necessary co-requisite for this award.

Value: \$1,500.

LOUISE DECHENE PRIZE IN CANADIAN HISTORY

Established in 2006 in honour of Louise Dechene, an outstanding scholar whose work changed the landscape of early Canadian history and inspired several generations of historians. Louise Dechene directed graduate students in early Canadian fields ranging from economic history to native history.

Eligibility: Awarded by the Department of History to an M.A. or Ph.D. student whose research is in the area of early Canadian history.

MCNAUGHTON FELLOWSHIPS IN CLASSICS

Eligibility: Awarded annually, on the basis of merit, promise and need, to students in their first year of the M.A. or Ph.D. program in Classics. These awards may be renewed for a second year at the discretion of the Department of History.

Value: Two awards, \$2,000 each.

Deadline: None.

Application: None: on the basis of the candidate's application for graduate studies.

PAUL F. MCCULLAGH AWARD

Established by Emeritus Professor Paul F. McCullagh, who taught Classics at McGill from 1926-1988, for a student pursuing graduate work in the study of Latin language and literature or Ancient Greek language and literature. Awarded by the GPSO on the recommendation of the Classics program.

Estimated value: \$4,000.

PETER CUNDILL FELLOWSHIPS IN HISTORY

Established in 2007 by Peter Cundill, B.Com. 1960 for outstanding graduate students entering a doctoral program in the Department of History, Faculty of Arts. Awarded by the Graduate and Postdoctoral Studies Office on the recommendation of the Faculty of Arts.

Estimated Value: \$25,000; renewable twice.

ROBERT VOGEL MEMORIAL AWARD IN HISTORY

Established in memory of Robert Vogel, an inspiring teacher, historian, former Chair of the Department of History and former Dean of the Faculty of Arts.

Eligibility: Awarded by the Department of History to the most promising student entering either the M.A. or Ph.D. program, whose focus of research is European history, broadly defined.

Value: Minimum \$1,000.

THE FOUNDATION FOR THE ADVANCEMENT OF PROTESTANT EDUCATION GRADUATE FELLOWSHIP IN HISTORY

Established in 2002 by The Foundation for the Advancement of Protestant Education for an outstanding graduate student in the Department of History.

Eligibility: Awarded by the Department of History to graduate students in History on the basis of academic excellence and outstanding research potential. Preference shall be given to students researching the history of Protestant education in the province of Quebec.

Value: Minimum \$7,500.

T. PALMER HOWARD, QC AWARD IN CANADIAN HISTORY

Established in 1990 by the Pan-Canada Foundation to honour T. Palmer Howard, QC, B.A.(1931), B.C.L.(1934), in recognition of his interest in the research and writing of Canadian history.

Eligibility: Awarded by the History Department to a leading candidate entering the M.A. or Ph.D. program in Canadian history at McGill.

Value: \$2,000.

5.3.9 Islamic Studies**CEDRIK GODDARD MEMORIAL AWARD IN ISLAMIC STUDIES**

Established in 2001 by Thomas Albert and Ragna Tischler Goddard, relatives, and friends in memory of Cedrik Christopher Goddard (M.A. 1999). Awarded by the Institute of Islamic Studies in recognition for creativity and academic merit to a graduate student in Islamic Studies.

Value: Minimum \$500.

INGRID SEMAAN PRIZE

Established by Professor Khalil I. Semaan in honour of his daughter, a McGill/SUNY student and a class of 1990 graduate in Sociology.

Eligibility: Awarded by the Institute of Islamic Studies to the student with the most outstanding thesis, essay or term paper that explores the contribution of women to Arabic culture.

Value: \$100.

J. JEFFERY SEMAAN PRIZE

Established in 1989 by Dr. Khalil Semaan in honour of his son, a McGill graduate in medicine.

Eligibility: Awarded to the student demonstrating the greatest accomplishment in first or second-year Arabic. Open to both graduate and undergraduate students.

Value: \$100.

Application: The award will be made on the recommendation of the Director of the Institute of Islamic Studies if the recipient is a graduate student or by the Faculty of Arts if the recipient is an undergraduate student.

5.3.10 Italian Studies**ANNE DUDLEY NOAD AWARD**

Established in 1983 in memory of Anne Dudley Noad, a long-time teacher of evening courses in Italian.

Eligibility: On the basis of academic standing, awarded by the Department of Italian Studies to a student entering a graduate program in Italian.

Value: \$300.

ANTONIO D'ANDREA MEMORIAL FUND

Established in 1999 in memory of Professor Antonio D'Andrea, Professor Emeritus, Department of Italian Studies.

Eligibility: Awarded by the Department of Italian Studies to provide financial support to graduate students of the Department to attend scholarly conferences.

Value: \$500.

5.3.11 Jewish Studies**MORTON AND BERNICE BROWNSTEIN FELLOWSHIP IN JEWISH STUDIES**

Established in 1999 by Morton and Bernice Brownstein, this fellowship will be awarded by the Department of Jewish Studies to a graduate student or a postdoctoral candidate in the Department of Jewish Studies

Value: \$10,000.

5.3.12 Langue et littérature françaises**BOURSE D'EXCELLENCE EN LANGUE ET LITTÉRATURE FRANÇAISES GENEVIÈVE DE LA TOUR FONDUE**

Créée en 2001 par la succession de Geneviève de La Tour Fondue à l'intention d'un étudiant de maîtrise ou de doctorat du Département de langue et littérature françaises. Décernée par le Département de langue et littérature françaises en reconnaissance de l'excellence du dossier universitaire.

Valeur: Minimum \$6,000.

ISABEL BILLINGSLEY PRIZE IN FRENCH STUDIES

Établi par Andrew Billingsley, B.Sc. 1960, en mémoire de sa mère, Isabel Billingsley (née Rowat), B.A. 1930, qui, pendant son séjour à McGill, a été présidente de la classe du Royal Victoria College de 1929 à 1930 et a reçu une bourse de l'Alliance française qui lui a permis d'aller étudier à la Sorbonne la même année.

Eligibility: Remis chaque année par le Département de langue et littérature françaises pour le meilleur mémoire de maîtrise.

Value: Minimum \$1,000.

5.3.13 Linguistics**CREMONA MEMORIAL FELLOWSHIP IN LINGUISTICS**

Established in 2002 by a bequest from Isida Bernardinis Cremona, B.A. 1965, M.A. 1967.

Eligibility: Awarded by the Department of Linguistics to an outstanding graduate student registered in the Ph.D. or M.A. program in Linguistics.

Value: Minimum \$6,000.

LARA RIENTE MEMORIAL PRIZE IN LINGUISTICS

Established in 2002 by family, friends, fellow students, professors and the Jewish Rehabilitation Hospital Foundation in memory of Lara Riente, B.A. 1992, M.A. 2001. Lara was a gifted graduate of the Department of Linguistics whose sudden and tragic death was mourned by all who knew her.

Eligibility: Awarded by the Faculty of Arts Scholarships committee on the recommendation of the Department of Linguistics on the basis of high academic standing to a graduate or an undergraduate student enrolled in a full-time degree program in Linguistics. Preference shall be given to students in Neurolinguistics and/or Morphology.

Value: Minimum \$500.

5.3.14 McGill Centre for Research and Teaching on Women**SHREE MULAY GRADUATE AWARD IN GENDER AND WOMEN'S STUDIES**

Established in 2007 through the generous donations of friends of the McGill Centre for Research and Teaching on Women (MCRTW) to recognize Dr. Mulay's eleven years of dedicated service as Director of the Centre. Awarded by the MCRTW on recommendation of the Women's Studies Committee to a graduate student who is enrolling in the Graduate Option in Gender and Women's Studies and exemplifies excellence in scholarship in gender and/or women's studies.

Estimated Value: \$5,000.

Application Deadline: March 1st.

5.3.15 Philosophy

DAVID FATE NORTON AND MARY J. NORTON FELLOWSHIP IN PHILOSOPHY

Eligibility: Established in 2001 by David Fate Norton and Mary J. Norton to assist a graduate student working full-time on a Ph.D. thesis in Philosophy. Awarded on the basis of academic merit by the Department of Philosophy in the Faculty of Arts. Preference will be given to a student who will complete her or his dissertation in the coming academic year. Recipients must agree not to accept paid or unpaid employment (including any form of teaching, tutoring, grading of papers or research for another party) during tenure of the Fellowship.

Value: Minimum \$5,000 for one term; re-application is permitted.

DOW-HICKSON FELLOWSHIP IN THEORETICAL PHILOSOPHY

Endowed by the late Professor J.W.A. Hickson.

Eligibility: Tenable by a graduate of any approved university proceeding to a higher degree in Theoretical Philosophy (Metaphysics, Epistemology, Logic, History of Philosophy) at McGill.

Value: Maximum value \$10,000 (awards of lesser value may be made in certain cases). The holder may apply for a second year of tenure.

Application: Awarded by the Department of Philosophy.

GUY DESAUTELS MEMORIAL PRIZE

Value: A prize established by the friends and colleagues of the late Guy Desautels.

Application: Awarded by the Department of Philosophy to a graduate student who has done outstanding work in the history of philosophy.

RAYMOND KLIBANSKY PRIZE IN PHILOSOPHY

Established in 2006 through a bequest by Raymond Klibansky, Emeritus Professor of Philosophy. Professor Klibansky was born in Paris in 1905 and received his doctoral degree from Heidelberg in 1928. He was a distinguished scholar and philosopher at McGill University since 1946 and a long-serving Chair of the department. He was one of the leading figures in philosophy in the 20th century.

Eligibility: Awarded by the Department of Philosophy, Faculty of Arts, to the graduate student who defends the best doctoral thesis in the field of history of philosophy.

Estimated value: \$1,350.

5.3.16 Political Science

ALEXANDER MACKENZIE FELLOWSHIP IN POLITICAL SCIENCE

Eligibility: Tenable by a graduate of any accredited university, conditional upon acceptance by the GPSO in the field of Political Science. A certain amount of tutorial and teaching work is required.

Value: One award of \$5,000 and one of \$3,000, possible renewal.

Application: No application is required.

ALLEN OLIVER FELLOWSHIPS IN ECONOMICS AND POLITICAL SCIENCE

Established by Mrs. Frank Oliver, of Edmonton Alta, in proud and loving memory of her son, the late Allen Oliver, M.C., B.A. Lieutenant, 26th Battery, C.F.A., who was killed in action at the Somme on November 18, 1916. Lieutenant Oliver was an honours graduate in 1915 in the Department of Economics and Political Science.

Eligibility: Awarded to the student who stands highest in first class honours in the Departments of Economics and Political Science at the final B.A. examination. The holder is required to pursue studies in Economics and Political Science at McGill or elsewhere.

Value: Two awards of \$2,500 (one in political science; one in economics).

Application: Awarded by Faculty of Arts on the recommendation of the departments of Economics and Political Science.

DALE C. THOMSON PRIZE IN POLITICAL SCIENCE

Established in 2001 by Lizanne Ryan Thomson in loving memory of her husband Dale C. Thomson, a long-standing and dedicated professor at McGill University. Awarded by the Department of Political Science to an outstanding doctoral student. Preference shall be given to students studying in the field of Canadian Politics.

Value: Minimum \$1,000.

GUY DRUMMOND FELLOWSHIP IN POLITICAL SCIENCE

Eligibility: Originally endowed by the late Guy M. Drummond, killed in action in 1915, to encourage study in France. Recipients are nominated by the Department of Political Science, with preference to graduating honours students, on the basis of: academic record, likelihood of valuable future contribution to Canadian life and proficiency in French, among other things. Fellowships are tenable for study at an approved University or institute in Paris. One year fellowships may also be offered as entrance awards to Masters or Ph.D. students in political science intending to carry out graduate work related to France, or for continuing students to support a year in France as part of the graduate program.

Value: \$21,000 for up to 2 years, including \$8,500 for one year of study at McGill and \$12,500 for one year of study in Paris. One year fellowships may also be offered.

Application: Awarded by the Faculty of Arts on the recommendation of the Department of Political Science.

JAMES R. AND FRANCES K. MALLORY GRADUATE AWARD

Established in 2005 by Charles Mallory, B.Com. '70, and James Mallory, B.A. '66, in honour of their father, the late James R. Mallory, Angus Professor of Political Science and pioneer of Canadian Studies at McGill, and mother Frances K. Mallory.

Eligibility: Awarded by the Department of Political Science to an entering graduate student with outstanding academic credentials who intends to pursue studies on topics related to Canada.

Value: \$3,000 non-renewable.

NATHAN BRECHER FELLOWSHIP IN ECONOMICS AND POLITICAL SCIENCE

Founded by a bequest of the late Nathan Brecher for the purpose of enabling a student of academic distinction in Economics or Political Science to pursue studies towards a graduate degree at McGill University.

Value: Up to \$3,500.

Application: Awarded by the GPSO on the recommendation of the departments of Economics and Political Science.

NATHAN STEINBERG FELLOWSHIP IN POLITICAL SCIENCE

Established in 1994 by a gift from the Nathan Steinberg Family Foundation.

Eligibility: Awarded by the Faculty of Arts to graduate students in the Department of Political Science.

Value: \$15,000, renewable once.

Application: Students to be nominated by the Department of Political Science.

5.3.17 Social Studies of Medicine

MARGARET LOCK PRIZE IN SOCIAL STUDIES OF MEDICINE

Established in 2005 by Dr. Margaret Lock for graduate students who have completed at least one year of studies in the Department of Social Studies of Medicine.

Eligibility: Awarded by the Faculty of Medicine Scholarships Committee upon recommendation from the Department of Social Studies of Medicine to an outstanding student who demonstrates high academic standing in either the Medical Anthropology or Medical Sociology program.

Estimated value: \$500.

5.3.18 Social Work**ENTRANCE FELLOWSHIPS:****ESTHER KERRY AWARDS**

Established by the Alumni Committee of the School of Social Work to honour Esther Kerry, a valuable member of the Committee for many years.

Eligibility: Awarded to students who wish to pursue graduate studies in Social Work.

Value: Varies.

HAZELDINE SMITH BISHOP FELLOWSHIP

Established in 1998 by a bequest from Hazeldine Smith Bishop who received a diploma from the Montreal School of Social Work in 1944.

Eligibility: Awarded by the School of Social Work, on the basis of academic standing, to graduate students pursuing studies in community development and administration.

Value: Varies.

HENRY OELBERG MEMORIAL AWARD

Created in memory of lifelong Jewish Community Foundation of Montreal colleague and friend, Henry Oelberg.

Eligibility: Awarded to a graduate student in the School of Social Work based on academic merit. Preference will be given to a student with a focus on community organization.

Value: Varies.

KEEFER FELLOWSHIP

Established by Mr. George Keefer.

Eligibility: Tenable by a student in Social Work who wishes to pursue graduate studies in social work practice related to the elderly.

Value: Varies.

MANNY WEINER RESEARCH AWARD

Established by Mr. Manny Weiner.

Eligibility: Awarded by the School of Social Work to a graduate student who is concentrating their studies in the field of social policy.

Value: Varies.

MARGARET GRIFFITHS AWARD IN CHILD WELFARE

Established in 1994 through a bequest from Professor Margaret Griffiths, a long-time member of the faculty of the McGill School of Social Work.

Eligibility: Awarded annually by the School of Social Work on the basis of academic and professional merit to an incoming full-time student in the Master of Social Work program, with a declared interest in services to children.

Value: Varies.

MARGARET MARY BURNS AWARD

Established in 1997 by a bequest from Margaret Mary Burns who received a Diploma from the Montreal School of Social Work in 1944.

Eligibility: Awarded on the basis of academic standing to graduate students by the School of Social Work.

Value: Maximum Varies.

MARK AND MILDRED GOLDENBERG FELLOWSHIP IN SOCIAL WORK

Established through a bequest in 2007 in memory of Mildred Heller Goldenberg, B.A. 1941, M.A. 1942, and Mark E. Goldenberg, B.A. 1934, M.S.W. 1967, Awarded by the School of Social Work on the basis of academic merit to a student entering a Doctoral program in social work.

Estimated Value: Varies.

MIRIAM AND E. MICHAEL BERGER FELLOWSHIP

Eligibility: Awarded annually by the School of Social Work to a graduate student of the School whose area of practice or research is in the field of community organization and/or social policy and who demonstrates academic competence and financial need.

Value: Varies.

MYER KATZ FELLOWSHIP IN SOCIAL WORK

Established in 1986 by contributions from former students, colleagues and friends, the School of Social Work Alumni Committee, and the McGill Advancement Program, on the occasion of the retirement of Professor Myer Katz from the Directorship of the School of Social Work.

Eligibility: Awarded annually to a student pursuing graduate studies related to clinical social work practice.

Value: Varies.

PROJECT AWARDS:**FREDA L. PALTIEL AWARD FOR IMMIGRANT AND MINORITY WOMEN'S HEALTH AND DEVELOPMENT**

Eligibility: For students or faculty of the McGill School of Social Work to undertake a research service or demonstration project concerned with the health needs of immigrant and visible minority women and their families. Preference will be given to projects undertaken with the involvement of the intended beneficiaries.

Value: Varies

Application: Apply to the Director of the School of Social Work

JOAN MACFARLANE BAILIN RESEARCH AWARD

The Award was established by Joan Macfarlane Bailin, a graduate of the McGill School of Social Work, to recognize and promote academic achievement by students in the School of Social Work. The Award will permit student to undertake activities (action research, projects, service demonstration projects, and seminars) relating to Aging and/or the aged.

Eligibility: Applicants must have completed one full year of study in the McGill School of Social Work. Preference will be given to submissions concerned with self-help, volunteerism and non-traditional and/or innovative work settings.

Value: \$1000

Application: Apply to the Director of the School of Social Work by December 31st. Applications must include the proposed activity in detail, a budget for the use of the funds, and the relevance of the activity to self-help, volunteerism and non-traditional and/or innovative work settings. The money cannot be used for salaries. The award winner will be required to submit a report to the Director of the School of Social Work upon completion of the project, as well as a short précis that may be included in School newsletters and/or other communications.

GRADUATION PRIZES:**LOTTE MARCUS SHELDON PRIZE**

Established in 2000 by a bequest from Lotte Marcus Sheldon, a former faculty member of the School of Social Work. Awarded annually by the School to a graduate student in Social Work who has generated a particularly innovative research or service project.

Value: Minimum \$500

SCHOOL OF SOCIAL WORK ALUMNI PRIZES

The Alumni Committee of the School makes three awards each year to graduating MSW students:

- 1) Alumni Prize for the Outstanding MSW Thesis
- 2) Alumni Award for Excellence in Clinical Practice
- 3) Alumni Prize for the Outstanding MSW Independent Study Project

Value: \$400 each.

5.3.19 Sociology

OSWALD HALL DISSERTATION FELLOWSHIP IN SOCIOLOGY

Established in 2005 through a donation from Oswald Hall, M.A. 1937 (University of Toronto Professor Emeritus and former Professor of McGill University from 1946 to 1955).

Eligibility: Awarded in alternate years by the Office of Graduate and Postdoctoral Studies upon recommendation of the Department of Sociology to a student who has completed the other requirements of his/her doctoral degree and has begun writing his/her doctoral thesis.

Value: \$10,000; non-renewable.

OSWALD HALL PRIZE

Established in 1992 in honour of Oswald Hall, Professor Emeritus at the University of Toronto, who obtained his M.A. in Sociology from McGill and taught here between 1946 and 1955. The prize has been endowed by donations, in particular royalties from the book "The Sociology of Work: Papers in Honour of Oswald Hall", donated by the book's editor, Professor Audrey Wipper of the University of Waterloo.

Eligibility: Awarded by the Department of Sociology to the best graduate student in the first year of studies.

Value: \$350.

SAMUEL LAPITSKY SCHOLARSHIP

Eligibility: To be awarded on the recommendation of the Departments of Sociology or Anthropology (each in alternate years).

Value: To aid with tuition fees.

Deadline: February 1.

Application: Apply to the Departments of Sociology in even years, or Anthropology in odd years.

5.4 Dentistry

DR. AND MRS. I.N. PESNER MEMORIAL PRIZE

Established in 2001 by a bequest from Dr. Isidore N. Pesner, D.D.S. 1920, and Mrs. I.N. Pesner, to fund a graduate student prize in the Faculty of Dentistry. Awarded by the Faculty of Dentistry to an outstanding graduate student already in a residency or post graduate program, who will be presenting a paper at a national or international scientific meeting.

Value: Minimum \$500.

DR. E.T. & MRS. MARJORIE BOURKE AWARD

Established by a bequest from Marjorie Bourke in memory of her husband, Dr. E.T. Bourke, DDS, class of 1923.

Eligibility: Awarded by the Faculty of Dentistry to a student pursuing graduate studies in dentistry.

Value: Minimum \$1,800.

DR. LYON BERCOVITCH MEMORIAL AWARD

Established by a bequest from Olga Bercovitch in memory of her husband, Dr. Lyon Bercovitch, D.D.S., class of 1914.

Eligibility: Awarded by the Faculty of Dentistry to a student pursuing graduate studies in dentistry.

Value: Minimum \$1,800.

DR. SOO KIM LAN PRIZE IN DENTISTRY

蘇金蘭醫生獎學金

Established in 2000 by Arthur Lau, B.Arch 1962 and Crystal S.C. Lau, B.Sc. 1962, M.Sc. 1964, for graduate students in the Faculty of Dentistry to an outstanding graduating student who is entering a Residency or Post Graduate Program,

Value: Minimum \$500.

DR. WAH LEUNG FELLOWSHIP

梁甦華牙醫獎學金

Established in 1998 by a generous gift from a McGill graduate of Chemical Engineering (Class of 1959), from Hong Kong, in honour of Dr. Wah Leung, the first Dean of Dentistry at the University of British Columbia.

Eligibility: Awarded by the Faculty of Dentistry to an entering postdoctoral, doctoral or master's student in the Faculty of Dentistry who is working in pain, oral cancer or bone tissue research.

Value: Minimum \$20,000. Renewable once at the master's level and twice at the postdoctoral and doctoral levels.

DR. YU-MING LAM FELLOWSHIP

Established in 1999 by a generous gift from Dr. Yu-Ming Lam (DDS 1972) and family in honour of Mr. Yin-Bun Lam.

Eligibility: Awarded by the Faculty of Dentistry to an entering postdoctoral, doctoral or master's student in the Faculty of Dentistry.

Value: \$10,000, tenable for one year.

HONG KONG FELLOWSHIP IN DENTISTRY

Established in 2002 by a generous gift from a McGill graduate from Hong Kong. The fellowship will be awarded to an outstanding student who has graduated from a Chinese university and is entering a Postdoctoral, Ph.D. or M.Sc. program of study in the Faculty of Dentistry. Awarded by the Dean of the Faculty in consultation with the Graduate Studies Committee. In the event that there is no candidate fitting this description, the Dean and Graduate Studies Committee may consider scholars or professors visiting McGill University from a Chinese University. The recipient will be someone who can be expected to make a significant contribution to the advancement of science in their home country after the completion of their studies.

Estimated value: \$20,000.

5.5 Education

DR. GAURI SHANKAR GUHA AWARD IN INTERNATIONAL DEVELOPMENT EDUCATION

Eligibility: Established in 2003 by Dr. Ratna Ghosh in her late father's name for an outstanding graduate student pursuing research in international development education in the Faculty of Education. Awarded on the basis of academic excellence and aptitude for research by the Faculty of Education Awards Committee.

Value: Minimum \$1,000.

ELLEN EDITH GRUBB STANSFIELD AWARD

Established in 2000 by a bequest by Ellen Edith Grubb Stansfield (B.A. 1929, M.A. 1931) in recognition of her experience, leadership and interest in education in general, schools and classrooms in particular. Awarded by the Faculty of Education to an outstanding student entering the first year of a full-time M.A. thesis or Ph.D. program in the Faculty of Education with research in classroom and school contexts.

Value: Minimum \$1,000.

HERSCHEL AND CHRISTINE VICTOR FELLOWSHIP IN EDUCATION

Established in 2000 by Herschel Victor, B.Com. 1944, for an outstanding graduate student in the Faculty of Education.

Eligibility: Awarded by the GPSO upon recommendation by the Faculty of Education, on the basis of academic merit.

Estimated value: \$10,000; renewable.

5.5.1 Educational and Counselling Psychology

JUDY FISH GRADUATE AWARD IN INCLUSIVE EDUCATION

Established in 2004 by Avrum and Dora Morrow in honour of Judy Fish, B.A. 1965, M.Ed. 1982.

Eligibility: Awarded by the Faculty of Education to a student enrolled in a Master's degree in Educational Psychology whose area of study/research is in Inclusive Education. The Graduate Award is based on academic merit, with consideration given to the student's involvement in the community and in extracurricular activities.

Value: Minimum \$2,500.

5.5.2 Integrated Studies in Education

DELTA KAPPA GAMMA - DR. MILDRED BURNS AWARD FOR LEADERSHIP IN EDUCATION

Established in 2001 by the Delta Kappa Gamma Society in honour of Dr. Mildred Burns, a retired associate professor of the Faculty of Education. Awarded by the Faculty of Education Graduate Studies Scholarships Committee to a student upon graduation who has completed an M.A. in Educational Studies leadership option, on the basis of academic excellence. If two or more equally qualified students are identified, preference shall be given to a female student. The student should have two or more years of relevant professional experience in the educational field.

Value: Minimum \$500.

DR. JOHN A. BRYANT MEMORIAL AWARDS

Established by the Butters Foundation in memory of Dr. John A. Bryant (B.Sc. 1949, M.D. 1951).

Eligibility: Awarded annually to graduate students pursuing studies in the integration of students with handicaps into school and society, by the Director of the Integrated Education Graduate Program.

Estimated Value: \$1,000.

GRETTA CHAMBERS FELLOWSHIP IN EDUCATION

Established in 2000 by a generous gift from the Friends of McGill University Inc. of New York to honour Gretta Chambers (B.A. 1947), Chancellor of the University from 1991 to 1999. Awarded to a deserving student in the postgraduate program in the Department of Integrated Studies in Education by the GPSO on the advice of the department with first preference to a U.S. citizen.

Value: \$8,500.

5.5.3 Information Studies

ALBERT TABAH AWARD IN THE MASTER OF LIBRARY AND INFORMATION STUDIES PROGRAM

Established in 2004 by a bequest from Albert Tabah M.L.S. 1980, Ph.D. 1996 and a contribution by the school.

Eligibility: Awarded by the School of Information Studies to the graduating student who obtains the highest standing in the M.L.I.S. program

Value: Minimum \$500.

AZELIE DE LENDRECIE CLARK AWARD

Established in 2001 by a bequest from Azelie de Lendrecie Clark, (M.L.S. 1961). Awarded to an M.L.I.S. student by the School of Information Studies on the basis of academic merit.

Value: Minimum \$2,850.

BARBARA GRAW SMYTHE AWARD IN LIBRARY AND INFORMATION STUDIES

Established in 2003 by William Smythe, B.Eng. 1948, in memory of his wife, Barbara Graw Smythe, B.A. 1946, B.L.S. 1947, to recognize an outstanding student entering the M.L.I.S. program in the School of Information Studies. Awarded by the School.

Value: Minimum \$500.

BERNARD ANDERSON OWER AWARD

Bequeathed by Roma Elizabeth Jane Ower in honour of her late husband, a graduate of the School of Information Studies.

Eligibility: Awarded by the School of Information Studies on the basis of academic achievement.

Value: Minimum \$1,500.

BETA PHI MU SCHOLARSHIPS

Eligibility: Open to a student at the Master's level accepted in a program accredited by the American Library Association.

Value: \$1,500.

Deadline: March 15.

Application: Forms are available on-line at www.beta-phi-mu.org and should be sent to Beta Phi Mu, College of Information Studies, Florida State University, 101 Louis Shores Building, Tallahassee, FL 32306-2100.

CANADIAN LIBRARY ASSOCIATION SCHOLARSHIPS

Eligibility: Three scholarships are available to students in accredited library schools.

Value: Varies.

Application: Information and application forms are available from the Scholarships and Awards Committee c/o CLA/ACB Member Services Dept., Canadian Library Association, 328 Frank Street, Ottawa, Ontario K2P 0X8. See www.cla.org for more details.

CENTENARY PRIZE

Established in 2004 with alumni donations to celebrate one hundred years of library education at McGill University.

Eligibility: Awarded by the School of Information Studies on the basis of academic achievement.

Value: \$3,500.

DR. G.R. LOMER SCHOLARSHIPS

Value: Three scholarships of \$1,300 each are offered annually in honour of the late Dr. G.R. Lomer, former Director of the School.

DR. HERBERT STANLEY BIRKETT AWARD

A gift by Miss Winfred Birkett in honour of her father, Dr. Herbert Stanley Birkett.

Eligibility: To be awarded annually to the student who obtains the highest grade in course GLIS 671.

Value: \$200.

EASTERN CANADA CHAPTER SPECIAL LIBRARIES ASSOCIATION PRIZE

Eligibility: Awarded to the student in M.L.I.S. II who obtains highest standing in course GLIS 638 or equivalent.

Value: Varies.

ELIZABETH G. HALL SCHOLARSHIP FUND

Value: \$1,000 from the fund founded in honour of a former member of the McGill University Library staff.

ETHELWYN M. CROSSLEY SCHOLARSHIP FUND

Value: \$1,000 from the fund founded in honour of a former student of the School.

FINANCIAL ASSISTANCE FOR LIBRARY EDUCATION

American students are advised to see the Awards & Scholarships section of the American Library Association Website (www.ala.org) for information on financial assistance for Library and Information Studies education.

H.W. WILSON FOUNDATION FELLOWSHIP

A grant in the amount of \$10,000 for distribution as scholarship aid in amounts and manner considered appropriate by the School.

JANET AGNEW SCHOLARSHIP

Value: \$1,000 from a bequest of the late Janet M. Agnew, a graduate of and former instructor in the School.

JEAN BROWN SCHOLARSHIP

From a bequest of the late Jean Brown (B.L.S. 1957, M.L.S. 1972).

Eligibility: Awarded to an M.L.I.S. student on the basis of academic merit and financial need.

Value: \$900.

LE PRIX BIBLIOTHÈQUE NATIONALE DU QUÉBEC - CHARLES H. GOULD

Eligibility: Created in 2001 for McGill students enrolled in the M.L.I.S. program. It is awarded to a full-time student to foster research and training, and to encourage the pursuit of excellence. The jury of Le Prix BNQ comprises a representative of the BNQ, a professor and the Director of the School of Information Studies or a designated representative. Final selection is based on the academic record of the candidate as well as the quality of the candidate's written expression in French or English on a topic chosen by the BNQ.

Value: \$5,000

MARGARET DOWNEY PRIZE

Established in 1999 by a bequest from Margaret A. Downey, B.L.S. (1941).

Eligibility: Awarded on the basis of academic merit to an M.L.I.S. student by the School of Information Studies.

Value: Minimum \$500.

MARGERIE TRENHOLME FELLOWSHIP

Established in 2002 through a bequest from Margery W. Trenholme, B.A. 1935, B.L.S. 1946.

Eligibility: Awarded by the School of Information Studies to a graduate student who will be enrolled in one of its programs.

Value: Minimum \$6,500.

MARGERIE TRENHOLME MEMORIAL AWARD IN LIBRARY STUDIES

Established in 2001 through a bequest from Margery Trenholme, (B.A. 1935, L.L.S. 1946), a lifetime friend of libraries and advocate of their place in the community. Awarded to an M.L.I.S. student on the basis of academic merit by the School of Information Studies.

Value: Minimum \$1,000.

MAUT LIBRARIAN'S SECTION AWARD

Established by the McGill Association of University Teachers (MAUT) Librarians' Section.

Eligibility: To be granted to a student admitted to the first year program of the School of Information Studies. Applicants must be presently employed full-time library assistants who will have completed two years' continuous full-time employment with the McGill University Library System.

Value: \$300.

Deadline: March 1.

MIRIAM H. TEES SCHOLARSHIP

Established in 1989 by friends, family, alumni, and colleagues to honour Miriam H. Tees (B.L.S., 1951; M.L.S., 1975), former professor in the School.

Value: \$1,000.

SPECIAL LIBRARIES ASSOCIATION SCHOLARSHIPS

Eligibility: For graduate study leading to a Master's degree at a recognized school of library or information science in the United States or Canada. College graduates or college seniors (citizens of the U.S. or Canada) with an interest in special librarianship are eligible.

Value: Up to three \$6,000 scholarships.

Deadline: By September 30.

Application: Further information and the on-line application may be found under Professional Development, Scholarships & Grants at www.sla.org.

SYRA DEENA TARSHIS FLEISHMAN BURSARY

Founded in 1966 by the National Council of Jewish Women in memory of a former student of the School of Library Science.

Value: \$200.

TERESA TROIDE PRIZE FOR EXCELLENCE IN INFORMATION STUDIES

Established in 2007 by Lars Troide, McGill Professor of English, in memory of his wife, Teresa Troide, MLIS '90, Information Specialist at Canadian National Railways from 1995-2005. Awarded by the School of Information Studies to an outstanding student in the Information Studies program.

Estimated Value: \$2,500.

VIVI MARTIN FELLOWSHIP

Established in 1999 through a bequest from Eleanore Roberta Powell in memory of Vivi Martin (B.A. 1945, B.L.S. 1948).

Eligibility: Awarded to a graduate student who will be enrolled in a program in the School of Information Studies.

Value: Minimum \$5,000.

VIRGINIA MURRAY PRIZE FOR CATALOGUING

Eligibility: Awarded to the student in M.L.I.S. I who obtains the highest grade in course GLIS 607.

Value: Varies.

WENDY PATRICK AWARD

Established by the McGill Medical and Health Libraries Association (MMAHLA) in 1989.

Eligibility: To be awarded annually to the student who has the highest grade in course GLIS 671.

Value: \$150.

5.5.4 Kinesiology and Physical Education**DANIEL Q. MARISI AWARD**

Established in 2005 by Mrs. Roberta Marisi, family, friends, and colleagues in memory of Dr. Daniel Q. Marisi, noted sports psychologist.

Eligibility: Awarded by the Department of Kinesiology and Physical Education to a graduate student (Masters or Doctorate) in Sport or Exercise Psychology, who has been a full-time student for at least one semester of the current year, on the basis of academic merit, conference presentations, and community service in sport and exercise psychology.

Value: \$500.

Application: Submit application form to graduate program coordinator of the Department of Kinesiology and Physical Education by Dec. 1st.

DAVID L. MONTGOMERY MEMORIAL AWARD

Established in 2007 by John Cleghorn, B.Com. 1962 and Pattie Cleghorn, Dip.Ed. 1962 as well as family, friends, colleagues, and former students in memory of noted sport and exercise physiologist Dr. David L. Montgomery. The award is also supported by the annual David L. Montgomery 10 Km Run which takes place each year during Homecoming. Awarded by the department of Kinesiology and Physical Education to a graduate student in Sport and Exercise Physiology.

Eligibility: All applicants must have been a full-time student for at least one semester of the current year. Applicants will be assessed based on academic merit, conference presentations, and community service in sport and exercise physiology.

Estimated Value: At least \$1,000.

Application: Submit application form to graduate program coordinator of the Department of Kinesiology and Physical Education by February 1.

R.E. WILKINSON AWARD

Established by friends, colleagues and former students in honour of Prof. Robert E. Wilkinson, former Chairman of the Department of Physical Education.

Eligibility: Awarded by the Department of Kinesiology and Physical Education to a student who has obtained a B.Ed. (Major in Phys. Ed.) or a B.Sc (kinesiology) from McGill and who is entering a full-time graduate program in the Department of Physical Education.

Value: \$800.

Application: Submit application form to graduate program coordinator of the Department of Kinesiology and Physical Education by September 30th.

5.6 Engineering

CAE AWARD IN ENGINEERING EXCELLENCE

Established in 2002 by CAE Inc. Founded in 1947, CAE is a global leader in the provision of simulation and control technologies and training solutions for aerospace, defence and marine markets. Awarded on the basis of high academic standing by the Faculty of Engineering Scholarships Committee. Preference shall be given to students entering their first year of graduate studies in either the Department of Electrical and Computer Engineering or the Department of Mechanical Engineering.

Value: Minimum \$2,000.

ENGINEERING CLASS OF 1936 AWARD

Established by graduates of the Engineering Class of 1936, in honour of their 60th reunion in 1996, to enable the Faculty of Engineering to attract high calibre candidates to McGill.

Eligibility: Available to students commencing graduate studies in Engineering with a preference to Ph.D. candidates. Awarded by the Faculty of Engineering Scholarships Committee based on recommendations by the Chairs and Directors of Departments and Schools within the Faculty.

Value: Minimum \$3,000.

HATCH GRADUATE FELLOWSHIPS IN ENGINEERING

Established in 2008 by Dr. Gerald G. Hatch, B.Eng. 1944, D.Sc. 1990, for outstanding students in the Faculty of Engineering based on academic merit. Awarded annually by the Faculty of Engineering. Funding may be combined with that received by applicants through internal McGill sources or through agencies external to McGill. Preference will be given to students enrolled in doctoral programs, and to students in the Department of Mining and Materials Engineering or in related fields of research.

Estimated Value: Varies.

J.M. BISHOP AWARD FOR ENVIRONMENTAL RESEARCH

Established in 2004 by John M. Bishop B. Eng. 1947 (Mechanical) for outstanding graduate students in the Faculty of Engineering.

Eligibility: Awarded as a top-up to a prestigious external fellowship by the Dean of the Faculty of Engineering upon the recommendations of the Chairs and Directors of the academic units in the Faculty, with preference to students conducting environmental research focused on reducing our dependency on non-renewable resources.

Value: \$5,000, renewable once at the Master's level or twice at the doctoral level.

JOHN BONSALL PORTER SCHOLARSHIP

Founded by Dr. W.W. Colpitts (B.Sc. 1899).

Eligibility: Open to full-time graduate students currently registered in a M. Eng. in Civil, Mechanical, or Electrical Engineering, preferably in Civil Engineering.

Value: \$1,000.

Application: Apply to the Dean of the Faculty of Engineering.

Applications from graduates of other universities must be accompanied by certified statements of academic standing and letters of recommendation.

JOSEPH S. STAUFFER FELLOWSHIP

Established in 1992 by a gift from the Joseph S. Stauffer Foundation to the Faculty of Engineering.

Eligibility: Awarded to students commencing graduate studies in Engineering with preference to Ph.D. candidates. Awarded by the Faculty of Engineering Fellowships Committee, based on the recommendations of Chairs and Directors of academic units in the Faculty.

Value: \$5,000. In the event that the fellowship is awarded to an international student, the value may be increased to a maximum of \$10,000; renewable.

LARS AND ALBERTA FIRING GRADUATE FELLOWSHIPS IN ENGINEERING

Established in 2006 by the late Lars Firing for outstanding graduate students in the Faculty of Engineering.

Eligibility: Awarded by the Faculty of Engineering to students accepted into a graduate degree program, preferably at the doctoral level, in the Faculty of Engineering. Preference will be given to students enrolled in the Department of Chemical Engineering, and also to students pursuing research in any of the following fields: Bioengineering, including Biomedical Engineering; Environmental Engineering; Sustainable Development in Natural Resources; Alternative/Sustainable/Renewable Energy; Transportation Engineering and Pharmaceutical Chemical Engineering. Funding may be combined with that received by applicants through agencies external to McGill or through internal McGill sources.

Estimated value: \$25,000, paid out over two years, provided the holder maintains satisfactory progress.

Application: Applicants must submit their application directly to departments along with their application for admission, by the deadline for financial aid applications.

LEON AND SUZANNE FATTAL GRADUATE FELLOWSHIPS IN ENGINEERING

Established in 2007 by Leon Fattal, B.Eng. 1962, and Suzanne Fattal.

Eligibility: Awarded annually by the Faculty of Engineering to recruit outstanding students into the Faculty's graduate degree programs. Preference to Doctoral Students.

Value: Varies; May be awarded as a full fellowship or as a partial fellowship when combined with funding from other sources.

LORNE TROTTIER ENGINEERING GRADUATE FELLOWSHIPS

Established in 2006 by Lorne Trottier, B.Eng. 1970, M.Eng. 1973, D.Sc. 2006. Awarded annually by the Faculty of Engineering to recruit outstanding students into the Faculty's graduate degree programs. Funding may be combined with that received by applicants through internal McGill sources or through agencies external to McGill.

Eligibility: The Lorne Trottier Engineering Graduate Fellowships are for new students accepted into a graduate research program within the Faculty of Engineering. Preference will be given to doctoral students.

Application: Awardees are selected by the Faculty of Engineering. Applicants submit their applications for financial aid with their application for admission.

Value: \$15,000, paid during the first year of study.

VADASZ DOCTORAL FELLOWSHIP IN ENGINEERING

Established in 2006 by the Vadasz Family Foundation to recruit outstanding students into the Faculty of Engineering's doctoral degree program. Awarded by the Graduate Fellowships Committee of the Faculty of Engineering to outstanding students, who are Canadian citizens or permanent residents, and who are accepted into a doctoral degree program in the Faculty of Engineering at McGill University. Funding may be combined with that received by applicants through agencies external to McGill or through internal McGill sources.

Value: \$25,000, paid out over two years, provided the holder maintains satisfactory progress.

5.6.1 Architecture

A.F. DUNLOP SCHOLARSHIPS

Travelling scholarships bequeathed in 1937 by the late Mrs. Catherine A. Dunlop for students graduating with the M.Arch.1 degree. Apply, stating proposed study, localities to be visited and date of departure, to the Director of the School before January 31. Selection is made by a Committee of Staff of the School of Architecture.

Value: Minimum \$2,500 each.

ALVARO ORTEGA AWARD

Established in memory of Alvaro Ortega by his wife, Madeleine Ortega and colleagues. Prof. Ortega was a graduate of the McGill School of Architecture and established the School's graduate program in Minimum Cost Housing, where he taught for many years.

Eligibility: Awarded annually by the School of Architecture to a graduate student who is in financial need and good academic standing and whose research is in the area of low cost housing.
Value: \$500.

AMERICAN INSTITUTE OF ARCHITECTS HENRY ADAMS MEDAL AND CERTIFICATES OF MERIT

Established in 1986 and awarded for general excellence to graduating students in the professional program of architecture schools recognized by the Institute. The medal and certificate are awarded by the School of Architecture to the top ranking student, and a second certificate to the second ranking graduating student.

ARCOP/ALCAN AWARD

Awarded annually to a student in the final semester of the M.Arch.1 program for a design project demonstrating particular sensitivity to the architectural and cultural traditions of its location. The winner will be selected by a jury of three members, at least one of whom is a professional architect who is not a member of the staff of the School of Architecture.

Value: \$1,000.

CLIFFORD C.F. WONG FELLOWSHIP IN ARCHITECTURE**黃振輝 建築學獎學金**

Eligibility: Established in 1987 by Clifford Wong (B.Arch. 1960), this prestigious award is open to students entering the graduate program in Architecture. According to the terms of the bequest, preference will be given to applicants from the People's Republic of China. Only in the event that there are no qualified applicants from China will the Fellowship be offered to a candidate from another country.

Value: A total fund of \$12,000 is available annually, from which award(s) are made at the discretion of the School of Architecture Graduate Fellowships Committee.

DR. SOO KIM LAN PRIZE IN ARCHITECTURE**蘇金蘭醫生獎學金**

Established in 2000 by Arthur C.F. Lau (B.Arch. 1962) and Crystal S.C. Soo Lau (B.Sc. 1962, M.Sc. 1964) in memory of the latter's mother, Dr. Soo Kim Lan. The prize is awarded by a committee of staff of the School of Architecture to an outstanding student completing the second semester of study in the Master of Architecture program.

Value: \$2,000.

FRED LEBENSOLD MEMORIAL FELLOWSHIP IN ARCHITECTURE

Eligibility: Established in 1987 by Mrs. Ruth Lebensold and Family in memory of Fred Lebensold, distinguished Montreal architect and Professor in the McGill School of Architecture from 1952-1955. Awarded annually by the School of Architecture Graduate Fellowship Committee, on the basis of academic merit, to a student entering the Master of Architecture Program.

Value: \$3,500.

H.L. FETHERSTONHAUGH BOOK PRIZE

Established in memory of the late H.L. Fetherstonhaugh, M.C., F.R.A.I.C., F.R.I.B.A., R.C.A., a former member of staff in the School of Architecture. Awarded by the School of Architecture to the student with the highest standing in the course Professional Practice 1.

HUGH MACLENNAN MEMORIAL SCHOLARSHIP

Established by the Hon. John Stewart MacLennan, Dr. Francis MacLennan and Miss Isabella MacLennan in memory of Hugh MacLennan, son of the Hon. John Stewart MacLennan, killed at the Battle Ypres in 1915. Awarded for travel to the student who has

maintained the highest standing throughout professional studies in Architecture. Selection is made by a Committee of Staff of the School of Architecture.

Value: \$4,500.

JOHN BLAND SCHOLARSHIP IN ARCHITECTURE

Established in 1998 by a generous gift from a McGill graduate of Chemical Engineering (Class of 1959), from Hong Kong, in honour of Professor John Bland, Director of the School of Architecture between 1941 and 1972. Awarded by a committee of staff of the School of Architecture to a graduating student to support work in China.

Estimated value: \$5,000.

LOUIS B. MAGIL SCHOLARSHIP IN AFFORDABLE HOMES

Established in 1989 by the Groupe Magil in recognition of the contribution to the home building industry in Quebec made by Mr. Louis B. Magil, B.Arch. '36, architect and founder of Magil Construction Ltd.

Eligibility: Made annually by the School of Architecture to an outstanding student (or students) in the Master of Architecture program in Affordable Homes.

Value: \$2,000.

MAUREEN ANDERSON PRIZES IN ARCHITECTURE

Established in 1995 by faculty, staff and students to honour the dedicated service of Maureen Anderson, a staff member from 1960-1995.

Eligibility: Awarded to undergraduate or graduate students in the School of Architecture on the basis of course work judged to be of high merit and superior written quality. Selection will be made by a committee of staff of the School of Architecture.

Value: Two prizes of \$200 each.

NORBERT SCHOENAUER AND DAVID FARLEY FELLOWSHIP IN ARCHITECTURE

Established in 2001 through a major donation by a Hong Kong graduate of the Chemical Engineering Class of 1959. Awarded by the School of Architecture to outstanding students in its post-graduate research programs addressing issues related to the urban environment.

Estimated Value: \$4,500.

PING KWAN LAU PRIZE IN ARCHITECTURE**劉秉鈞獎學金**

Established in 2000 by Arthur Lau, B.Arch. 1962 and Crystal S.C. Lau, B.Sc. 1962, M.Sc. 1964, for graduate students in the School of Architecture. Awarded by the School of Architecture to an outstanding graduating student who has demonstrated excellence in the research, site analysis and program preparation for the final design project of the M. Arch. I Program.

Value: Minimum \$500.

RAY (RAYMOND TAIT) AFFLECK PRIZE IN DESIGN

Established in 1989 in memory of Raymond Tait Affleck (FRAIC,RCA), B.Arch. 1947, by his family, colleagues and friends. Awarded to a student in the School of Architecture for distinction in Design in the M.Arch.1 final design project. The winner will be selected by a jury of three members, at least one of whom is a professional architect who is not a member of the staff of the School of Architecture.

Value: \$1,000.

ROYAL ARCHITECTURAL INSTITUTE OF CANADA MEDAL

Offered to a graduating student in the professional program who, in the judgment of the Faculty of the School of Architecture, has completed the most outstanding final design project/thesis for that academic year and who shows promise of being an architect of distinction after graduation. Selection is made by the School of Architecture.

SCHOOL OF ARCHITECTURE FELLOWSHIPS

Eligibility: Offered annually (in January) to students in the graduate programs from funds contributed by graduates of the School of Architecture. First and second year students registered in the graduate programs in Architecture are eligible.

Value: Varying amounts.

STUART A. WILSON MEMORIAL PRIZE

Established in 1991 in memory of Stuart Anthony Wilson by family, friends and colleagues. Stuart Wilson graduated from the McGill School of Architecture in 1943 and taught there from 1948 to 1991. The prize is awarded by a committee of staff of the School of Architecture to the student with the best portfolio in the annual Sketching School.

Value: \$150.

WILFRED ONIONS MEMORIAL PRIZE

Established in 1991 in memory of Wilfred Onions, B. Arch. 1932, by family, friends and fellow graduates in Bermuda. This prize commemorates his passion for sketching and life-long commitment to the profession of architecture, and is awarded by a committee of staff of the School of Architecture to the student with the best single work in the Sketching School.

Value: \$200.

5.6.2 Chemical Engineering**DR. ROBERT G.H. LEE FELLOWSHIP****李甘棠博士獎學金**

Established in 1998 by a generous gift from a McGill graduate of Chemical Engineering (Class of 1959), from Hong Kong, in honour of Dr. Robert G.H. Lee, B. Eng. 1947 (Metallurgical Engineering).

Estimated value: \$10,000. Renewable once at the Master's level and twice at the Postdoctoral or Doctoral levels.

Application: Awarded by the GPSO on the recommendation of the Faculty of Engineering to an entering Postdoctoral, Doctoral or Master's student in either Chemical Engineering or Mining and Materials Engineering.

EMIL NENNIGER MEMORIAL FELLOWSHIP

Funded by a donation from Mrs. F.S. Nenniger in memory of her husband's outstanding contribution to engineering.

Eligibility: Awarded annually to graduate students of Chemical and Civil Engineering on the basis of scholastic ability and general promise.

Value: Two Fellowships of \$3,000.

Application: Apply to the Chair, Department of Chemical or Civil Engineering.

F.O. FOWLER MEMORIAL FELLOWSHIP

Based on donations from Canadian Pacific Forest Products Limited in memory of their employee, Frank Fowler, a graduate of McGill (B.Eng. '42). Awarded every two years.

Eligibility: Open to graduate students enrolled in a Master's of Engineering or Science program. Preference given to children of C.P. Forest Products Ltd. employees. Restricted to Canadian citizens.

Value: \$8,000; renewable once.

Application: For information contact the Chair, Department of Chemical Engineering or Chair, Department of Chemistry.

THOMAS HALIBURTON HENRY AWARD

Established in 2000 in honour of Thomas Haliburton Henry, 1922-1944. Awarded by the Department of Chemical Engineering to an outstanding graduate student enrolled in the Department of Chemical Engineering.

Estimated value: \$1,500.

WILLIAM H. GAUVIN FELLOWSHIP IN CHEMICAL ENGINEERING

Established in the memory of William H. Gauvin, O.C., B.Eng. (1941), M.Eng. (1942), Ph.D. (1945), D.Sc. (Hon.) (1985), former Professor of Chemical Engineering.

Eligibility: Awarded by the GPSO to a student in the first or second year of Ph.D. study upon recommendation of the Department of Chemical Engineering. No citizenship restrictions.

Estimated value: \$15,000; renewable once.

5.6.3 Civil Engineering and Applied Mechanics**EMIL NENNIGER MEMORIAL FELLOWSHIP**

Funded by a donation from Mrs. F.S. Nenniger in memory of her husband's outstanding contribution to engineering.

Eligibility: Awarded annually to graduate students of Chemical and Civil Engineering on the basis of scholastic ability and general promise.

Value: Two Fellowships of \$3,000.

Application: Apply to the Chair, Department of Chemical or Civil Engineering.

RON RICE MEMORIAL AWARD

Established by family, friends, associates, students and graduates to honour the memory of Professor Ron Rice of the School of Urban Planning and the Department of Civil Engineering and Applied Mechanics, who passed away on August 20th, 2000.

Eligibility: Awarded to a student pursuing graduate studies in the field of Transportation Planning and/or Engineering, based on academic merit, by the GPSO on the recommendation of the School of Urban Planning and the Department of Civil Engineering and Applied Mechanics.

Value: \$1,000.

5.6.4 Electrical and Computer Engineering**CHARLES LEGEY FORTESCUE FELLOWSHIP IN ELECTRICAL ENGINEERING**

Eligibility: Candidates must have majored in the field of Electrical Engineering and have received a Bachelor's degree from an engineering college of recognized standing. Preference will be given to applicants about to begin their first year of graduate work.

Deadline: January 31.

Value: Stipend of \$24,000 for one year of full time graduate work in Electrical Engineering at an engineering school of recognized standing located in the U.S. or Canada.

Application: Information available from: Secretary, Charles LeGeyt Fortescue Fellowships Committee, Institute of Electrical and Electronics Engineering, Inc., 345 East 47th Street, New York, NY 10017.

ERIC L. ADLER FELLOWSHIP IN ELECTRICAL ENGINEERING

Eligibility: Established in 2003 by a graduate alumnus in honour of his former research supervisor, Professor Emeritus Eric L. Adler, for outstanding graduate students. Awarded by the Graduate and Postdoctoral Studies Office, upon the recommendation of the Department of Electrical and Computer Engineering, on the basis of academic merit.

Value: \$10,000; renewable once at the Master's level, twice at the Ph.D. level.

GAR LAM YIP MEMORIAL FELLOWSHIP IN GUIDED WAVE PHOTONICS

Established in 2000 by family, friends and colleagues in memory of Dr. Gar Lam Yip, distinguished professor in the Department of Electrical and Computer Engineering from 1973 - 1999. Awarded by the GPSO on recommendation of the Department to a top student at the Master's level in Electrical and Computer Engineering.

Estimated value: \$16,500 annually; renewable.

MOTOROLA FOUNDATION GRADUATE AWARD IN ELECTRICAL AND COMPUTER ENGINEERING

Established in 2001 by the Motorola Foundation in conjunction with the Motorola Canada Software Centre [MCSC]. Awarded by the Department of Electrical and Computer Engineering to graduate students in Electrical, Computer or Software Engineering on the basis of outstanding academic achievement, with

consideration for teamwork and leadership qualities. Preference will be given to Canadian citizens or Permanent Residents of Canada with an interest in wireless telecommunications or communications.

Value: \$3,750.

5.6.5 Mechanical Engineering

M.P. PAIDOUSSIS PRIZE IN MECHANICAL ENGINEERING

Established in 1993 by M. P. Paidoussis, Professor of Mechanical Engineering.

Eligibility: Awarded by the Department of Mechanical Engineering to the author of the best Master of Engineering thesis (in terms of content and literary style), for a student proceeding to doctoral study.

Value: \$1,000.

5.6.6 Mining and Materials Engineering

B.J. HARRINGTON BURSARY IN MINING ENGINEERING

Supported by graduates in Mining Engineering in memory of the late Professor B.J. Harrington.

Eligibility: Awarded annually to a suitable graduate student.

Value: \$4,000.

CANADIAN INSTITUTE OF MINING AND METALLURGY MONTREAL BRANCH LOAN FUND

Established in 1958 by the Montreal Branch of the Institute of Mining and Metallurgy to provide loans to students in Geological Sciences, Metallurgical Engineering, and Mining Engineering.

DR. ROBERT G.H. LEE FELLOWSHIP

李甘棠博士獎學金

Established in 1998 by a generous gift from a McGill graduate of Chemical Engineering (Class of 1959), from Hong Kong, in honour of Dr. Robert G.H. Lee, B. Eng. 1947 (Metallurgical Engineering).

Estimated value: \$10,000. Renewable once at the Master's level and twice at the Postdoctoral or Doctoral levels.

Application: Awarded by the GPSO on the recommendation of the Faculty of Engineering to an entering Postdoctoral, Doctoral or Master's student in either Chemical Engineering or Mining and Materials Engineering.

HORACE G. YOUNG FELLOWSHIPS

Eligibility: Awarded to graduates of McGill University who are conducting advanced research in the Department of Mining and Metallurgical Engineering.

Value: Seven awards of \$3,000 each are made annually.

Application: Awarded by the GPSO on the recommendation of the Chair of the Department of Mining and Materials Engineering.

JAMES DOUGLAS FELLOWSHIPS IN MINING ENGINEERING

Eligibility: Awarded annually to suitable graduate students.

Value: Five research and teaching fellowships of \$2,000 each in the Department of Mining and Materials Engineering endowed by the late Dr. James Douglas.

SIR WILLIAM DAWSON FELLOWSHIP IN METALLURGY

Endowed in memory of the late Sir William Dawson, Principal of McGill University from 1855 to 1893.

Value: Two research and teaching graduate awards of \$6,000 or six undergraduate awards totalling \$12,000 in the Department of Mining and Materials Engineering.

WILLIAM STEWART RUGH SCHOLARSHIP

Endowed by the late Helen Stewart Rugh in memory of her father, William Stewart Rugh.

Eligibility: The awards are made on the recommendation of the Chair of the Department of Mining and Materials Engineering.

Value: Five research and teaching postgraduate awards of \$3,000 each or up to ten undergraduate awards of \$1,500 each in the Department of Mining and Materials Engineering.

5.6.7 Urban Planning

HAROLD SPENCE-SALES PRIZE IN URBAN PLANNING

Established by graduates and friends of the School of Urban Planning to commemorate the fiftieth anniversary of the founding of urban planning education in Canada at McGill University by Professor Harold Spence-Sales.

Eligibility: Awarded to a student entering the second year of graduate studies, based on academic achievement, by the GPSO on the recommendation of the School of Urban Planning.

Value: Minimum \$250.

NORBERT SCHOENAUER AND DAVID FARLEY FELLOWSHIP IN URBAN PLANNING

Established in 2001 through a major donation by a Hong Kong graduate of the Chemical Engineering Class of 1959. Awarded by the School of Urban Planning to outstanding students in its post-graduate research programs addressing issues related to the urban environment.

Estimated value: \$4,500.

RON RICE MEMORIAL AWARD

Established by family, friends, associates, students and graduates to honour the memory of Professor Ron Rice of the School of Urban Planning and the Department of Civil Engineering and Applied Mechanics, who passed away on August 20th, 2000.

Eligibility: Awarded to a student pursuing graduate studies in the field of Transportation Planning and/or Engineering, based on academic merit, by the GPSO on the recommendation of the School of Urban Planning and the Department of Civil Engineering and Applied Mechanics.

Value: \$1,000.

5.7 Desautels Faculty of Management

HIANG SIANG CHAN FELLOWSHIP IN MANAGEMENT

Established in 2007 by Hian Siang Chan, MBA 1984. Awarded by the Graduate and Postdoctoral Studies Office upon nomination by the Desautels Faculty of Management to an outstanding doctoral student in the Faculty. Preference will be given to students from Asia.

Value: \$15,000; renewable twice.

5.7.1 CA and Public Accountancy

C. DOUGLAS MELLOR PRIZE

Established in 1981 by the Montreal-based Chartered Accountancy firms.

Eligibility: Awarded to a student in the Graduate Diploma Program in Public Accountancy whose academic record is judged to be outstanding among those who graduate during the academic year.

Value: \$1,000.

KENNETH F. BYRD PRIZE

Established in 1981 by the Montreal-based Chartered Accountancy firms.

Eligibility: Awarded to a student in the Graduate Diploma Program in Public Accountancy whose academic record is judged to be outstanding among those who graduate during the academic year.

Value: \$1,000.

LIONEL PELHAM KENT SCHOLARSHIP

Established in 1998 in memory of Lionel Pelham Kent, C.A. through the generosity of family and friends.

Eligibility: Open to students entering the final year of the C.A. program, who intend to continue their program of studies at McGill. Awarded by the Faculty of Management Scholarships Committee. The winner will be chosen based on outstanding skills in written and oral communication combined with high academic standing.

Value: \$2,500.

5.7.2 Masters in Manufacturing Management

J. KEITH DRYSDALE MANUFACTURING MANAGEMENT GRADUATE FELLOWSHIP

Established in 2004 by Donna Drysdale, B.Ed. 1959, in honour of her late husband, J. Keith Drysdale, B.Sc. 1960, M.B.A. 1966.

Eligibility: Awarded on the basis of academic excellence to an outstanding graduate student in the Master in Manufacturing Management Program by the Office of Graduate and Postdoctoral Studies, upon the recommendation of the Director of the Manufacturing Management Program.

Value: \$5,000, non renewable

Application: For further information, contact Patricia Strutz in the Masters Programs office at (514) 398-4648 or Marcela Cao, Program Coordinator at (514) 398-7201 or visit www.mcgill.ca/mmm.

WERNER GRAUPE MEMORIAL MMM FELLOWSHIP

Established in 2001 in memory of Werner Graupe, a long-standing supporter and friend of the University, by the Masters in Manufacturing Management (MMM) program. Awarded by the MMM program fellowships committee to graduate students in the MMM program. Preference shall be given to students who are Canadian citizens or Permanent Residents and demonstrate fluency in French and English. Priority given to full-time students; part-time students will be considered for partial awards in the absence of qualified full-time candidates.

Value: \$20,000.

5.7.3 MBA

ALVIN J. WALKER GRADUATE FELLOWSHIP

Eligibility: Established by the estate of the late Alvin J. Walker.

Awarded on the basis of academic merit to a student entering the M.B.A. program.

Value: \$1,500.

Application: No application is necessary; recipients are to be selected by the Faculty of Management Scholarships Committee.

ASSOCIATION DES M.B.A. DU QUÉBEC AWARD

This prize will be awarded to a graduating student on the basis of academic performance, and proven leadership both inside and outside the classroom.

Value: \$1,000.

DEAN'S MEDAL FOR GREAT DISTINCTION IN THE M.B.A. PROGRAM

A sterling silver medal will be awarded each Spring by the Scholarships Committee of the Desautels Faculty of Management to the leading student in the full-time M.B.A. program.

DONALD E. ARMSTRONG AWARD

Established by Seymour Schulich (B.Sc. 1961, M.B.A. 1965) and Lawrence Bloomberg (M.B.A. 1965) in 1996 in honour of Donald E. Armstrong, founding Director of McGill's Graduate School of Commerce.

Eligibility: Awarded by the Desautels Faculty of Management Scholarships Committee on the basis of high academic standing, proven leadership skills and active involvement in the community to a student in the M.B.A. program. Candidates must submit an application and financial form.

Value: Minimum \$3,000.

Application: For further information contact the M.B.A. Office, Faculty of Management.

DR. PETER BRIANT AWARD FOR ENTREPRENEURSHIP

Established by Seymour Schulich in memory of Professor Peter Briant, a teacher and mentor to many in the Desautels Faculty of Management. Awarded to Canadian students in the first year of the full time MBA program by the Desautels Faculty of Management. This award will be granted on the basis of entrepreneurial experience, potential and general scholastic ability. Candidates

must submit an application, a statement providing evidence of entrepreneurial potential, a curriculum vitae and financial form. **Estimated value:** \$4,000.

EDWARD BALLON GRADUATE AWARD IN MANAGEMENT

Established in 1998 by the John Dobson Foundation in honour of Edward M. Ballon (B.A. 1947), a distinguished graduate who, while a student at McGill, was captain of the McGill Track Team, President of the Students' Society of McGill and President of the Students Athletics Council. He later became President of the McGill Graduate Society and a member of the Board of Governors of the University.

Eligibility: Awarded by the Desautels Management Scholarships Committee to a full-time student entering the M.B.A. program on the basis of high academic standing, demonstrated leadership skills through involvement in extra-curricular activities and participation in a competitive sport. Candidates must be Canadian citizens. Renewable for a second year provided the holder maintains an academic standing satisfactory to the Committee.

Value: \$2,000-\$2,500.

Application: Applicants must submit a one-page statement detailing their involvement in extra-curricular activities and participation in a competitive sport. The statement must be submitted at the time of application to the program.

EXECUTIVE DEVELOPMENT INSTITUTE (E.D.I.) BURSARY

Eligibility: Awarded on the basis of work experience and financial need to Canadian students entering the second year of the full-time MBA program from the part-time MBA program.

Value: Up to \$2,000.

Application: Awarded by the Desautels Faculty of Management Scholarship Committee upon recommendation by the Student Aid Office. Candidates must submit a curriculum vitae and a financial aid form.

H.E. HERSCHORN GRADUATE SCHOLARSHIP

Eligibility: Established in 1965, tenable by a student entering either the first or the second year of the M.B.A. program. Open to Canadian students only.

Value: Current tuition fees.

Application: Awarded by the Faculty of Management Scholarships Committee, no application necessary.

LATIN AMERICA AWARD

Two awards valued at \$9,000 will be granted to students from Latin America entering the first year of the M.B.A. program. This award will be based on academic excellence and will be renewable for the second year. All applicants to the M.B.A. program will be considered. Recipients will be notified at the time of admission.

M.B.A. ENTRANCE AWARD

Eligibility: The selection is based on academic excellence.

Value: Each year the Faculty of Management Scholarship Committee awards a limited number of M.B.A. Entrance Fellowships valued at approximately \$1,500 (non-renewable).

Application: No application is necessary. All applicants to the M.B.A. program will be considered. Recipients will be notified at the time of admission.

M.B.A. INTERNATIONAL STUDENT AWARD

All international students are considered for renewable awards. The number and size of these awards vary from year to year. The selection is based on academic excellence. All applicants to the M.B.A. program will be considered. Recipient will be notified at the time of admission.

PILARCZYK FELLOWSHIP

First awarded in 1997, this fellowship will be awarded every second year. The purpose of this award is to create a distinguished international fellowship that will enable outstanding students from Poland to pursue a two year Master of Business Administration at McGill Desautels Faculty of Management. The fellowship is intended to be a comprehensive award covering the principal expenses which such students will incur while in Canada.

Eligibility: Polish citizen under 40 years of age; Degree equivalent to a Canadian Bachelors degree, record of high academic achievement; TOEFL of 600; 2 years work experience, a written essay on career goals and expectations. Successful candidates must plan to return to Poland and participate in its economic life.
Value: \$27,000

ROGER C. BENNETT PRIZE IN MARKETING

Established in 1999 with the support of friends and family of the late Roger C. Bennett, distinguished Professor of Marketing (Desautels Faculty of Management), who had a zest for life.
Eligibility: Awarded by the Desautels Faculty of Management Scholarships Committee to a graduating M.B.A. student who has demonstrated academic achievement and community involvement.
Value: Minimum \$1,250.

SHEILA WELLINGTON BMO FINANCIAL GROUP AWARD

Established by the Bank of Montreal in 1996 for students in the Faculty of Management.
Eligibility: Awarded by the Desautels Faculty of Management Scholarships Committee on the basis of high academic standing, leadership skills and community involvement to full-time students continuing in the M.B.A. or B.Com. program. Preference is given to female students in programs related to finance and/or economics.
Value: \$6,000 for graduate students and \$2,000 for undergraduates.
Application: Eligible students wishing to be considered for this award should submit a CV and appropriate documentation supporting their extra-curricular university or community contribution.

5.7.4 PhD (Management)

NORMAN STRAUSS DOCTORAL FELLOWSHIP FOR PROFESSIONAL ETHICS IN BUSINESS

Endowed in 1992 by Edith Strauss in memory of her husband, this fellowship is intended to commemorate the integrity and character of Norman Strauss.
Eligibility: Awarded by the Desautels Faculty of Management to support outstanding doctoral students in Management who have demonstrated an interest in researching, studying and promoting business ethics. Consideration may be given to students pursuing research in the area of corporate social responsibility. Standing in the program to be evaluated by the Ph.D. Program Director.
Value: \$10,000, renewable once, based on satisfactory standing in the program.

5.8 Law

AUBREY SENEZ FELLOWSHIP

Bequeathed by Aubrey Senéz.
Eligibility: Awarded to a student entering a graduate program in the Faculty of Law, specializing in international business law. Preference is given to students from Montreal's South Shore.
Value: Minimum \$10,000; renewable.

BOEING FELLOWSHIPS IN AIR AND SPACE LAW

Established in 2007 by Boeing for outstanding Master's and Doctoral students in the Faculty of Law's Air and Space Program. Awarded by the Graduate and Postdoctoral Studies Office upon recommendation of the Faculty of Law.
Value: Master's: \$18,000 each; renewable once. Doctoral: \$20,000 each; renewable twice.
Note: Each of these fellowships is accompanied by a fellowship support allowance, administered by the Faculty of Law, of up to \$2,000 per year at the Master's level and up to \$5,000 per year at the Doctoral level.

BOURSE DE DOCTORAT HYDRO-QUÉBEC EN DROIT

Established in 2007 by Hydro Québec. Awarded by the Graduate and Postdoctoral Studies Office upon nomination from the Faculty of Law to outstanding students entering a full-time Doctoral degree program in the Faculty of Law who are residents of Quebec.
Eligibility: Awarded to a student entering a graduate program in the Faculty of Law.
Value: \$15,000; renewable twice.

BOURSE DE MAÎTRISE HYDRO-QUÉBEC EN DROIT

Established in 2007 by Hydro Québec. Awarded by the Graduate and Postdoctoral Studies Office upon nomination from the Faculty of Law to outstanding students entering a full-time Master's degree program in the Faculty of Law who are residents of Quebec.
Eligibility: Awarded to a student entering a graduate program in the Faculty of Law.
Value: \$10,000; renewable once.

CHIEF JUSTICE R.A. GREENSHIELDS MEMORIAL SCHOLARSHIPS FOR GRADUATE STUDIES

Eligibility: Bequeathed by the late Mrs. R.A.E. Greenshields in memory of her husband, the late Chief Justice Greenshields, B.A., B.C.L., D.C.L. and LL.B. These scholarships will be awarded to outstanding students, Canadian or foreign, entering the first year of graduate studies in the Faculty of Law. The thesis scholarships are awarded to outstanding students, Canadian or foreign, who are registered in the Master's program, who have already commenced work on their thesis, and who are in need of funds to aid with the expenses of their thesis research.
Value: \$5,000 scholarships, renewable on a fully competitive basis. \$1,000 thesis scholarships non-renewable.
Application: Scholarships: none; on the basis of the candidate's application for admission to graduate studies in Law. Thesis scholarships: students will be contacted by the Faculty of Law.

CLIVE V. ALLEN FELLOWSHIP IN INTERNATIONAL BUSINESS LAW

Established in 1999 through a substantial contribution by Nortel Networks Corporation on the retirement of Clive V. Allen (B.A. 1956, B.C.L. 1959) following 25 years of service as Nortel's Chief Legal Officer, and subsequent generous contributions by Mr. Allen and some of his friends in the legal community.
Eligibility: Awarded by the Faculty of Law to a student entering the first or second year of graduate studies in law, preference being given to doctoral students and/or students specializing in international business law.
Estimated value: \$10,000.

GUALTIERI-DORAN AWARD

Established in 1999 by Dr. Domenico John Doran in memory of his aunt Rosa Bianca Gualtieri, B.A. '48, B.C.L. '51, and his sister, Cheryl Rosa Teresa Doran LL.B./B.C.L. '84 who practised law together.
Eligibility: Awarded by the Faculty of Law, on the basis of Academic Merit, to a graduating student who wishes to pursue further studies in law or a related discipline. Special consideration will be given to students who demonstrate financial need and have made a distinctive contribution to the profession of law or the wider community.
Value: \$1,750.

JOHN AND EDMUND DAY AWARD FOR GRADUATE STUDIES IN LAW

Established in 1996 by a generous bequest by Isabelle Day in memory of her grandfather, Edmund Thomas Day and great-grandfather, John James Day, both graduates of the Faculty of Law.
Eligibility: Awarded by the Faculty of Law to a graduate student in Law.
Value: \$2,000 - \$5,000.
Application: None; on the basis of the candidate's application for admission to graduate studies in Law.

MACDONALD GRADUATE FELLOWSHIPS

Two Macdonald Graduate Fellowships, founded by the will of the late Sir William Macdonald, will be awarded by the Graduate and Postdoctoral Studies Office, on the recommendation of the Faculty of Law to two meritorious students, admitted to one of the Faculty's thesis graduate programs, in order to enable such students to pursue graduate studies in law at McGill. Preference will be given to students intending to study at the doctoral level. In the case of a doctoral student who receives the fellowship, it may be renewed for a second year subject to the student maintaining good standing in the program and obtaining a highly satisfactory progress report on the thesis.

Value: \$10,000 each.

O'BRIEN FELLOWSHIP FOR HUMAN RIGHTS AND LEGAL PLURALISM

Established in 2005 by David O'Brien, B.C.L. 1965, for outstanding graduate students studying in the area of Human Rights and Legal Pluralism in the Faculty of Law.

Eligibility: Awarded by the Graduate and Postdoctoral Studies Office upon recommendation of the Faculty of Law.

Value: Minimum \$25,000; renewable once at the Master's level and twice at the Doctoral level.

PILARCZYK GRADUATE AWARD IN LAW

Established in 2005 by Ian C. Pilarczyk, B.A. 1992, LL.M. 1997, D.C.L. 2004, for an outstanding graduate student in the Faculty of Law.

Eligibility: Awarded on the basis of merit by the Faculty of Law. Preference will be given to LL.M. or D.C.L. students in the general concentration of Legal History.

Estimated value: \$500.

ROBERT E. MORROW, QC, FELLOWSHIPS

Established in 1999 by friends and colleagues of Robert E. Morrow, QC, B.C.L. 1947.

Eligibility: Awarded by the Faculty of Law to outstanding students entering the first year of graduate studies in the Institute of Air and Space Law.

Value: Minimum \$5,000.

SETSUKO USHIODA-AOKI PRIZE

Established in 2001 by Dr. Setsuko Ushioda-Aoki (D.C.L. 1993). Awarded by the Faculty of Law on the basis of academic merit to a graduate student in the LL.M. program at the Institute of Air and Space Law.

Value: \$500.

WAINWRIGHT SCHOLARSHIP FOR LAW

Bequeathed by the late Arnold Wainwright, QC, B.A., B.C.L., D.C.L.

Eligibility: Awarded to outstanding students, Canadian or foreign, entering the first year of graduate studies at the Faculty of Law, McGill University, and intending to work on subjects of interest to, or pertaining to, the civil law tradition, or to students proceeding from the LL.M. to the D.C.L. program.

Value: One scholarship of 10,000.

Application: None; on the basis of the candidate's application for admission to graduate studies in Law.

5.9 Medicine**ALEXANDER MCFEE FELLOWSHIP**

Eligibility: Open to graduates of any approved university who are resident full-time candidates for higher degrees or diplomas at McGill. The award will be made in Physics, Chemistry, and Medical Sciences (with preference for Cancer research).

Value: \$10,000.

DAVID G. GUTHRIE FELLOWSHIPS IN MEDICINE

Established in 2008 by David G. Guthrie, B.Sc. 1943, M.D.C.M. 1944, Dr. Guthrie, a radiologist, wishes to acknowledge the education and opportunities provided to him by McGill and wishes to help future generations of medical students with their studies and medical ambitions. Awarded by the McGill University Graduate and Postdoctoral Studies Office to Ph.D. students in the faculty of Medicine. Preference will be given to Canadian students.

Estimated Value: Varies.

5.9.1 Internal Studentships

Internal Studentships are open to highly qualified Faculty of Medicine graduate students who are registered full-time in a research training program leading to an M.Sc. or Ph.D. degree.

Internal Studentships are tenable for one year starting September 1. The Faculty of Medicine contribution for an M.Sc. student is \$10,000 and for a Ph.D. student is \$12,000. Supervisors are expected to supplement funded applicants with a minimum contribution of \$8,000.

M.D./Ph.D. students are not eligible to apply for Faculty of Medicine Internal Studentships, they should consult the Director of the M.D./Ph.D. program regarding funding for which they are eligible.

Residents receiving remuneration from the RAMQ while pursuing a Masters or Ph.D. degree are not eligible to apply to the Faculty of Medicine Internal Studentships program.

Students who apply for a Faculty of Medicine Internal Studentship are automatically considered for every award for which they are eligible. Amongst eligible applicants in cancer research, one will be recommended to the Graduate and Postdoctoral Studies Office for an Alexander McFee Fellowship.

Applications are evaluated on the basis of academic performance; quality of the proposal; training environment; accomplishments (articles, abstracts, evidence of progress appropriate to the stage of the student's career); and letters of support.

Successful applicants must be registered at McGill University when applying and for the duration of the award.

The deadline for applications is normally mid-late April. For further information and application forms, please consult www.medicine.mcgill.ca/research/bursary/default.htm.

CHARLES JAMES PATTON, M.D., AND ELIZABETH ROSS PATTON MEMORIAL PRIZE

Eligibility: Established in 2003 by a bequest from Charles Francis Patton in memory of his parents, Charles James Patton, M.D., and Elizabeth Ross Patton, awarded by the postgraduate awards committee to an outstanding graduate student for excellence in medical research.

Value: Minimum \$400.

CLAUDE J.P. GIROUD BURSARY IN ENDOCRINOLOGY

Eligibility: Established by a bequest from Alix Auzolle Giroud in memory of her son, Dr. Claude J.P. Giroud, former professor of Experimental Medicine at McGill. Awarded on a competitive basis to a full-time graduate student pursuing research in Endocrinology.

DR. ARTHUR H. JUDSON FELLOWSHIPS

Established by a bequest from Frances Catherine Judson in memory of her husband. To be awarded by the Faculty of Medicine Postgraduate Awards Committee to graduate students as part of the Faculty of Medicine's internal studentships.

Value: \$10,500.

DR. JOHN A. LUNDIE RESEARCH FELLOWSHIP

Established in 2003 by a bequest by Dr. John A. Lundie for a graduate student pursuing cancer research.

Eligibility: Awarded by the Faculty of Medicine's Postgraduate Awards Committee. Preference shall be given to candidates pursuing research in the causes and/or cure of cancer.

Value: \$6,000.

ELAINE BÉLANGER GRADUATE STUDENTSHIP IN MEDICAL RESEARCH

Established in 2003 by a bequest from Elaine Bélanger for a graduate student pursuing medical research. Awarded by the Faculty of Medicine's Postgraduate Awards Committee.

Value: Minimum \$6,500.

ELIZABETH STEFFEN MEMORIAL AWARD

Eligibility: Established in 1995 by a bequest of the late Elizabeth Steffen (M.D. 1945) and awarded by the Faculty of Medicine to contribute to the support of a full-time graduate student pursuing research in the Faculty of Medicine.

ESTHER CUSHING FELLOWSHIP

Eligibility: Established in 1992 for a student working towards a Master's or doctoral degree in the Faculty of Medicine.

F.S.B. MILLER MEMORIAL FUND

Eligibility: Established in 1982 to provide support for Genetic and Viral research in Neurobiology.

GEORGE G. HARRIS FELLOWSHIP IN CANCER

Eligibility: Established in 1962 by a bequest of George G. Harris to provide a fellowship in Cancer Research.

GERSHMAN MEMORIAL SCHOLARSHIP FUND

Eligibility: Established in 1965 to record the bequest of funds from the Estate of Fannie Gershman as a memorial to her late husband Mr. Icko Gershman and herself. The income from this endowment is to be used for scholarships in the field of cancer research.

GORDON PHILLIPS FUND FOR RESEARCH IN CARDIOVASCULAR DISEASES

Eligibility: This fund provides a scholarship open to graduate students involved in cardiovascular research.

G. RUTHERFORD CAVERHILL FELLOWSHIP

Eligibility: Established in 1943 by Mrs. Rutherford Caverhill for full-time graduate study and training in the Department of Medicine.

HARRISON WATSON SCHOLARSHIP

Eligibility: Established in 1953 by a bequest from the late Harrison Watson and Ruth Appleton Watson in memory of their only son, Captain Aubrey Wentworth Harrison Watson, D.S.O., M.C. The purpose of the scholarship is to encourage research into the causes and cures of tuberculosis and other diseases of an allied character.

HUGH E. BURKE RESEARCH FUND

Eligibility: Established in 1972 for medical research with preference given to requests for financial assistance for full-time graduate students.

IRMA H. BAUER RESEARCH FUND

Eligibility: The income from a bequest by the late Irma H. Bauer to be used for the support of a full-time graduate student doing research in the field of epilepsy.

JAMES O. AND MARIA MEADOWS SCHOLARSHIP

Eligibility: Established to support graduate research preferably in the field of cancer, but worthy candidates working in other areas of medical or surgical research will also be considered.

JEANNETTE AND ABRAM VICTOR MEMORIAL SCHOLARSHIP

Eligibility: Open to full-time graduate students who are principally engaged in research on the physiology of the heart or its diseases.

JOHN MCCRAE FELLOWSHIP

Eligibility: Intended for graduate students of any approved medical school in the fields relating to surgery, urology, otolaryngology, radiology, etc.

JOSEPH SCHUBERT MEMORIAL SCHOLARSHIP

Eligibility: For graduates of any approved medical school who are principally engaged in full-time graduate studies on the physiology of the heart or its diseases.

J.P. COLLIP FELLOWSHIP IN MEDICAL RESEARCH

Eligibility: Fellowships are awarded for studies at McGill in Anatomy and Cell Biology, Bacteriology, Biochemistry, Histology, Pathology, Pharmacology or Physiology. Candidates must be full-time graduate students (M.Sc. or Ph.D.) in one of these subjects.

MAYSIE MACSPORRAN GRADUATE STUDENTSHIPS

Established in 2002 by Maysie MacSporran, B.A. 1927, in memory of Esther Cushing and her parents, Dr. Frank R. England and Dr. Octavia Grace Ritchie England.

Eligibility: Awarded by the Faculty of Medicine's Postgraduate Awards Committee to top-ranked students in the official training programs in each of the Canadian Institutes of Health Research.

Value: Minimum \$9,000 each.

RUTH AND ALEX DWORKIN SCHOLARSHIP

Eligibility: Established in 1989, the Ruth and Alex Dworkin Fund will provide scholarships to students, doing postgraduate work in the field of oncology, who would not be able to pursue their studies in the absence of financial assistance. Students will be selected by the Postgraduate Awards Committee.

SAMUEL LUPOVITCH MEMORIAL SCHOLARSHIP

Eligibility: Open to full-time graduate students who are principally engaged in research on the physiology of the blood or its diseases.

SAMUEL S. LERNER MEMORIAL AWARD

Established in 2002 by a bequest from Grace Bernice Lerner in memory of her husband, Samuel S. Lerner.

Eligibility: Awarded by the office of the Associate Dean, Graduate Studies and Research of the Faculty of Medicine, to outstanding graduate students pursuing cancer research.

Value: Minimum \$250.

5.9.2 Multidisciplinary Research Awards**ALEXANDER MCFEE FELLOWSHIP**

Eligibility: Open to graduates of any approved university who are resident full-time candidates for higher degrees or diplomas at McGill. The award will be made in Physics, Chemistry, and Medical Sciences (with preference for cancer research).

Value: \$10,000.

HARRY SHANKMAN SCHOLARSHIPS

A bequest from the late Annette Shankman Rieder in honour of her brother Harry Shankman, M.D., provides annual scholarships for meritorious medical students in the M.D./Ph.D. program. Awarded by the Faculty of Medicine Scholarships Committee, on the recommendation of the M.D./Ph.D. Program Director.

Value: Minimum \$3,000 each.

SIR EDWARD W. BEATTY MEMORIAL SCHOLARSHIPS FOR MEDICAL STUDENTS

Eligibility: Awarded annually to students of any nationality.

Applies to students registered in the M.D., C.M./Ph.D. program.

Value: Two scholarships, not necessarily of equal value.

Application: More information can be obtained by contacting the office of the Associate Dean, Medical Education and Student Affairs.

5.9.3 Multidisciplinary Clinical Awards**DR. BENJAMIN SHORE PRIZE IN PLASTIC SURGERY**

Established in memory of Dr. Benjamin Shore, M.D., C.M. 1965.

Eligibility: This prize will be awarded annually to a resident training in one of the McGill teaching hospitals who demonstrates outstanding performance in the Plastic Surgery Program. This prize will be used to fund travel to a national or international

meeting in the field of plastic surgery or for special support of a resident doing research in plastic surgery. The Prize will be awarded by the Program Director of the Plastic Surgery Training Program in consultation with the Associate Dean of Post-graduate Medical Education.

Value: \$4,000.

DR. EZRA LOZINSKI PRIZE IN CLINICAL MEDICINE

Established in 1989 in memory of Mrs. Deitcher's father, Dr. Ezra Lozinski, M.D., C.M. 1920 and M.Sc. 1923. The prize shall be awarded annually to a medical resident who is training in one of the McGill University teaching hospitals, and who demonstrates outstanding qualities of compassion, understanding, and acceptance of responsibility for ongoing care. Nominations will be submitted before May 1st of each academic year by clinical departments and the winner will be selected by the Faculty of Medicine Postgraduate Committee.

Value: \$1,000.

DR. MILTON C. AND NINA E. WILSON AWARD

Established in 1970 by a bequest from the late Milton C. Wilson. The annual income provides support for Undergraduate or Post-graduate students in the Faculty of Medicine who are in Financial need.

DR. PREMYSL "MIKE" PELNAR ACADEMIC ENRICHMENT AWARD

Established through a generous anonymous donation honouring Dr. Premysl Pelnar, a renowned occupational health physician.

Eligibility: Awarded to graduate students of the Department of Occupational Health to further their training and professional activities in the field of occupational health. Awarded by the Chair of the Department upon consultation with the Faculty.

Value: \$300 - \$600 per year.

5.9.4 Research Institute Awards

5.9.4.1 Cancer Centre

DEFI CORPORATIF CANDEREL STUDENTSHIP AND FELLOWSHIP

Eligibility: Open to Ph.D. and post-doctoral fellow candidates within their first year of working with staff of the McGill Cancer Centre and/or the Division of Research, Department of Oncology at McGill.

Application: Candidates must submit a C.V. with publications, letters of reference and an outline of their proposed project with investigator's name to: Dr. Michael L. Tremblay, McGill Cancer Center, 3655 Promenade Sir William Osler, Montreal, Quebec H3G 1Y6.

Value: \$10,000 Studentships – \$15,000 Fellowships. One year support in both cases.

ROLANDE AND MARCEL GOSSELIN GRADUATE STUDENTSHIPS

Eligibility: Established in 2003 by a bequest from Rolande Dubreuil Gosselin. Awarded by the Faculty of Medicine's Post-graduate Awards Committee to two Ph.D. students undertaking cancer research under the direction of a member of the McGill Cancer Centre.

Value: Minimum \$12,500 each.

5.9.4.2 Montreal Children's Hospital

MCGILL UNIVERSITY - MONTREAL CHILDREN'S HOSPITAL RESEARCH INSTITUTE FELLOWSHIPS

The McGill University - Montreal Children's Hospital Research Institute offers a limited number of postdoctoral and research fellowships.

Eligibility: Medical, dental or doctoral graduates undertaking full time training in pediatric research. Candidate must be supervised by an investigator with formal primary affiliation with McGill University - Montreal Children's Hospital Research Institute.

Deadline: December 1 for an April 1 or July 1 commencement date.

Value: Based on CIHR guidelines with respect to employment under grants.

Application: Forms are available from the Secretariat of the Research Institute, 4060 Sainte-Catherine Street West, Room 205, Montreal, Quebec, H3Z 2Z3

MCGILL UNIVERSITY - MONTREAL CHILDREN'S HOSPITAL RESEARCH INSTITUTE STUDENTSHIPS

The McGill University - Montreal Children's Hospital Research Institute offers a limited number of studentship awards.

Eligibility: Master's or doctoral level students conducting pediatric research. Candidates must be supervised by an investigator with a formal primary affiliation with the McGill University - Montreal Children's Hospital Research Institute.

Deadline: April 1 for a July 1 commencement date.

Value: \$14,000 per annum.

Application: Forms available from the Secretariat of the Research Institute, 4060 Sainte Catherine Street West, Room 205, Montreal, Quebec, H3Z 2Z3.

5.9.4.3 Montreal Neurological Institute

ISAAK WALTON KILLAM SCHOLARSHIPS/ JEANNE TIMMINS FELLOWSHIPS (NEUROSCIENCES)

Eligibility: The Montreal Neurological Institute offers fellowships for research and study in the fields of the clinical and basic neurosciences. Candidates must hold an M.D. or a Ph.D. degree. Those candidates with M.D. degrees will ordinarily have completed clinical studies in neurology or neurosurgery.

Value: Initial appointments will be for one year with a maximum value of \$25,000 (Canadian) with possible renewal.

Deadline: Receipt of application is October 15 for a fellowship commencing July 1 of the following year.

Application: Awards will be made on a strictly competitive basis. Apply in writing to the Assistant to the Director of the Montreal Neurological Institute.

PRESTON ROBB FELLOWSHIP

Eligibility: Established in 1994, awarded on a strictly competitive basis by the Montreal Neurological Institute (MNI) to support the training of a clinical fellow to work jointly with one of its basic and one of its clinician scientists. Candidates must have an M.D. degree with clinical studies in neurology or neurosurgery.

Value: Initial appointments, one year to a maximum value of \$25,000.

Deadline: October 15 to MNI for a fellowship commencing July 1 of the following year.

Application: Application forms are available from the Director's Office, MNI.

5.9.5 Academic Unit Awards

5.9.5.1 Biochemistry

ARTHUR S. HAWKES FELLOWSHIP

Established in 2000 through a generous bequest by Dr. Arthur S. Hawkes, Ph.D. 1945. Awarded by the Faculty of Medicine to an outstanding student in the Department of Biochemistry.

Value: Minimum \$5,000.

5.9.5.2 Biomedical Engineering

GEDDES PRIZE IN BIOMEDICAL ENGINEERING

Dr. L.A. Geddes (B.Eng. 1945; M.Eng. 1953; Hon.D.Sc. 1971) established an annual prize in Biomedical Engineering at the discretion of the Chair of the Department of Biomedical Engineering.

JOHN F. DAVIS AWARD

Established in 2003 by John F. Davis, B.Eng. 1942, M.Eng. 1949, M.D., C.M. 1950. Awarded every two years to a graduate student enrolled in the Department of Biomedical Engineering, by the Chair of the Department of Biomedical Engineering. The award will be for a significant contribution (Master's or Doctoral thesis, major conference paper or journal paper) for a subject applicable to

diagnostic or treatment procedures for Neurological or Psychiatric disorders.

Value: Minimum \$500.

5.9.5.3 Biomedical Ethics

I.M. RABINOWITCH FELLOWSHIP

Established in 2006 by a bequest from William J. Prager, in memory of I.M. Rabinowitch, M.D., C.M. 1917, D.Sc. 1932. Awarded annually by the Graduate and Postdoctoral Studies Office, on the basis of academic merit, and on recommendation of the Biomedical Ethics Unit of the Faculty of Medicine, to a graduate student in any degree program, who demonstrates an interest in the relationship between Science and Judaism.

Estimated value: \$15,000; renewable once at the Master's level, twice at the Doctoral level.

5.9.5.4 Communication Sciences and Disorders

MONTREAL LEAGUE FOR THE HARD OF HEARING AWARD

Established by a gift from the Montreal League for the Hard of Hearing Inc. for students in training.

Eligibility: Candidates must be enrolled at the graduate level in the School of Communication Sciences and Disorders doing work in the area of hearing impairment. Awarded by the School.

Value: \$1,000.

5.9.5.5 Experimental Medicine

DR. GERALD B. PRICE MEMORIAL AWARDS

Three awards, established in 2004, by family and friends, to honour Dr. Gerald B. Price's memory and his many contributions as Director of the Division of Experimental Medicine and as a full member of the McGill Cancer Centre.

Eligibility: Awarded by the Division of Experimental Medicine on the basis of merit, through an annual competitive process, to students enrolled in the 2nd or 3rd year of the Ph.D. program in the Division of Experimental Medicine. The awards will be used to enhance the students' graduate training by providing travel funds for the presentation of a scholarly contribution at a scientific conference. The amount of the award is expected to be matched by the awardee's supervisor.

Value: \$650 each.

5.9.5.6 Microbiology and Immunology

F.C. HARRISON FELLOWSHIPS

Established in 1953 by a bequest from the late Francis Charles Harrison, Emeritus Professor of Bacteriology and Emeritus Dean of the Faculty of Graduate studies.

Eligibility: Awarded by the Department of Microbiology and Immunology on the basis of academic merit to full-time graduate students.

Estimated value: \$5,000

WILFRED YAPHE AWARD

Established in 1986 by the Department of Microbiology and Immunology, in memory of Dr. Wilfred Yaphe, Professor in the Department from 1966 until his untimely death in 1986.

Eligibility: Granted upon recommendation of the Graduate Committee of the Department of Microbiology and Immunology, to one M.Sc. student and one Ph.D. student who were awarded their degrees during the academic year.

Value: \$250.

5.9.5.7 Nursing

In addition to the following, several funding opportunities are available to students whose projects or doctoral theses are related to a nursing intervention research, e.g., **GRISIM** (Groupe de recherche inter-universitaire en sciences infirmières de Montreal www.grisim.ca) and **FERASI** (Training and Expertise in Nursing Administration Research www.ferasi.umontreal.ca). Students should consult their advisors for more information.

ALUMNAE ASSOCIATION OF THE MCGILL SCHOOL OF NURSING SCHOLARSHIP

Eligibility: Scholarships are available for students in graduate programs.

Estimated Value: Minimum of \$1,000 per award prorated by student status.

Deadline: Applications should be submitted by September 30.

Application: To the Chair of the Scholarship Committee, Application form will be posted at www.mcgill.ca/nursing under the *Current Student/Funding Opportunities for Students* page at the start of the academic year (e.g. September).

CANADIAN NURSES FOUNDATION FELLOWSHIP

Members of the Canadian Nurses Foundation and Canadian Nurses Association may apply for awards for study at the baccalaureate, master's and doctoral level. Special awards are identified for neuro-surgical, oncology, community health nursing, epidemiology, etc.

Eligibility: Applicants must be registered in a program and be willing to serve in a nursing position in Canada for one year for each academic year funded. Quebec applicants must apply for licensure in another Canadian province or territory in order to apply for a Fellowship.

Deadline: April 15.

Application: Apply to the Canadian Nurses Foundation, 50 The Driveway, Ottawa, Ontario, K2P 1E2 after November 1.

CORPORATION OF NURSES OF THE DISTRICT OF MONTREAL BURSARY

Bursaries are awarded yearly for study leading to a Master's degree or to a doctorate in nursing.

Application: For further information re: application, please write to: Corporation of Nurses of the District of Montreal, 666 Sherbrooke Street W., Suite 1004, Montreal, Quebec, H3A 1E7.

EVELYN ROCQUE MALOWANY PRIZE IN NURSING

Established in 2007 by Evelyn Rocque Malowany, M.Sc.(A) 1963.

Eligibility: Awarded by the School of Nursing to a graduating student who has demonstrated initiative and leadership in the profession.

Estimated Value: \$900.

F. MOYRA ALLEN PRIZE

Established in 1987 in honour of Dr. F. Moyra Allen, B.N. (1948), Emeritus Professor of Nursing 1985, for her distinguished career and international renown.

Eligibility: Awarded by the School to a graduating student in the Master's program who shows potential for a distinctive career in the study and practice of nursing.

Estimated Value: \$1200.

IRMA K. RILEY AWARDS

Established through a bequest from Irma K. Riley, Cert. Nurs. 1951. Awarded on the basis of scholarly achievement by the School of Nursing to outstanding non-nurse applicants entering the Qualifying program for a Master's degree in Nursing.

Estimated Value: Minimum \$2,800 each.

NESSA LECKIE MEMORIAL AWARD

Established in 2001 through a generous bequest from Nessa Leckie, B.N. 1961.

Eligibility: Awarded by the School of Nursing to an outstanding student enrolled in the Master's program in the School of Nursing whose major area of studies is mental health nursing, who is working or has previously worked in the nursing field in an area relating to mental health and who has demonstrated clinical expertise in this area.

Estimated Value: \$2,300.

Application: Application information will be posted at www.mcgill.ca/nursing under the *Current Student/Funding Opportunities for Students* page at the start of the academic year (e.g. September).

ORDER OF NURSES OF QUEBEC BURSARIES

Value: Eight bursaries of \$10,000 are awarded each year to nurses for studies leading to a Master's degree or to a doctorate degree in nursing.

Deadline: March 15.

Application: To the Ordre des infirmières et infirmiers du Québec, Secretary of the Committee on Bursaries, 4200 Dorchester Blvd West, Westmount, Quebec, H3Z 1V4.

ROYAL VICTORIA HOSPITAL SCHOOL OF NURSING ALUMNAE ASSOCIATION BURSARY

Bursaries are available for graduates of the Royal Victoria Hospital, School of Nursing, who have been accepted into an approved University program.

Application: For further information apply to the Alumnae Office, Nurses' Home, Royal Victoria Hospital, 687 Pine Avenue West, Montreal, Quebec, H3A 1A1.

ST. JOHN AMBULANCE (ORDER OF ST. JOHN) OF CANADA BURSARIES

Eligibility: Available to experienced registered nurses preparing for leadership positions. Preference will be given to qualified applicants who are volunteers with St. John Ambulance.

Estimated Value: One bursary of \$1,000 from the Margaret MacLaren Memorial Fund for studies at the Master's level.

Deadline: February 15.

Application: Apply to the Chair of Bursary Funds, St. John Ambulance, National Headquarters, 312 Laurier Avenue East, Ottawa, Ontario, K1N 6P6.

W.K. KELLOGG FOUNDATION LOAN FUND

Estimated Value: This fund was established to assist students who have unexpected expenses while registered in courses at the School of Nursing.

Application: Consult the Director, Student Aid Office, Brown Student Services Building, 3600 McTavish Street, Montreal, Quebec, H3A 1Y2.

5.9.5.8 Ophthalmology**PERCY HERMANT FELLOWSHIPS IN OPHTHALMOLOGY**

This fellowship, established by Mr. Percy Hermant, is divided among the first-year residents in ophthalmology.

Eligibility: Candidates must be graduates of Medicine at McGill or other approved medical schools, must be commencing the study of Ophthalmology at McGill and must be planning to practice this specialty in Canada.

Application: Apply to the Chair, Department of Ophthalmology, McGill University.

SEAN MURPHY AWARD

Established in 1997 from a bequest of Miss Dorothy Brown.

Eligibility: Awarded by a committee of the Department of Ophthalmology to a student in ophthalmic pathology, with a preference for graduate students or postdoctoral fellows.

Value: \$8,000

5.9.5.9 Orthopaedic Surgery**ALBERT A. BUTLER AWARD IN ORTHOPAEDICS**

Established in 2001 by Kaye Takamatsu-Butler in memory of Dr. Albert A. Butler, M.D., C.M. 1935. The award will be used to support residents doing research in the field of orthopaedics and/or postgraduate orthopaedic training at McGill. This support can include travel funds for residents to attend conferences, the purchase of research equipment and acknowledgement gifts such as book prizes. Awarded by the Program Director of the McGill Orthopaedic Surgery Residency Program in consultation with the Associate Dean of Postgraduate Medical Education.

Value: Maximum \$6,550.

DR. PHILIP EIBEL PRIZE IN ORTHOPEDIC SURGERY

Established in 1998 by Miss Deborah Eibel, B.A. 1960, in memory of her father, Dr. Philip Eibel, B.A. 1929, M.D., C.M. 1933.

Eligibility: The prize shall be awarded annually to a medical student, resident, or fellow who has exhibited outstanding achievement during training in Orthopedic Surgery. The selection shall be made by the Faculty of Medicine Scholarships Committee.

Value: \$500 each.

5.9.5.10 Pathology**ROBERT MORE AWARD IN PATHOLOGY**

Established in 1997 from a bequest of Miss Dorothy Brown.

Awarded by a committee of the Department of Pathology to a graduate student or postdoctoral fellow.

Value: One student at \$15,000 or two students at \$7,500.

5.9.5.11 Pharmacology and Therapeutics**JAMES FROSST FELLOWSHIP**

Established in 1990 by the Department of Pharmacology and Therapeutics through a donation from Merck Frosst Canada Inc.

Eligibility: Primarily awarded by the graduate training committee to an outstanding international applicant to the program.

Value: \$10,000.

Deadline: All international applicants conditionally accepted to the program prior to May 1 are considered for the Fellowship.

MELVILLE PRIZE IN PHARMACOLOGY

Established to honour Professor Kenneth I. Melville who was Chairman of the Department of Pharmacology and Therapeutics from 1953 to 1967 and Professor Emeritus from 1967 until his death in 1975.

Eligibility: Awarded annually to two graduate students: one senior, one junior; and Post Doctoral Fellow whose research presentation at the annual Pharmacology Research Day (or equivalent occasion) is judged by an *ad hoc* advisory committee to be the best.

Value: \$400/\$200/\$100.

THEODORE SOURKES PRIZE

Established in 1992 by the Department of Pharmacology and Therapeutics in honour of Professor Theodore Sourkes.

Eligibility: Awarded annually to recognize outstanding contribution by a graduate student in the Department of Pharmacology and Therapeutics, as judged from a paper published in a peer-reviewed journal. Awarded by the Department to a student currently in the program or having graduated within a year.

Value: \$500.

5.9.5.12 Physical and Occupational Therapy**RICHARD AND EDITH STRAUSS FELLOWSHIPS**

Established in 2007 by the Richard and Edith Strauss Canada Foundation to support research and scholarship in the area of health and rehabilitation sciences. The School of Physical and Occupational Therapy selects the outstanding doctoral students and notifies the Faculty of Medicine which administers the awarding of the Fellowships to the recipients.

Eligibility: Eligible areas of research include: disease and/or disability prevention; ameliorating symptom impact; and, optimizing function and social participation for individuals with chronic musculoskeletal conditions. Types of research include: translational, clinical and knowledge translation.

Value: \$35,000; renewable once based upon evaluation by the School of Physical and Occupational Therapy and a 2-3 page progress report.

Note: The Fellowships are accompanied by an allowance for research expenses of up to \$2,500 per year. This allowance may, for example, be used to cover travel to major national or international conferences.

BARBARA ROSENTHAL PRIZE

Established in 1992 as a tribute to Barbara Rosenthal's long-standing affiliation with the School of Physical and Occupational Therapy and her devoted years of service to the practice of occupational therapy.

Eligibility: Awarded to a full-time student in the Master's program in Rehabilitation Science with preference being given to an occupational therapist. The prize will be given by the School of Physical and Occupational Therapy on the basis of high academic standing during the first year of the program.

Value: \$225.

BOURSE DE RECHERCHE ANNE LANG ETIENNE

Offered to occupational therapists pursuing a Master's or Ph.D. degree who are full members of the Ordre des ergothérapeutes du Québec (OPEQ).

Value: \$1,000 for Ph.D.; \$750 for Masters

Application: November 1-December 1. For further information contact the Ordre des ergothérapeutes du Québec, 2021 Union Street, Suite 920, Montreal, H3A 2S9, Tel: (514) 844-5778, Fax: (514) 844-0478, E-mail: ergo@oeq.org, Website: www.oeq.org.

BOURSE DE RECHERCHE EN MILIEU CLINIQUE ET BOURSE D'ÉTUDES SUPÉRIEURES

Eligibility: Offered to physiotherapists and also those registered in the Master's program.

Deadline: September 30.

Value: \$2,000 (Graduate Studies) and \$1,500 (Research).

Application: Apply to L'Ordre des physiothérapeutes du Québec, 7101 Jean-Talon est, bureau 1120, Anjou, Québec, H1M 3N7, Tel: (514) 351-2770, Toll free: 1-800-361-2001, Fax: (514) 351-2658, E-mail: physio@oppq.qc.ca, Website: www.repar.ca.

JUDITH KORNBLUTH-GELFAND GRADUATE FELLOWSHIP

Established by her husband and Dynamic Capital Corporation as a tribute to Judith Kornbluth-Gelfand (Dip.Phys.Ther., class of 1958), in recognition of her interest in children suffering from neurological and neuromuscular disorders.

Eligibility: Awarded by the School of Physical and Occupational Therapy to an outstanding graduate student conducting research studies to improve the efficacy of physiotherapeutic rehabilitation with preference to pediatrics, neurological and neuromuscular disorders.

Value: \$2,000.

KAVITA KULKARNI MEMORIAL PRIZE IN REHABILITATION SCIENCE

Established in 2002 by family, friends and the Jewish Rehabilitation Hospital (JRH) Foundation in memory of Kavita Kulkarni, B.Sc.(Phys.Ther.) 2001. Kavita was an outstanding student in the School of Physical and Occupational Therapy whose sudden and tragic death was mourned by all who knew her.

Eligibility: Awarded by the School of Physical and Occupational Therapy on the basis of high academic standing excellence to an outstanding graduate student enrolled in a full-time degree program in the School. Preference shall be given to students pursuing research in Rehabilitation Science at the JRH.

Value: Minimum \$750.

MARGHERITA RAPAGNA MEMORIAL PRIZE IN REHABILITATION SCIENCE

Established in 2002 by family, friends and the Jewish Rehabilitation Hospital (JRH) Foundation in memory of Margherita Rapagna. Margherita was an outstanding student in the School of Physical and Occupational Therapy whose sudden and tragic death was mourned by all who knew her.

Eligibility: Awarded by the School of Physical and Occupational Therapy on the basis of high academic standing excellence to an outstanding graduate student enrolled in a full-time degree program in the School. Preference shall be given to students pursuing research in Rehabilitation Science at the JRH.

Value: Minimum \$500.

PATRICIA ANN MACDONALD WELLS VAN DAELE MEMORIAL AWARD

Established in 2003 by family, friends and colleagues of Patricia Ann MacDonald Wells Van Daele as well as graduates of the School of Physical and Occupational Therapy.

Eligibility: Awarded by the School of Physical and Occupational Therapy to students enrolled in the School's professional programs or to post-baccalaureate physical and occupational therapists registered in the Master's programs in Rehabilitation Science, in recognition of an outstanding clinical, community-based, or research project related to the aging population and/or clinical education.

Value: Minimum \$500.

THE 2007-2009 RUTH SHAMAH SCHOLARSHIP

Established by the Psychiatry Department of the Jewish General Hospital in memory of Ms. Ruth Shamah who provided years of passionate and inspiring work as Head of the Occupational Therapy Department. Ruth demonstrated leadership in promoting high quality of care and publishing academic aspects of occupational therapy and will be remembered by numerous colleagues, trainees and now Occupational Therapists pursuing her search for evidence-based practices.

Eligibility: Awarded to an occupational therapist accepted into master level studies (research) from McGill University or Université de Montréal who will have selected a research project related to mental health. Quality and feasibility of the project as well as GPA will be additional selection criteria.

Value: \$10,000 a year for a maximum of 2 years.

Deadline: June 15, 2008. Must include: the title, the aim of the project, the population and sample size calculations, the research design and methods as well as the time schedule.

Application: Submit to Suzanne Rouleau, Occupational Therapy Clinical Coordinator in Psychiatry, Institute of Community and Family Psychiatry - Jewish General Hospital, 4333 Cote Ste-Catherine Road, Montreal, Quebec H3T 1E4.

5.10 Faculty of Religious Studies**A.R. GORDON AWARDS**

Established in 1998 by a bequest from Janette R. Gordon in memory of her father, Rev. Alexander Reid Gordon, who was a Professor of Hebrew and Old Testament Literature at McGill University from 1907-1930.

Eligibility: Awarded on the basis of academic merit, by the Faculty of Religious Studies, to an undergraduate or graduate student in the United Theological College.

Value: Recruitment Scholarships (renewable) \$7500

Additional Scholarships: Varies

Application: Apply to the Dean of the Faculty of Religious Studies.

ARTHUR AND JESSIE LOCHHEAD BURSARY FUND

Eligibility: Established in 1974 by a bequest from the Estates of Rev. and Mrs. A.W. Lochead to endow a bursary for students preparing for ordination and who are registered in the Faculty of Religious Studies.

Value: Estimated \$2,000.

Application: Apply to the Dean of the Faculty of Religious Studies.

DEIRDRE AND ROBERT STEVENSON AWARD

Eligibility: For students entering a graduate program at the Faculty of Religious Studies in which the study of Asian religions is a major component.

Value: \$3,000.

Application: Awarded by the Faculty of Religious Studies.

HOUSTON BURSARY

Established by a bequest from Thomas Houston in 1915.

Eligibility: For students in the Faculty of Arts and the Faculty of Religious Studies studying for the ministry of the Presbyterian Church in Canada or the United Church of Canada, with preference given to candidates whose mother tongue is French.

Value: Varies.

Application: Apply to the Dean of the Faculty of Religious Studies.

SAMUEL FINLEY NATIONAL BURSARY

Established in 1954 by a bequest from Miss Margaretta L. Finley.

Eligibility: Awarded by the Dean of Religious Studies to a graduate student who is pursuing advanced studies in religion or theology.

Value: Estimated \$3,000

Application: Apply to the Dean of the Faculty of Religious Studies

TOPPING MEMORIAL BURSARY

Established in 1976 by C.W. Topping in memory of his father, the Reverend N.B. Topping, a minister of the Methodist Church of Canada for fifty years.

Eligibility: Awarded at the discretion of the Dean of the Faculty of Religious Studies to a graduate student pursuing advanced studies in religion or theology who has financial need and shows promise of becoming both a scholar and a humanitarian.

Value: Estimated: \$1,000

Application: Apply to the Dean of the Faculty of Religious Studies

W.M. BIRKS AWARDS

Awarded to the students graduating with the best records in the B.A. (Religious Studies), B. Th., S.T.M. or M.A. (Religious Studies) programs.

Value: \$200 each

W.M. BIRKS FELLOWSHIP

Established in 1950 by donation from Mr. W.M. Birks-W.M. Birks Foundation

Eligibility: Awarded at the discretion of the Fellowship Committee and the Dean of the Faculty of Religious Studies to a graduate student who is pursuing advanced studies in Religion and Theology

Value: Estimated \$3,000

Application: Apply to the Dean of the Faculty of Religious Studies

5.11 Schulich School of Music

General Regulations in Music

1. Scholarships, awards, prizes and bursaries available in the Schulich School of Music are awarded at the discretion of the Dean and the Faculty Scholarships Committee. No applications are required as all incoming and current students will automatically be considered.
2. Awards are generally made in the Spring on the basis of auditions and/or dossiers of incoming students, and after the Spring term on the basis of academic standing during the preceding Fall and Winter terms.

ARTHUR AND HELEN HENDERSON SCHOLARSHIP

Eligibility: Preference will be given to students in organ and church music. Open to both graduate and undergraduate students.

Value: Approximately \$1,300.

CLARA LICHTENSTEIN MEMORIAL FELLOWSHIP

Eligibility: To be awarded to an outstanding student for graduate studies in Music. Initiated by Helmut Blume in memory of Clara Lichtenstein, the first instructor in Music at the Royal Victoria College, prime mover in the founding of the McGill Conservatorium (1904) and its Vice-Director until her retirement in 1929.

Value: Approximately \$8,000.

E. NOEL SPINELLI PRIZE IN MUSIC

Established in 2004, by E. Noel Spinelli, C.M. a devoted supporter of the Schulich School of Music and a lover of opera and vocal music.

Eligibility: Awarded by the Schulich School of Music Scholarships Committee to an outstanding student in the Opera / Vocal area

Value: Minimum \$200.

ERIC AWARD

Established by Kevin Austin (B.Mus.'70, M.M.A.'73).

Eligibility: Awarded to a graduate or undergraduate student in the Schulich School of Music for outstanding achievement in the field of electro-acoustic music. Awarded by the Schulich School of Music Scholarships Committee on the recommendation of the staff of the Electronic Music Studio.

Value: Approximately \$300.

FLORENCE MARJORIE BRACE AWARD

Established in 1999 by the estate of Florence Agnes Biltcliffe Brace in loving memory of her daughter, Florence Marjorie Brace.

Eligibility: Awarded by the Schulich School of Music Scholarships Committee to an outstanding undergraduate or graduate student in Music.

Value: \$1,000.

GIAN LYMAN MEMORIAL SCHOLARSHIP

Established by the contributions of the family, friends and colleagues of the late Gian Lyman, a distinguished graduate of McGill's Faculty of Music, who died on April 22, 1974.

Eligibility: To be given to a graduate or undergraduate student who is specializing in either the performance or history of early music.

Value: Approximately \$1,500.

GUSTAV AND ROMANA BLUME MEMORIAL SCHOLARSHIP

Established in 1982 by Helmut Blume in loving memory of his parents.

Eligibility: Awarded by the Schulich School of Music Scholarships Committee to a graduate student. Preference may be given to a student in Performance.

Value: Approximately \$1,000.

HELEN HALL PRIZE

Established in honour of Helen Hall by her friends.

Eligibility: Preference given to voice majors or students specializing in choral conducting. Open to both graduate and undergraduate students.

Value: Approximately \$500.

HERBERT A. MORSE MEMORIAL SCHOLARSHIP

Established in 1990 through a bequest from Dorothy E.M. Fairbairn in memory of her father.

Eligibility: Awarded to an outstanding student in the Schulich School of Music.

Value: Approximately \$3,000.

HERBERT C. CALEY AWARD

Eligibility: Preference given to a student specializing in the performance or history of Baroque and early music. Open to both graduate and undergraduate students. Established by Mrs. Maude Caley in memory of her husband who died December 24, 1980.

Value: Approximately \$500.

JOHN R.E. BRADLEY PRIZES

Established in 2006 through a bequest from John R.E. Bradley, Sound and Lighting Technician at the Church of St. Andrew and St. Paul and a Montreal sound engineer whose career spanned from the 1930's to the 1990's. Awarded by the Schulich School of Music Scholarships Committee to outstanding graduate students in the Sound Recording Program.

Estimated value: \$5,000.

JULIUS SCHLOSS MEMORIAL AWARD

Established by Mr. and Mrs. Oscar Schloss in memory of their brother, the composer Julius Schloss (1902-1972), one of the foremost pupils of Alban Berg in Vienna during the late 1920s and early 1930s whose collected works were donated by the family to the McGill Faculty of Music.

Eligibility: This award is to be made to a graduate student in Music on the recommendation of the Graduate Committee of the Schulich School of Music.

Value: Approximately \$1,200.

LEWIS LUTTER BURSARY

Established in 1988 by the Guttman family in honour of Mr. Lewis Lutter, a loyal and devoted associate of many years of Progress Brand Clothes, Inc. Awarded by the Schulich School of Music to assist a talented student in the School who is in financial need.

Value: Approximately \$900.

LLOYD CARR-HARRIS STRING SCHOLARSHIP

Established in 1999 through a generous gift from the Lloyd Carr-Harris Foundation.

Eligibility: Awarded by the Schulich School of Music Scholarships Committee on the recommendation of the String Area to exceptionally gifted string players entering an undergraduate or graduate program in Performance.

Value: \$10,000; renewable twice.

LUBKA KOLESSA PIANO AWARD

Established in 2003 by friends and former students in honour of Lubka Kolessa, a legendary concert pianist and McGill Faculty of Music professor from 1960-1971.

Eligibility: Awarded to an outstanding piano student by the Schulich School of Music Scholarships Committee.

Value: Minimum \$600.

MARGARET HOULDING MEMORIAL PRIZE

Established in 1984 by the friends of the late Margaret Houlding.

Eligibility: Awarded to a student in the Schulich School of Music.

Value: Approximately \$700.

MARIANNA EATON SCHOLARSHIP

Established by a bequest from the late Marianna Eaton (née Marianna Soulé Van Doren).

Eligibility: Awarded to a graduate student in the Schulich School of Music.

Value: Approximately \$2,000.

MARVIN DUCHOW MEMORIAL SCHOLARSHIP

Established by the family and friends of Prof. Marvin Duchow, in his memory.

Eligibility: To be awarded annually to a graduate student in Music.

Value: Approximately \$1,300.

MAURICE POLLACK FOUNDATION FELLOWSHIP

Initiated by the Foundation in memory of Maurice Pollack, man of commerce and great benefactor in the areas of education, religious institutions and communal welfare.

Eligibility: To be awarded to an outstanding student for graduate studies in Music.

Value: Approximately \$4,000.

MAX STERN FELLOWSHIP IN MUSIC

Established in 1992 through a donation from the Max Stern estate.

Eligibility: Awarded by the GPSO to doctoral level students in Music on the recommendation of the Schulich School of Music. Exceptional students at the Master's level who demonstrate potential for doctoral studies may be considered. No citizenship restrictions.

Value: \$12,000, renewable.

OLYMPIA GARIBALDI-GALAVARIS PRIZE

Established in 2000 by Dr. George Galavaris in honour of his mother's 76th birthday.

Eligibility: The award is open to graduate students in the Schulich School of Music. Awarded by the Schulich School of Music to a graduate student specializing in Musicology or Music Theory with a sub-specialty in Music before 1700.

Value: Minimum \$500.

PHYLLIS AND BERNARD SHAPIRO FELLOWSHIP IN OPERA

Established in 2002 by faculty, alumni, family and friends in honour of Phyllis and Bernard J. Shapiro. Dr. Bernard J. Shapiro was the Principal and Vice-Chancellor of McGill University from 1994 to December 2002.

Eligibility: Awarded by the Schulich School of Music Graduate Committee to graduate or diploma students in Opera/Voice Performance.

Value: Minimum \$5,000; renewable.

PHYLLIS AND BERNARD SHAPIRO FELLOWSHIP IN THEORY

Established in 2002 by faculty, alumni, family and friends in honour of Phyllis and Bernard J. Shapiro. Dr. Bernard J. Shapiro was the Principal and Vice-Chancellor of McGill University from 1994 to December 2002.

Eligibility: Awarded by the Schulich School of Music Graduate Committee to a graduate student in the Department of Theory.

Value: Minimum \$5,000; renewable.

RACHEL AND BENJAMIN SCHECTER MEMORIAL SCHOLARSHIP

Established in 1997 by a bequest from the late Dr. Samuel Schecter in memory of his parents, Rachel and Benjamin Schecter.

Eligibility: Awarded by the Schulich School of Music Scholarships Committee to any full-time student in a degree or diploma in Music.

Value: \$3,000.

SARA BERLIND MEMORIAL FELLOWSHIP

Established by a bequest from Sara Berlind.

Eligibility: Awarded by the Schulich School of Music to an outstanding student to pursue graduate studies in Music.

Value: \$2,500 each.

SCHULICH SCHOLARSHIPS

Eligibility: Established in 2005 through an exceptional gift by Canadian Philanthropist Seymour Schulich. Awarded by the Schulich School of Music Committee to talented students in an undergraduate, graduate or diploma program. Holders of these scholarships are designated Schulich Scholars.

Value: Undergraduate: \$5,000. Renewable.

Graduate: \$10,000. Renewable.

SCHULICH SCHOOL OF MUSIC ENTRANCE SCHOLARSHIPS

Eligibility: Available to all incoming graduate and undergraduate students in a degree or diploma program in Music. Awarded on the recommendation of the Department of Performance and the Department of Theory.

Value: \$2,000.

SCHULICH SCHOOL OF MUSIC SCHOLARSHIPS

The fund originated through the generosity of patrons of the Martlet Concert and Ball which took place in April 1960. Subsequently many former students and friends of the Schulich School of Music have contributed to the fund.

Eligibility: Available to all students in a degree or diploma program in Music, both graduate and undergraduate.

Value: \$100 - \$1,150.

THE GOLDEN VIOLIN AWARD

Established in 2006 through a generous gift from Canadian philanthropist Seymour Schulich. Awarded by the Schulich School of Music Scholarships Committee to an undergraduate, graduate, or diploma student in the Schulich School of Music who demonstrates exceptional potential in the String area.

Value: \$20,000.

VERNA-MARIE PARR GÉLINAS AND PAUL-MARCEL GÉLINAS SCHOLARSHIPS

Established in 1998 by Verna-Marie Parr Gélinas, Dip. Social Work 1938, and Paul-Marcel Gélinas.

Eligibility: Awarded by the Schulich School of Music to talented students studying in an undergraduate or graduate program in the Schulich School of Music. Preference will be given to instrumentalists in the McGill Symphony Orchestra.

Value: Minimum \$1,700 each.

WIRTH FAMILY FELLOWSHIP IN MUSIC

Established in 2004 by Elizabeth Wirth and friends in memory of her parents, Lisl and Manfred Wirth.

Eligibility: Awarded by the Schulich School of Music Graduate Committee to graduate or diploma students in Opera/voice Performance.

Value: Minimum \$5,000; renewable.

5.12 Science**ALEXANDER MCFEE FELLOWSHIP**

Eligibility: Open to graduates of any approved university who are resident full-time candidates for higher degrees or diplomas at McGill. The award will be made in Physics, Chemistry, and Medical Sciences (with preference for Cancer research).

Value: \$10,000.

ARTS AND SCIENCE CLASS OF 1966 AWARD

Established by the Arts and Science Class of 1966 on the occasion of its 25th anniversary of graduation.

Eligibility: Open to graduate students in Arts or Science to pursue research at the Redpath or McCord Museum. Candidates are selected on the basis of academic merit by a committee named by the Deans of Arts and Science.

Value: \$4,000 for one year only.

Application: There are no application procedures. Further information can be obtained from the Offices of the Dean of Arts and Dean of Science, from the Faculty of Arts Website at www.mcgill.ca/arts, or from Josie D'Amico at (514) 398-4215.

BOURSE DE DOCTORAT HYDRO-QUÉBEC EN SCIENCE

Established in 2007 by Hydro Québec. Awarded by the Graduate and Postdoctoral Studies Office upon nomination from the Faculty of Science to outstanding students entering a full-time Doctoral degree program in the Faculty who are residents of Quebec.

Value: \$15,000; renewable twice.

BOURSE DE MAÎTRISE HYDRO-QUÉBEC EN SCIENCE

Established in 2007 by Hydro Québec. Awarded by the Graduate and Postdoctoral Studies Office upon nomination from the Faculty of Science to outstanding students entering a full-time Master's degree program in the Faculty who are residents of Quebec.

Value: \$10,000; renewable once.

DR. AND MRS. MILTON LEONG FELLOWSHIPS IN SCIENCE**梁家康醫生夫婦自然科學獎學金**

Established in 1994 through a donation of Dr. Milton H.K. Leong, B.Sc. 1966, M.D., C.M. 1970, and Susanna S. C. Leong (Liang), B.Sc. 1969, M.Sc. 1973.

Eligibility: Awarded by the GPSO to outstanding graduate students in the Faculty of Science, with preference to students from China.

Estimated value: \$25,000; renewable once.

DR. AND MRS. MILTON LEONG GRADUATE STUDENT AWARDS**梁家康醫生夫婦研究生獎學金**

Established in 2006 by Dr. and Mrs. Milton Leong to allow McGill University to attract and retain top students in its Faculty of Science.

Eligibility: Awarded by the GPSO, upon the recommendation of the Faculty of Science, to graduate students who are accepted into or registered in a program in the Faculty of Science, and who have also been granted an external fellowship, such as NSERC or FQRNT.

Estimated value: \$5,000, or at the discretion of the Dean of the Faculty of Science; non-renewable.

DR. JAMES E. GRIFFITHS AWARD IN MATERIAL SCIENCES

Established in 2001 by Dr. James E. Griffiths, Ph.D. 1959.

Awarded by the GPSO upon recommendation of the Faculty of Science to an outstanding incoming graduate student pursuing studies and research in material sciences in the Faculty of Science. Preference will be given to students holding an FQRNT (FCAR) or NSERC fellowship.

Estimated value: \$1,500.

HELLER FAMILY FELLOWSHIPS IN ARTS AND SCIENCE

Established in 2007 by William Jacob Heller, B.Com. 1978 for outstanding doctoral students in the Faculty of Arts and the Faculty of Science. Awarded by the Graduate and Postdoctoral Studies Office upon the recommendation of the faculties of Arts and Science.

Value: \$10,000 each; renewable twice.

MARY LOUISE TAYLOR FELLOWSHIP

Established in 1994 through a donation of Mrs. Judy Mappin, B.Sc. 1950, in memory of her late sister Mary Louise Taylor, B.A. 1952.

Eligibility: Awarded by the GPSO. The fellowships may be held by students registered in any graduate program in the Faculty of Science at McGill, with preference given to women. No citizenship restrictions.

Value: \$15,000; renewable once.

WOMEN IN SCIENCE FELLOWSHIP

Established in 2007 by Tania Zouikin, alumni, friends, faculty, students and staff of the Faculty of Science. Awarded by the Graduate and Postdoctoral Studies Office, on recommendation of the Faculty of Science, to an outstanding student entering any graduate degree program in science. Preference will be given to female candidates.

Estimated Value: \$15,000; renewable once at the Master's level and twice at the Doctoral level.

5.12.1 Atmospheric and Oceanic Sciences**MAX DUNBAR AWARD IN OCEANOGRAPHY**

Derived from contributions from former students of Prof. M. J. Dunbar in recognition of his teaching and research career at McGill. Awarded each year by the Oceanography Advisory Committee to a student in any marine field of study with an outstanding academic record.

Value: \$350.

STEPHEN AND ANASTASIA MYSAK GRADUATE FELLOWSHIP

Established in 2006 by Professor Lawrence A. Mysak in honour of his father, Stephen Mysak (born December 24, 1906) and in memory of his mother, Anastasia Mysak (1907-1978). Awarded by the Graduate and Postdoctoral Studies Office upon nomination of the Faculty of Science, to a full-time graduate student in the Department of Atmospheric and Oceanic Sciences. The Fellowship will be awarded on the basis of academic excellence to students pursuing research in one or more fields of air-sea interaction, oceanography or climate.

Estimated value: \$15,000 per year; renewable once at the Master's level, twice at the Doctoral level.

5.12.2 Biology

ARTHUR WILLEY MEMORIAL FELLOWSHIPS

Eligibility: New applicants to the M.Sc. or Ph.D. program; to be awarded on the recommendation of the Biology Department.

Value: \$2,500; non-renewable.

Application: An application for admission must be received in the Biology Department prior to March 1.

PHILIP CARPENTER FELLOWSHIP IN BIOLOGY

Established in 1892 by Mrs. Philip P. Carpenter to provide "a post-graduate teaching fellowship or scholarship in Natural Science or some branch thereof."

Eligibility: New applicants to the M.Sc. or Ph.D. program; to be awarded on the recommendation of the Biology Department.

Value: Two awards of \$2,000 each year.

Application: An application for admission must be received in the Biology Department prior to March 1.

VINEBERG FAMILY FELLOWSHIP

Established in 1990 by the family of Gertrude Vineberg to support research on environmental quality.

Eligibility: Awarded by the GPSO on the recommendation of the Executive Committee of the Limnology Research Centre to an outstanding student pursuing graduate studies and research on fresh water pollution, conservation and rehabilitation.

Value: \$8,000, non-renewable.

5.12.3 Chemistry

CANADIAN SOCIETY FOR CHEMISTRY - MONTREAL-2001 GRADUATE AWARD

Established in 2002 by the organizing committee of the CSC-Montreal 2001 conference to recognize excellence and distinguished academic standing by students in the Department of Chemistry.

Eligibility: Awarded by the Department of Chemistry to one or more outstanding graduate students to support expenses related to the presentation of a paper or papers at a major national or international conference.

Value: Minimum \$1,000.

CARL A. WINKLER AWARD IN CHEMISTRY

Made possible by the donations of his graduate students, colleagues, friends, and a matching gift by Polysar Limited.

Eligibility: Given annually to the Ph.D. candidate who upon graduating is judged to be of outstanding academic excellence.

Value: Approximately \$1,000.

Application: No applications necessary. Awarded by the Chemistry Department.

COLL MCFEE MEMORIAL SCHOLARSHIP

Established in 1968 from a bequest of the late Miss Julia Beatrice Anderson McFee in honour of her father, Coll McFee and her brother, Malcolm Charles Coll McFee, B.A. (1905), B.Sc. (1908), M.Sc.

Eligibility: To a student proceeding to the M.Ed. (Secondary Education) degree in Chemistry or a graduate of the McGill Chemistry Department who is proceeding to a M.Sc. or Ph.D. degree.

Value: Varies.

Application: No Applications necessary. Awarded by the Chemistry Department.

DAVID J. SIMKIN AWARD IN PHYSICAL CHEMISTRY

Established in 1998 in honour of D.J. Simkin, physical chemistry professor in the Department of Chemistry from 1969-1997.

Value: \$500.

Application: Awarded by the Department of Chemistry to a doctoral student at the beginning of the student's third year of doctoral studies in physical chemistry research on the basis of excellence in graduate course work and research.

F.O. FOWLER MEMORIAL FELLOWSHIP

Based on donations from Canadian Pacific Forest Products Limited in memory of their employee, Frank Fowler, a graduate of McGill (B.Eng. '42). Awarded every two years.

Eligibility: Open to graduate students enrolled in a Master's of Engineering or Science program. Preference given to children of C.P. Forest Products Ltd. employees. Restricted to Canadian citizens.

Value: \$8,000; renewable once.

Application: For information contact the Chair, Department of Chemical Engineering or Chair, Department of Chemistry.

PALL DISSERTATION AWARD

Established in 1997 by Dr. David Pall.

Value: \$6,000.

Application: No application necessary. Awarded by the Department of Chemistry to an outstanding doctoral student who is in the last six months of the Ph.D. program.

RICHARD T. MOHAN SCHOLARSHIP

Established in 1971 to honour the memory of the late Richard T. Mohan.

Eligibility: Awarded to a post-graduate student proceeding to the Ph.D. degree.

Value: Varies.

Application: No applications necessary. Awarded by the Chemistry Department.

ROBERT ZAMBONI PRIZE(S) IN CHEMISTRY

Established in honour of Dr. Robert Zamboni (Ph.D. in Chemistry 1979), a distinguished Medicinal chemist at Merck Frosst Centre for Therapeutic Research.

Eligibility: Awarded by the Department of Chemistry on an annual basis to graduate students who have demonstrated excellence in research for the dissemination of their research.

Value: Minimum \$300.

TAK-HANG (BILL) AND CHRISTINA CHAN FELLOWSHIP IN CHEMISTRY

Established in 2007 by colleagues, students, family and friends in honour of Tak-Hang (Bill) Chan, former Chair of the Department of Chemistry, Dean of Science, and Vice-Principal (Academic) to support graduate studies and research in the Department of Chemistry. Awarded by the Graduate and Postdoctoral Studies Office upon nomination by the Department of Chemistry, Faculty of Science, to an outstanding graduate student.

Value: \$15,000 non-renewable.

T. STERRY HUNT AWARDS IN CHEMISTRY

Value: Several \$400 awards for best demonstrating.

Application: No applications necessary. Awarded by the Chemistry Department.

UDHO, PARSINI, DIWAN AWARD IN CHEMISTRY

Established in 1994 by Mr. G.C. Kakar, Dr. A. Kakar, and Mr. P. Kakar in memory of family members. Awarded on the basis of the best research paper published in the calendar year by a graduate student in the Chemistry Department.

Eligibility: Recipients must be registered at the time of submission of the research paper for the competition.

Value: \$300.

Application: Awarded by the Department of Chemistry in January each year.

5.12.4 Computer Science

ANDRÉ COURTEMANCHE FELLOWSHIP FOR EXCELLENCE IN COMPUTER SCIENCE

Established in 2003 by André Courtemanche, B.Sc.1985, M.Sc. 1987, for an outstanding graduate student who will be pursuing the first or second year of a Master's degree in Computer Science in the Faculty of Science. Awarded by the Graduate and Postdoctoral Studies Office upon the recommendation of the School of Computer Science on the basis of merit.

Value: \$10,000; renewable once for first year students.

ANDRÉ COURTEMANCHE FELLOWSHIPS IN BIOINFORMATICS

Established in 2004 by André Courtemanche, B.Sc. 1985, M.Sc. 1987, for outstanding graduate students in the Faculty of Science's School of Computer Science, who are pursuing their Doctorate or Master's degree in the field of Computer Science, and conducting research in bioinformatics.

Eligibility: Awarded on the basis of academic merit by the Office of Graduate and Postdoctoral studies on the recommendation of the School of Computer Science, with a preference for newly admitted NSERC or FQRNT fellowship recipients, or alternatively, international students with upper first class or equivalent standing.

Value: \$6,250; renewable for an additional year

5.12.5 Earth and Planetary Sciences

ALEXANDER A. MCGREGOR FELLOWSHIP IN EARTH AND PLANETARY SCIENCES

Established by Mr. Alexander A. McGregor (B.Sc. McGill '48).

Eligibility: Awarded on recommendation of the Department of Earth and Planetary Sciences to an outstanding research student in any field of the earth sciences.

Value: \$10,000.

CARL REINHARDT SCHOLARSHIPS AND BURSARIES IN PHYSICS AND EARTH AND PLANETARY SCIENCES

Established from the estate of the late Carl Reinhardt.

Eligibility: To be used for scholarships or bursaries or in the support of research for graduate students in Physics, and Earth and Planetary Sciences. Awards are made by the Chair of the department concerned.

Value: Varies.

DAVID HARRIGAN MEMORIAL PRIZE

Established in 1980 by his classmates, friends and family in memory of David Harrigan (B.Sc. 1973, M.Sc.A. 1975).

Eligibility: Awarded by the Faculty of Science Scholarships Committee on the recommendation of the Department of Earth and Planetary Sciences to a student with high standing in the M.Sc. (Applied) course, or to a graduate or undergraduate student with an interest in geochemistry.

Value: \$800.

GERALDINE ELIZABETH DAVIDSON FELLOWSHIP

Eligibility: Established in 1989 by a bequest from Geraldine E. Davidson to support students with good academic standing and financial need registered in Graduate Studies and studying towards a higher degree in the field of earth and planetary sciences. Awarded by the Department of Earth and Planetary Sciences.

Value: \$6,000.

J.B. LYNCH FELLOWSHIP IN EARTH AND PLANETARY SCIENCES

Eligibility: For an outstanding student commencing or continuing postgraduate studies in Earth and Planetary Sciences. Awarded by the Department of Earth and Planetary Sciences.

Value: \$15,000.

JOHN STEVENSON MEDAL

Eligibility: Awarded on the Department's recommendation to the graduating student ranking first in the M.Sc.A. program in Mineral Exploration in the Department of Earth and Planetary Sciences.

LEROY MEMORIAL FELLOWSHIPS IN EARTH AND PLANETARY SCIENCES

Established by friends of Captain O.E. LeRoy (Arts, 1895), who was killed at Passchendale, in October 1917.

Eligibility: May be awarded annually to a student who desires to proceed with postgraduate studies in Earth and Planetary Sciences at McGill.

Value: \$7,000.

Application: Awarded by the Department of Earth and Planetary Sciences.

WILLIAM HENRY HOWARD SCHOLARSHIPS

Bequeathed in 1955 by the late Mrs. Florence P. Howard in memory of her husband.

Eligibility: Open to undergraduate and graduate students in Earth and Planetary Sciences.

Value: Two scholarships of \$2,500 each.

Application: Awarded by the Department of Earth and Planetary Sciences.

5.12.6 Geography

JOHN BRADBURY AWARD IN GEOGRAPHY

Established in memory of John Bradbury, remembered as one who inspired students and colleagues alike with his enthusiasm for understanding the world, and his commitment to improving the working conditions of ordinary people.

Eligibility: Awarded annually to a Master's student in Geography, alternately from McGill (even-numbered years) and Simon Fraser (odd-numbered years), whose thesis topic is related to John Bradbury's research interest in the economic geography of Canadian resource towns and international development, especially economic and social problems of resource town planning, economic restructuring, housing, class conflict and gender and work.

Value: \$1,000.

Application: Awarded by the Department of Geography.

WARREN FELLOWSHIPS IN GEOGRAPHIC INFORMATION SYSTEMS

Established by Roger Warren (B.Com. 1955) to graduate students with strong academic standing whose research is in geographic information systems. Awarded to one or more students by the GPSO upon the recommendation of the Department of Geography.

Value: Minimum \$5,000; renewable.

5.12.7 Physics

CARL REINHARDT SCHOLARSHIPS AND BURSARIES IN PHYSICS AND EARTH AND PLANETARY SCIENCES

Established from the estate of the late Carl Reinhardt.

Eligibility: To be used for scholarships or bursaries or in the support of research for graduate students in Physics, and Earth and Planetary Sciences. Awards are made by the Chair of the department concerned.

Value: Varies.

DOW-HICKSON FELLOWSHIP IN PHYSICS

Endowed by the late Professor J.W.A. Hickson.

Eligibility: Awarded to a graduate student of any approved university proceeding to a higher degree in any branch of physics at McGill, or by a McGill graduate pursuing such studies elsewhere.

Value: Two fellowships of \$6,500 each.

Application: Current graduate students apply to the Chair, Department of Physics.

5.12.8 Psychology

JUDITH MAPPIN FELLOWSHIP IN WOMEN'S HEALTH

Established in 2002 by Judith Mappin, B.Sc. 1950, for an outstanding graduate student in the Faculty of Science's Department of Psychology pursuing research in Women's Health.

Eligibility: Awarded by the Department of Psychology upon the basis of academic merit.

Value: Minimum \$20,000; renewable.

6 Student Financial Assistance

6.1 Government Student Aid

6.1.1 Citizens and Permanent Residents of Canada

Need-based student financial aid programs are offered by the federal/provincial governments. Applications should be directed directly to the province (or territory) of residence. Application forms are available from the governmental authorities as well as the Student Aid Office. Information on governmental student aid and links can be found on McGill's Financial Aid Website at www.mcgill.ca/studentaid.

6.1.2 Citizens and Permanent Residents of the United States

McGill University participates in the **Federal Family Education Loan Program (FFELP)**. American students in need of financial assistance may apply for Stafford loans.

All students applying for loans must file a **Free Application for Federal Student Aid (FAFSA)** to determine financial need. This can be done on-line at www.fafsa.ed.gov. Our school code is G06677. Applicants will need to obtain the necessary PIN number to validate their signature before electronically sending the application to be processed. Follow the steps on the FAFSA Website to obtain the PIN.

The report generated from the FAFSA is called a **Student Aid Report (SAR)**. The SAR is not sent to our school as indicated on the FAFSA Website. However, if you have designated McGill University as a school you may attend, we will be able to retrieve your SAR.

Stafford Loans

Graduate students and students in professional programs may borrow up to the cost of attendance, to a maximum of \$18,500 US. \$8500 of this amount may be a subsidized loan.

Information from the SAR and any financial aid received from your department and other sources is used to determine how much of the loan will be subsidized (interest free during full time studies) or not subsidized (interest is charged during full time studies).

Students who qualify for the subsidized loan will begin repayment of the principal and interest six months after they cease to be enrolled at least half time. Students receiving unsubsidized loan funds may pay the interest charges while they are in school, with principal deferred, until they cease to be enrolled at least half time; or they can choose to have both the interest and principal deferred until after they cease to be enrolled at least half time.

You must report any financial aid you are receiving (including funding from your department) when you apply for Stafford loans. This information should be submitted in writing to our office.

How to Apply for Stafford Loans

Each year, in addition to filing a FAFSA, a student must sign a Stafford Master Promissory Note (Stafford MPN). The MPN documents a student's choice of guarantor and lender as well as the obligation to repay the loan.

Please note that at the time of printing, the application process for submission of the Stafford and PLUS MPNs is being revised. New information regarding the use of e-signatures for these documents will be updated on our Website at www.mcgill.ca/studentaid

in early spring. E-sign will be available for students who use our preferred guarantor, **American Student Assistance (ASA)**, and **Northwest Education Loan Association (NELA)**.

Students who are residents of **Vermont** should apply using **Vermont Student Assistance Corporation (VSAC)** as a guarantor. Students may order an application package at www.vsac.org. Mail the original MPN to VSAC and the school copy of the MPN to our office. It is not yet possible to apply using e-signatures. If you require further information, you may contact Marcia Vance at:

Vermont Student Assistance Corporation
One Main Street
PO Box 2000
Winooski, VT 05404-2601
Phone: 1-800-660-3651, ext. 273 (toll-free in North America)
1-802-654-3770, ext. 273
Fax: 1-802-654-3765
E-mail: vance@vsac.org

Alternative Loans

For students who may need additional sources of funding, there are private alternative loan options.

McGill University works closely with **International Education Finance Corporation (IEFC)**. Visit their Website at www.iefc.com to learn more about their products. Their phone number is 888-296-4332.

SallieMae also offers alternative loans. Their Website is www.salliemae.com. Their phone number is (800) 695-3317.

Deadlines

All applications must be complete and be received by **June 1** to have funds disbursed for the fall semester fee payment deadline.

All applications must be complete and be received by **November 1** to have funds disbursed for the winter semester fee payment deadline.

Disbursement of Loan Funds

Stafford and alternative loans are disbursed in one payment copayable to the student and the school. Cheques are sent to the Student Aid Office. The cheques must be picked up by the student and taken to the Student Accounts Office for processing.

Entrance Counselling

All first time borrowers of Stafford loans are required to complete a session of entrance counseling prior to receiving loan funds. Entrance counseling may be completed on the Web at www.mapping-your-future.org. Our office will be notified when the entrance counseling has been completed.

Contact Information

Student Aid Office
3600 McTavish Street, Room 3200
Montreal, Quebec
Canada H3A 1Y2
Telephone: 514-398-6015
Fax: 514-398-7352
E-mail: student.aid@mcgill.ca
Website: www.mcgill.ca/studentaid

McGill Financial Aid

The Student Aid Office also administers the University's need-based financial aid program, which includes short term loans to cover emergency situations, limited bursary assistance, and a Work Study program. All applicants for aid must first apply for the maximum government assistance for which they may be eligible.

Applications should be directed to:
Student Aid Office, Brown Student Services Building,
3600 McTavish Street, Montreal, Quebec H3A 1Y2
Telephone: (514) 398-6013/6014
E-mail: student.aid@mcgill.ca
Website: www.mcgill.ca/studentaid

6.2 McGill Student Aid

The Student Aid Office administers the University's need-based financial aid programs which includes short-term loans, limited bursary assistance and a Work-Study program. All applicants for aid must first apply for the maximum government assistance for which they may be eligible. The Office is located in the Brown Student Services Building, 3600 McTavish, suite 3200, Telephone (514) 398-6013/14. A limited number of small bursaries are awarded on the basis of financial need and academic standing. Funding for the bursaries comes from several different sources at McGill including an annual transfer of funds to the Student Aid Office from the Graduate and Postdoctoral Studies Office.

CAROLINE AND RICHARD RENAUD BURSARIES

Endowed in 1999 with a generous gift from Carolyn and Richard Renaud.

Eligibility: Awarded on the basis of financial need by the Student Aid Office to students entering or enrolled in graduate studies at McGill with a preference to students in programs in the Graduate School of Library and Information Studies.

EBEN HOPSON BURSARY FOR STUDY AT MCGILL

Established in 1988 through a donation from the North Slope Borough of Alaska in honour of the late Eben Hopson, Mayor of the North Slope Borough from 1972 to 1980, to advance the pursuit, promotion and sharing of knowledge in those areas which are of common interest and relevance to the scientific, social and economic development, and the greater welfare of the North Slope Borough and the countries of the Circumpolar North.

Eligibility: For the support of students from the North Slope Borough of Alaska for graduate or undergraduate studies at McGill in any field deemed in the welfare of the North Slope Borough.

Application: Applications should be submitted to the GPSO and awards will be made by the Eben Hopson Fellowship committee and the North Slope Mayor or designee.

Value: \$6,000. Awards are renewable for a second year of Masters study, to a fourth year of Doctoral studies and Bachelor's study.

GEORGES, PAUL AND ROBERT MASSON BURSARIES IN SCIENCE

Established in 2002 by Georges Masson, Ph.D. 1942, Paul Masson, B.A. 1968, and Robert Masson, B.Sc. 2002, to commemorate the three generations of Massons at McGill.

Eligibility: Awarded to one or more students in good academic standing, enrolled in a graduate or undergraduate degree program in any department in the Faculty of Science. Preference shall be given to students in the departments of Biology and Mathematics. Awarded by the Student Aid Office on the basis of financial need.

GRADUATE STUDENTS' BURSARY FUND

Established in 1989 by the GPSO to assist full-time students in any graduate degree program. Awarded by the Student Aid Office to students requiring financial assistance to pursue studies or research at McGill.

GRADUATE STUDENTS' LOAN FUND

Established in 1951 by the Board of Governors for students in Graduate Studies.

IRVING ORRIN VINCENT BURSARY

Established by Mrs. J.B. Owen in memory of her father, the late Irving Orrin Vincent, B.A. 1907, M.A. 1908, a noted teacher and Principal of Edward VII School in Montreal from 1912 until his death in 1920.

Eligibility: Awarded annually by the Student Aid Office on the basis of academic merit and financial need to a graduating student in the Faculty of Arts proceeding towards an M.A., M.Ed., or Doctorate in Classics or Education.

JENNIE AND JOSEPH SALOMON MEMORIAL BURSARY

Eligibility: Established by the children of Mr. and Mrs. J. Salomon in their memory. Awarded to a deserving student in need who has completed the final undergraduate year in the Faculty of Arts or Science, and is entering a graduate program. Tenable for one year.

VAN BERKOM AND ASSOCIATES INC. BURSARY

Established in 1998 by Van Berkomp and Associates Inc., an investment management firm specializing in small capitalization stocks. Awarded by the Student Aid Office to full-time students entering their second year of the MBA program, on the basis of high academic standing and financial need. Preference will be given to students pursuing a concentration in finance who wish to pursue a career in investment management.

Value: \$2,000.

7 Postdoctoral Fellowships

In accordance with McGill University's *Guidelines for Academic Units on Postdoctoral Education (Senate, April 2000)*, all internal and external postdoctoral fellowships with a value lower than the minimum financial support stipulated in the guidelines will be supplemented from sources other than the individual's personal means, including faculty or departmental funds, research grants or contracts or other allowable funds.

The guidelines stipulate that a postdoc must be assured of financial support, other than from personal means, during his/her stay in the University equivalent at the time of appointment to at least 90% of the lesser of either the federal (NSERC, SSHRC or CIHR) or the provincial (FQRNT, FRSQ or FQRSC) research council postdoctoral fellowship pertinent to his/her discipline.

Subject to change in regard of the value of the council fellowships, the minimum funding level in each disciplinary area in 2008-09 is:

- Social Sciences and Humanities: \$27,000
- Natural Sciences and Engineering: \$27,000
- Medical and Health Sciences: \$27,000

Individuals seeking postdoctoral funding in medical sciences may wish to contact the Research and Graduate Studies Office, McGill Faculty of Medicine, 6th floor, McIntyre Medical Building, 3655 Promenade Sir William Osler, which often receives postdoctoral funding information directly from external agencies.

An informal information site on postdoctoral fellowships and employment in the Sciences and Health Sciences has been compiled by the Association Bernard Gregory in France at www.abg.asso.fr under "L'emploi sur Internet". It provides links with various relevant sites.

SPIN Database by InfoEd International: McGill University subscribes to the SPIN database for sources of research funding. Please refer to [section 2.2, "Further Information"](#).

7.1 Internal Postdoctoral Fellowships

AMY WONG FELLOWSHIP

黃辛炯僖夫人獎學金

Established in 1998 by a generous gift from a McGill graduate of Chemical Engineering (Class of 1959) from Hong Kong.

Eligibility: Awarded to a qualified student from China, including Hong Kong, who is an entering postdoctoral scholar, Ph.D. or M.Sc. student conducting agricultural production/food related research in the Faculty of Agricultural and Environmental Sciences. Awarded by the Dean of the Faculty in consultation with the departments. The recipients are expected to return to their home country after the completion of their studies.

Estimated Value: Minimum \$20,000; renewable once at the master's level and twice at the doctoral or postdoctoral levels.

CHARLES E. FROSST/MERCK FELLOWSHIP IN PHARMACOLOGY

Established in 2007 by Dr. Alan C. Frosst and Merck Frosst Canada Ltd. To support research and scholarship in the area of aging and neuro-degeneration under the supervision of the Charles E. Frosst-Merck Chair in Pharmacology.

Eligibility: Awarded by the Faculty of Medicine upon recommendation of the Department of Pharmacology and Therapeutics to an outstanding postdoctoral student in the Department.

Value: \$46,000; renewable up to two times based upon evaluation by the Department of Pharmacology and Therapeutics. This fellowship is accompanied by a research allowance of up to \$14,000 per year.

THE COLE FOUNDATION FELLOWSHIPS IN MEDICINE

Established by The Cole Foundation in 2006 to fund fellowships for postdoctoral research in pre-leukemia, leukaemia and other cancer-related diseases within the McGill University Faculty of Medicine or its affiliated hospitals.

Eligibility: Eligible areas include fundamental, translational, clinical and population-based research, with an emphasis on children and young adults. Two-year Fellowships will be awarded by the Postgraduate Awards Committee of the Faculty of Medicine, the second year of funding being contingent on a favourable mid-term evaluation.

Value: \$40,000 per year for Post-Ph.D.; \$50,000 per year for post-MD.

COMMANDER C. BELLAIRS POSTDOCTORAL FELLOWSHIPS

Eligibility: Tenable at the Bellairs Research Institute of McGill University, St. James, Barbados, for research in marine related fields including: biology, ecology, behavioural and avian ecology, geography and geology. Candidates should have recently attained their Ph.D. and must clearly demonstrate a definite need to carry out their research at the Institute.

Value: \$20,000 per year, plus travel expenses. Renewable once.

Deadline: Check availability with the GPSO Fellowships and Awards Section.

CONRAD F. HARRINGTON POSTDOCTORAL FELLOWSHIPS

Established in 1999 in honour of Conrad F. Harrington in recognition of his leadership in developing in McGill University Health Centre.

Eligibility: The postdoctoral fellowship in the area of amyotrophic lateral sclerosis (ALS) will support researchers who have received their M.D. or Ph.D. degrees and who wish to advance their research careers in the Faculty of Medicine in the McGill University Health Centre. In the event that there are no candidates investigating ALS, the fellowship will be awarded to support a postdoctoral candidate working in a related area of neurological disease. Awarded by the Postgraduate Award Committee of the Faculty of Medicine.

Value: \$17,000.

Application: Further information can be obtained from www.medicine.mcgill.ca/research or by contacting the Research Office of the Faculty of Medicine.

DR. DAVID T.W. LIN FELLOWSHIP**林達威醫生獎學金**

Established in 1998 by a generous gift from a McGill graduate of Chemical Engineering (Class of 1959), from Hong Kong, in recognition of Dr. David T.W. Lin, B.Sc. 1937, M.D., C.M. 1940, a surgeon emeritus at the Royal Victoria Hospital, to support medical research.

Eligibility: Awarded by the Postgraduate Awards Committee of the Faculty of Medicine to a student at the postdoctoral, Ph.D. or M.Sc. level.

Value: Minimum \$20,000.

Application: Further information can be obtained from www.medicine.mcgill.ca/research or by contacting the Research Office of the Faculty of Medicine.

DR. ROBERT G.H. LEE FELLOWSHIP**李甘棠博士獎學金**

Established in 1998 by a generous gift from a McGill graduate of Chemical Engineering (Class of 1959), from Hong Kong, in honour of Dr. Robert G.H. Lee, B. Eng. 1947 (Metallurgical Engineering).

Estimated value: \$10,000. Renewable once at the master's level and twice at the postdoctoral or doctoral levels.

Application: Awarded by the GPSO on the recommendation of the Faculty of Engineering to an entering postdoctoral, doctoral or master's student in either Chemical Engineering or Mining and Materials Engineering.

DR. WAH LEUNG FELLOWSHIP**梁甦華牙醫獎學金**

Established in 1998 by a generous gift from a McGill graduate of Chemical Engineering (Class of 1959), from Hong Kong, in honour of Dr. Wah Leung, the first Dean of Dentistry at the University of British Columbia.

Eligibility: Awarded by the Faculty of Dentistry to an entering postdoctoral, doctoral or master's student in the Faculty of Dentistry who is working in pain, oral cancer or bone tissue research.

Value: Minimum \$20,000. Renewable once at the master's level and twice at the postdoctoral and doctoral levels.

MCLAUGHLIN FELLOWSHIP

Established by the R. Samuel McLaughlin Foundation for post-M.D. fellows undertaking research within McGill University and affiliated hospitals.

Eligibility: The Fellowship will be awarded by the Postgraduate Awards Committee of the Faculty of Medicine for one year, but the recipient is eligible to re-enter the competition for a second year of support. Applicants must be eligible to practice in Quebec.

Value: Minimum \$25,000.

Application: Further information can be obtained from www.medicine.mcgill.ca/research or by contacting the Research Office of the Faculty of Medicine.

PETER QUINLAN FELLOWSHIP

To honour the memory of Peter Quinlan, a fellowship fund has been established in his name by his family and friends.

Eligibility: The Peter Quinlan Fellowship will support young researchers (M.D. or Ph.D.) who wish to undertake postdoctoral training in Oncology at McGill University and its affiliated hospitals under the direction of a member of the Faculty of Medicine. The Fellowship will be awarded by the Postgraduate Awards Committee of the Faculty of Medicine for one year, but the recipient is eligible to re-enter the competition for a second year of support.

Value: Stipend will follow CIHR salary scale.

Application: Further information can be obtained from www.medicine.mcgill.ca/research or by contacting the Research Office of the Faculty of Medicine.

RICHARD H. TOMLINSON POSTDOCTORAL FELLOWSHIPS

Established in 2000 through a very generous gift from Dr. Richard H. Tomlinson (Ph.D. 1948). Awarded annually by the GPSO to recruit outstanding individuals into postdoctoral positions in any department at McGill University. Tomlinson Fellows who accept a fellowship from an agency external to McGill will be entitled to one-half the full value of the Tomlinson Fellowship.

Eligibility: The Tomlinson Postdoctoral Fellowships are for new postdoctoral scholars accepted into a postdoctoral research position at any department at McGill University.

Value: \$30,000, renewable annually based on satisfactory progress, to a maximum tenure of 2 years for postdoctoral level.

Deadline: December 1.

Application: Applications for a Tomlinson Postdoctoral Fellowship must reach the intended department by December 1 and should be accompanied by a letter from a McGill faculty member indicating their willingness to supervise the applicant's postdoctoral research in the event a fellowship is awarded. Current doctoral students and postdoctoral scholars at McGill are not eligible to apply. www.mcgill.ca/gps/fellowships

SUSTAINABLE AGRICULTURE FELLOWSHIP

Established in 1995 through an endowment by a graduate of the Macdonald Farm Management and Technology Program, to foster innovative research in sustainable development that might not otherwise find support through traditional funding sources.

Eligibility: The proposed research would address themes such as food systems, agriculture, conservation, and the environment; sustainable systems and the community; issues in Canada's North; and food, nutrition and community development. Awarded by the Faculty of Agricultural and Environmental Sciences Scholarship Committee on the basis of academic merit and suitability of the proposed research to the fellowship theme. Priority will be given to postdoctoral fellows.

Value: \$35,000 at the postdoctoral level, may be renewable once.

Deadline: February 1, to Scholarships Committee for a fellowship commencing September 1.

Application: Additional information is available from the Macdonald Campus Student Affairs Office, 21111 Lakeshore, Ste-Anne-Bellevue, Quebec, H9X 3V9. Doctoral candidates will be considered in the second round if no suitable postdoctoral candidate is found.

7.2 External Postdoctoral Fellowships

Please refer to [section 3, "External Fellowships"](#) for information on postdoctoral opportunities.

8 Exchange and Travelling Fellowships

Information on funding opportunities for graduate study and research outside of Canada is contained in many of the reference books and directories listed in [section 2.2, "Further Information"](#). One of the most comprehensive publications is UNESCO's "Study Abroad", available for consultation at the Graduate and Postdoctoral Studies Office, Fellowships and Awards Section, the McLennan Library and many national libraries around the world.

Embassies, consulates and commissions of foreign countries located in Canada also are excellent sources of information on funding opportunities for students intending to study abroad. Addresses and telephone numbers of all diplomatic representatives in Canada can be obtained from the Department of External Affairs in Ottawa at (613) 996-4376. For McGill students seeking funding for graduate study outside Canada, the graduate awards offices of foreign universities themselves are often the best source of information. The McLennan Library has a vast collection of foreign university catalogues. The French embassy in Ottawa has a complete Website on France-Canada exchange programs at <http://ambafrance-ca.org/HYPERLAB/FFCR> under "l'aide-mémoire des échanges scientifiques franco-canadiens".

McGill University has signed a number of agreements with universities in other countries, many of which include a student exchange component. As a member of the Conference of Rectors and Principals of Quebec Universities (CREPUQ), McGill also participates in a number of student exchange programs with designated universities in the United States and Europe. Further information on such programs may be obtained from the Student Exchange Officer, Enrolment Services, James Administration Building, Room 206, McGill University. Tel: (514) 398-8342.

SPIN Database by InfoEd International: McGill University subscribes to the SPIN database for sources of research funding. Please refer to [section 2.2, "Further Information"](#).

ALMA MATER STUDENT TRAVEL GRANT

Eligibility: The Alma Mater Student Fund, administered by the GPSO, will provide awards for McGill graduate students in any discipline to travel to attend a scholarly meeting or conference where they will be presenting a paper relating to their graduate research. Support for this program comes from three sources: the Alma Mater Fund of McGill University, the Social Science and Humanities Research Council of Canada (SSHRC) in the case of students in the social sciences and humanities, and the Post-Graduate Student Society (PGSS). Additional funding may also come from NSERC and SSHRC residual postgraduate scholarship funds, depending on availability.

Value: \$750.

Deadlines: September 15, January 15 and May 15 of each year.

Application: Further details and application forms are available on the Web at www.mcgill.ca/gps/fellowships under Fellowships and Awards, or from the GPSO Fellowships and Awards Section.

BOURSE PAUL BLANC

Offered alternately each year to a Canadian student from McGill or the Université de Montréal for graduate study at the Université de Lausanne, Switzerland and to a Swiss student from the Université de Lausanne for postgraduate study in Montreal. All things being equal, the fellowship will be offered to a student in science. Research subsidies are also available.

Value: 15,000 Swiss francs, annually (approximately \$12,500 Canadian).

Deadline: January 31.

Application: Further information and application forms are available on the Website at: www.S-A-V.org
Société académique Vaudoise, 1, avenue de Montbenon, case postale 7490, 1002 Lausanne, Switzerland
E-mail: secretariat@S-A-V.org

ASSOCIATION OF UNIVERSITIES AND COLLEGES OF CANADA (AUCC)

AUCC administers several fellowship competitions and exchanges for graduate study. In most cases, candidates must be Canadian citizens or Permanent Residents of Canada for at least one year prior to application. Information concerning eligibility, tenure, as well as application forms available from the Canadian Awards program, Awards Division, Association of Universities and Colleges (AUCC), 350 Albert Street, Suite 600, Ottawa, Ontario K1R 1B1. Tel: (613) 563-1236, www.aucc.ca.

BRITISH CHEVENING SCHOLARSHIPS

Eligibility: For Canadians studying at a university in the UK. Scholarships last up to one year and are typically granted for Masters degree courses. It is highly unusual for the committee to approve an award for Ph.D. studies. It is open to candidates in the following fields of study: Political Science, Law and International Relations, Media, Economics and International Development.

Value: Most awards will cover only university tuition fees, which vary according to the institution. In these cases, living costs and international airfares are not included. In exceptional circumstances the committee may award a full scholarship.

Deadline: January 15.

Application: Information regarding specific application requirements and application forms online at: www.britishcouncil.org/canada-education-students-chevening-scholarships.htm or from the British Council, 80 Elgin Street, Ottawa, Ontario K1P 5K7. Tel: (613) 237 1530 Website: www.britishcouncil.org/canada

CAMBRIDGE CANADIAN TRUST – GRADUATE SCHOLARSHIPS

The Cambridge Canadian Trust offers a number of scholarships each year to Canadian graduates for graduate study at the University of Cambridge. These include: Ph.D. scholarships (Canada Cambridge Scholarships, First Canadian Donner Foundation Research Cambridge Scholarships, Kenneth Sutherland Memorial Cambridge Scholarship, UK Commonwealth (Cambridge) Scholarships, William & Margaret Brown Cambridge Scholarship,

Tidmarsh Cambridge Scholarship), graduate Law scholarships (CIALS Cambridge Scholarships, Pegasus Cambridge Scholarships), and scholarships for one-year postgraduate courses of study (UK Commonwealth (Cambridge) Scholarships). The Cambridge site reminds incoming Canadian Ph.D. students to also apply for the ORS (Overseas Research Student awards), which pay the difference between Home and Overseas fees.

Eligibility: Canadian citizens for graduate study in various fields at Cambridge University.

Value: Scholarships cover tuition fees and/or airfare and/or a living allowance.

Deadlines: Vary depending on programme, but to be eligible for the ORS, your completed academic application must reach the university by early December (check for dates).

Application: For more information, see the Cambridge University graduate funding site for Canadians

(www.admin.cam.ac.uk/univ/gsprospectus/funding/overseas).

The Cambridge homepage is www.admin.cam.ac.uk. Information regarding specific application requirements and application forms are available from the British Council, 80 Elgin Street, Ottawa, Ontario K1P 5V7. Tel: (613) 364-6236 or the University of Cambridge, Board of Graduate Studies, 4 Mill Lane, Cambridge CB2 1RZ, U.K. feesandfunding@gradstudies.cam.ac.uk

CANADA-UNITED STATES FULBRIGHT SCHOLARSHIPS FOR GRADUATE STUDENTS

Proposed projects must comply with the Canada-U.S. Fulbright Program goal of broadening research efforts in the wide range of subjects pertaining to the relationship between Canada and the United States.

Eligibility: Canadian or American citizen with student status.

Graduate students must be already accepted at a university in the host country. If a student has a proposed research project for a duration of nine months that cannot be conducted in the host country, then the student can receive funding, provided he/she is enrolled at a university in his/her home country.

Value: Fulbright scholarships are granted for periods of nine months. The award is a fixed sum US\$15,000 for one nine-month academic year beginning in September. Grantees are expected to use the award to cover necessary expenses such as housing, travel, school fees and other academic expenditures. Basic health insurance is also provided, along with visa services.

Deadline: November 15 for Canadian applicants, October 20 for Americans.

Application: www.fulbright.ca

Forms for Canadian students available at www.fulbright.ca, The Canada US Fulbright Program, 350 Albert Street, Ste. 2015, Ottawa, Ontario K1R 1A4. Tel: (613) 237 2029.

E-mail: info@fulbright.ca

Website: www.fulbright.ca

Forms for American students available from: Institute of International Education, 809 United Nations Plaza, New York, NY, 10017 3580.

CANADIAN BUREAU FOR INTERNATIONAL EDUCATION (CBIE) SCHOLARSHIPS

Eligibility: The CBIE offers a number of support programs that target international development issues, both for Canadians and international students. Scholarship, internship and professional development opportunities are available. The programs supported by the CBIE are: CBIE Grants, CETAA Africa, Bombardier Fellowship (see entry in this section under J. Armand Bombardier Internationalist Fellowships), Lucent Global Science Scholars, and the Youth Internship Program. The CIDA Awards Program for Canadians, formerly administered by the CBIE on behalf of the Canadian International Development Agency, ended on March 31, 2004. No further competitions are envisaged.

Value: Variable, depending on the program.

Deadline: Variable, depending on the program.

Applications: See the Scholarships page on the CBIE Website at: www.cbie.ca/scholarship/index_e.cfm?page=cbie-grants_e. The CBIE homepage is www.cbie.ca and is navigable in French

or English.

Canadian Bureau for International Education, 220 Laurier Ave. West, Suite 1550, Ottawa, ON K1P 5Z9, Canada. Telephone: (613) 237-4820, Fax: (613) 237-1073

E-mail: info@cbie.ca

J. ARMAND BOMBARDIER INTERNATIONALIST FELLOWSHIPS

The J. Armand Bombardier Internationalist Fellowships Program is unique in responding to the need of Canadians to develop their international awareness, its openness to all countries and all disciplines, as well as its objective to increase Canada's participation in the world economy. Applicants to the program show promise of becoming Canada's leaders of tomorrow in their chosen field of endeavour.

Eligibility: Open to Canadians and permanent residents of Canada who hold at least one university degree, or are in the final year of a degree program. The latest degree must have been awarded no longer than five years from the date of application. Applicants must have achieved high academic standing. Recipients of the predecessor program, Celanese Canada internationalist Fellowships, are not eligible to apply again. Fellowships are intended for study in formal postsecondary programs abroad. Consisting of taught courses, lectures or seminars, the international study program may also be combined with a period of research or work (internship). The program abroad must be of one academic year (a minimum of eight consecutive months) including at least four months of taught courses. It may be undertaken anywhere in the world outside Canada and may include more than one location.

Value: \$10,000 per year.

Deadline: March 1 to CBIE (confirm with GPSO Fellowships and Awards Section - the deadline may change in future competitions).

Application: Available from the Canadian Bureau for International Education, 220 Laurier Avenue West, Suite 1100, Ottawa, Ontario K1P 5Z9. Tel: (613) 237 4820; Website: www.cbie.ca

COMMANDER C. BELLAIRS GRADUATE FELLOWSHIPS

Eligibility: Tenable at the Bellairs Research Institute of McGill University, St. James, Barbados (specializing in marine biology, marine ecology, geography, geology, behavioural ecology and other fields). Candidates should be registered full-time in graduate studies at McGill and may apply at any point in their research program for a fellowship to allow them to work at Bellairs.

Value: Up to \$10,000 per year, plus travel expense for graduate level, and up to \$20,000 per year for postdoctoral level.

Deadline: Check availability with the GPSO Fellowships and Awards Section.

Application: The fellowship is not being offered until further notice.

COMMONWEALTH SCHOLARSHIPS FOR GRADUATE STUDIES

(Program currently under review by the Department of Foreign Affairs and International Trade Canada.)

Eligibility: The Commonwealth countries of India, Jamaica, Malta, New Zealand, Nigeria, Trinidad & Tobago, and the United Kingdom offer scholarships to Canadian citizens and, in certain cases, to permanent residents of Canada, for graduate studies (Master's or Ph.D.) or, in some countries, for research toward a Canadian graduate degree. The list of countries may change - see the Website listed below for further details. Canadian citizens are eligible to apply for all programs. The Canadian Scholarship Selection Committee will only consider permanent residents of Canada who are graduates of a Canadian university. Permanent residents of the awarding country are not eligible. See the Website for further eligibility restrictions and also restrictions specific to the host country where study is to be undertaken.

Value: Awards normally cover airfare, tuition, a living allowance and, in certain cases, expenses related to medical coverage and

the purchase of books. Awards usually have a duration of 1 year (Master's) or 3 years (Ph.D.), though there may be exceptions.

Deadline: Deadlines depend on the duration of the academic year in host countries. As the list of countries is subject to change, the deadlines will be variable from year to year as well - it is suggested that the Website be monitored on a regular basis by interested applicants.

Application: Information and application forms are available on the Web at: www.scholarships.gc.ca

The GPSO site can also be consulted: www.mcgill.ca/gps/fellowships/grad.

Website: www.scholarships.gc.ca

DEUTSCHER AKADEMISCHER AUSTAUSCHDIENST (DAAD) – GERMAN ACADEMIC EXCHANGE FELLOWSHIPS

The German Academic Exchange Service (DAAD) offers scholarships to highly-qualified students for graduate study and/or research at universities or institutes in Germany.

Eligibility: McGill students may be eligible to apply for DAAD fellowships under two distinct programs: McGill/DAAD and Bourses Québec-Allemagne, run by MELS.

DAAD Fellowships (Annual Grants) are open to graduating seniors, graduate students and Ph.D. candidates under 33 years of age, enrolled full-time at time of application. Applicants must have a well-defined research project that makes a stay in Germany essential. They must also have adequate knowledge of the German language to carry out their proposed research.

Value: Depending on the award holder's academic level, the DAAD will pay a monthly award of 715 Euro (graduates holding a first degree), 795 Euro (doctoral candidates) or 975 Euro (doctoral candidates with at least two years academic work experience), plus travel and luggage costs and a health insurance allowance.

Application: Information and application forms are available from the GPSO Fellowships and Awards Section at

www.mcgill.ca/gps/fellowships, Deutscher Akademischer Austauschdienst (DAAD) at www.daad.org, or from the Programme de bourses des gouvernements étrangers at

www.mels.gouv.qc.ca/ens-sup/ens-univ/bourses.asp. Please note that only one application should be submitted.

FOREIGN GOVERNMENT AWARDS

The Foreign Government Awards are intended to assist Canadian students in furthering their studies or conducting research abroad at the master's, doctoral or postdoctoral level. As part of the implementation of cultural agreements with the Government of Canada, the governments of Chile, Colombia, Germany, Korea, Mexico, the Philippines, and Russia will offer awards to Canadian graduate students tenable in 2008-2009. These awards have been combined to form the Foreign Government Awards (FGA) Program, which is administered by the CBIE. The governments of Italy, Japan, the Netherlands and Spain also offer awards to Canadian students. However, the embassies of these countries in Canada are responsible for the administration of their scholarships.

Eligibility: A common condition is that the applicant be a Canadian citizen and have completed a first degree.

Value: Although all of the awards are similar in nature, the value of each award is determined by the offering country. Most awards cover travel to and from the host country, tuition and registration fees, and a monthly living allowance. Several awards also cover books, mandatory health and accident insurance and various other allowances.

Deadline: Deadlines for submission of applications vary depending on whether the competitions are administered by the CBIE or by each of the Embassies in Canada. Please also note that the forms provided on the Website can only be used for those competitions administered by the CBIE. Forms for those competitions directly administered by the Embassies in Canada of participating countries must be obtained from the relevant Embassy or Consulate. See the Website for Embassy contact information. For more information on deadlines and submission information: www.scholarships.gc.ca.

Applications: Applications and further information is best obtained on the Web at: www.scholarships.gc.ca.

GOVERNMENT OF ITALY SCHOLARSHIPS

Eligibility: The Government of Italy offers scholarships to Canadian citizens wishing to pursue studies in Italy. They are intended for students, professionals, teachers, and artists who meet the necessary requirements for enrolment in Italian post-secondary institutions (universities, academies, conservatories, art restoration institutes, National School of Cinematography, research centres or laboratories, libraries, archives, museums and other national or nationally-recognized institutions), and who would like to attend specialized courses or conduct research in specific fields. For Italian language study, the scholarships are awarded for specific programs at the Universities for Foreigners in Perugia, Siena and Roma Tre or at other recognized institutions.

The short-term scholarships consist of a one to six month period to be used in the summer of 2008 and are reserved primarily for courses in Italian language and culture. Applicants must possess a high school diploma at the time they apply and must be 35 years of age or younger.

Italian language and culture courses of a one-month period are reserved for Italian language teachers to whom no age limit applies, and for 3rd year University students in the Italian Studies Department.

The long-term scholarships consist of a seven to a twelve-month period, (depending on the length of the course) beginning in autumn 2008. They are awarded for specific research or specialised courses at public post-secondary institutions in any area of study, except for medical. All courses of study must be undertaken at Government approved educational institutions. Applicants for the long-term scholarships interested in undergraduate research or study must possess a high school diploma entitling the applicant to enrol in university; for those wishing to study or conduct research at the post-graduate level, the minimum requirement is a Master's degree. Applicants must be 35 years of age or younger.

Value: Monthly stipend of 700 euros. Scholarships offered by the Italian Government do not include air fare and room and board.

Please note that scholarship recipients must make their own travel and lodging arrangements.

Any partial or total exemption from university fees for scholarship recipients is the decision of the individual university institution; no exemptions are granted by private institutions.

Deadline: Check Website.

Application: See the Italian Embassy Website:

www.ambottawa.esteri.it. Guidelines for application, program description and further information are available in English, French or Italian. The Italian Consulate in Montreal is located at 3489 avenue Drummond, Montreal, QC, H3G 1X6. Tel: (514) 849-8351, Fax: (514) 499-9471, E-mail: cgi@italconsul.montreal.qc.ca

GRADUATE STUDENT RESEARCH SUPPORT IN THE SOCIAL SCIENCES AND HUMANITIES

Eligibility: Limited funds are available from the Office of the Vice-Principal (Research) for the support of graduate student research in the social sciences and humanities. This may include thesis research conducted at a site remote from McGill. This program will not cover typing or reproduction of theses, equipment, computer time and supplies.

Value: Awards up to \$5,000.

Deadlines: April 17, October 17, January 16 (If deadline falls on a weekend or public holiday, the next working day applies)

Application: Further details and application forms are available from McGill University, Research Grants Office, James Administration Building, Room 429. Tel: (514) 398-3790 or Website: www.mcgill.ca/rgo/internal

INTER AMERICAN DEVELOPMENT BANK (IDB) SCHOLARSHIPS

Eligibility: The IDB administers two scholarship programs: the Japan Scholarship Program for graduate students in development-related fields, and scholarships to attend social

development courses offered by INDES. Candidates must be a national of one of IDB borrowing member countries. For the Japan Scholarship Program, candidates must hold a bachelor's degree or its equivalent in the social sciences, business or public administration, or another development-related technical discipline, have a superior academic record, at least 2 years work experience in a development field, and be currently enrolled in a Master's degree program in the social sciences, business or public administration, or another development-related technical discipline (except law and medicine), in a university of a member country other than the country of origin or residence. Applicants must intend to return to their home country after completion of study and work for at least two years in order to apply enhanced knowledge and skills toward helping accelerate economic and social development.

The Japan-IDB Scholarship Program has the following three sub-programs: the Northern Hemisphere Program (at Universities located in the North America, Central America and Europe), the Southern Hemisphere Program (at Universities located in the South America countries), and the Special Program for Studies at Japanese Universities for students entering a Master's program, in English, at any university located in Japan.

Value: INDES scholarships cover participation, required materials and texts, health and life insurance, a roundtrip airline ticket between the city of residence and Washington D.C., and lodging. The Japan-IDB scholarship provides benefits covering full tuition, university medical and accident insurance, an installation allowance, a monthly subsistence allowance, a book allowance, and economy class travel. The scholarship is effective as of the start of the academic year and does not cover any expenses during the summer.

Deadline: Varies depending on scholarship and sub-program. See the Website below for more details.

Application: Forms and additional information are available on the IDB's scholarship page: www.iadb.org/aboutus/IV/scholarships.cfm?language=English

The Bank's home page is www.iadb.org and the site is navigable in English, French, Spanish or Portuguese.

Headquarters: Inter-American Development Bank, Japan-IDB Scholarship Program, 1300 New York Avenue, NW, Stop W-404, Washington, D.C. 20577, United States of America

INTERNATIONAL DEVELOPMENT RESEARCH CENTRE (IDRC) FELLOWSHIPS AND RESEARCH FUNDING

Eligibility: The IDRC administers a number of fellowships and funding opportunities for students conducting research in development-related disciplines. As there are several programs targeting several different areas, students are advised to consult the IDRC Website to see if such funding opportunities are applicable to their research. As the programs are related to development, many support research abroad. Those included here support some form of research outside of Canada or are available to international students from developing countries. Programs available to Canadians and permanent residents, as well as those that are more topic-based and do not necessarily include travel and research abroad are listed above, under the IDRC entry in the External Fellowships section (Section 3). Each of the programs supported by the IDRC is also available as targeted funding for students from developing countries. See the IDRC Website listed below for more details.

"IDRC Doctoral Research Awards (IDRA)"

"Community Forestry: Trees and People - John G. Bene Fellowship"

"Use of Fertility Enhancing Food, Forage and Cover Crops in Sustainable Managed Agroecosystems: The Bentley Fellowship"

Value: Varies depending on the program.

Deadline: Varies depending on the program.

Application: Mailing address: PO Box 8500, Ottawa, ON, Canada K1G 3H9

Street address: 250 Albert Street, Ottawa, ON, Canada, K1P 6M1, Telephone: (613) 236-6163, Fax: (+1-613) 238-7230
E-mail: info@idrc.ca. Website: www.idrc.ca

INTERNATIONAL FEDERATION OF UNIVERSITY WOMEN (IFUW) INTERNATIONAL FELLOWSHIPS

Eligibility: The International Federation of University Women offers a limited number of fellowships and grants to women graduates for advanced research, study and training. The competitions are normally held every two years. Competitions are open to nationals of all countries who are members of the IFUW. Women graduates can become IFUW members by joining one of the federations or associations of university women affiliated to IFUW, such as the Canadian Federation of University Women, or by becoming an independent member, if they live in a country without an IFUW affiliate. Fellowships are meant to encourage advanced scholarship and original research by university women. Applicants must be well started on the research program to which the application refers. Fellowships are for eight to twelve months of work, and should be taken up within 9 months of the date of award. They are not normally given for a Masters or for the first year of a Ph.D. program. Fellowships and grants are for work in any branch of learning, in the country of the applicant's choice. All candidates must have obtained admission to the proposed place of study prior to applying to IFUW's competition. An official letter of acceptance must accompany the application. The awards provide a maximum of twelve months support and are not renewable.

Value: Varies depending on the specific fellowship for which one applies.

Deadline: See Agency Website.

Application: Information regarding the different fellowships as well as specific application requirements and application forms are available on the IFUW's Fellowships and Grants page at: www.ifuw.org/fellowships/index.htm. The Federation's homepage is www.ifuw.org. IFUW, 10 rue du Lac, CH-1207, Geneva, Switzerland. Tel: (+41 22) 731 23 80 E-mail: info@ifuw.org, or the Canadian Federation of University Women, 251 Bank Street, Suite 600 Ottawa, Ontario K2P 1X3. Tel: (613) 234-8252, Fax: (613) 234-8221. E-mail: cfuw1@rogers.com

JAPAN FOUNDATION - JAPANESE STUDY FELLOWSHIP PROGRAM

Eligibility: The Japan Foundation offers three levels of support to Canadian citizens and Permanent Residents wishing to conduct research related to Japanese studies in Japan. Support is offered to scholars and researchers (between 2 and 12 months), doctoral students (between 4 and 14 months), and to those seeking to do intensive, short-term research such as data collection and interviews in Japan (21 to 60 days). Proposals must be within the disciplines of the humanities and/or social sciences, and must be related in substantial part to Japan. Comparative research is acceptable. Proposals which do not fall within the scope of acceptable project areas, include: natural, medical or engineering sciences; undergraduate studies; Japanese-language studies and training in non-academic fields such as traditional culture, technology and commerce. In order to conduct research or pursue projects in Japan effectively, the co-operation of an affiliated institution or research associate is essential. Such affiliation must be demonstrated as part of the application (excluding Short-Term Researchers).

Value: 310,000 - 370,000 Japanese Yen monthly allowance, plus medical insurance, airfare, tuition fees and research allowance. Short-term researchers are entitled to airfare, a 17,000 Yen daily stipend and a 5,000 Yen daily research allowance.

Deadline: December 1, though applying earlier is encouraged.

Application: Residents of Ontario residing outside the National Capital Region should apply through The Japan Foundation, Toronto. Residents of the National Capital Region should apply through the Embassy of Japan, Ottawa. Applicants from provinces outside Ontario should contact the nearest diplomatic mission. For more information about programs, see the PDF available on the Japan Foundation's Website at: www.japanfoundationcanada.org. For application forms, see your local Japanese consulate (unless you live in Ontario, but not Ottawa), the Japan Foundation Toronto Office, 131 Bloor Street West, Toronto, Ontario, M5S 1R1. Tel: (416) 966-1600, the

Consulate General of Japan, 600 de la Gauchetière Street West, Suite 2120, Montreal, Quebec, H3B 4L8. Tel: (514) 866 3429.
E-mail: jftor@interlog.com
Website: www.japanfoundationcanada.org

JAPANESE GOVERNMENT (MONBUSHO) SCHOLARSHIPS

Eligibility: Scholarships in most disciplines are offered each year to Canadian citizens who wish to pursue their graduate studies in any subject in Japan. Candidates must be under 35 years of age, have a university degree and be willing to study the Japanese language.

Value: Travel and living allowances for up to two years are provided, plus tuition fees.

Deadline: Check with Consulate.

Application: Forms are available from Consulate General of Japan, Monbusho Scholarships, 600 de la Gauchetière Street West, Suite 2120, Montreal, Quebec, H3B 4L8.
Tel: (514) 866-3429.

MACDONALD TRAVELLING SCHOLARSHIP

Eligibility: Founded by the will of the late Sir William Macdonald will be awarded by the Faculty of Law to one or more members of the graduating class, or of a recent class, with a distinguished academic record in the Faculty, to enable such student or students to pursue graduate studies in law. Preference is to be given to students who wish to pursue their graduate studies in a language other than their mother tongue, and preference is also to be given to students intending to study in a francophone institution. The income generated from this fund will be used to assist one or more students, and will be divided according to need, based on the expenses related to the programme in question.

MACKENZIE KING TRAVELLING SCHOLARSHIPS

Eligibility: Offered to a graduate of any Canadian university to engage in postgraduate studies in the U.S. or U.K in international or industrial relations (including international or industrial aspects of law, history, politics, economics). Applicants should be persons of unusual worth and promise. Awards are based on academic achievement, personal qualities and demonstrated aptitudes, as well as proposed program of study. McGill only considers undergraduate applicants with First Class Honours Standing (CGPA of 3.7 or higher) and graduate applicants with cumulative "straight A" records. Applicants to McGill who have graduated with a McGill undergraduate degree will automatically be considered for the Delta Upsilon and Peacock memorial scholarships.

Value: Approximately four scholarships per year of up to \$10,000. Value of the award is subject to change.

Deadline: Normally February 1 to applicant's home university. Verify McGill's deadline with the GPSO Fellowships and Awards Section.

Application: Application is made through the "home" university, i.e., the Canadian university from which the applicant has or will receive the most recent degree. Further information and application forms, consult the agency Website: www.mkingscholarships.ca. To verify the application process and other procedural details, consult the McGill Graduate Studies Website: www.mcgill.ca/gps/fellowships.

MINISTÈRE DE L'ÉDUCATION, DU LOISIR ET DU SPORT (MELS) - PROGRAMME DE BOURSES DES GOUVERNEMENTS ÉTRANGERS

The MELS administers over 100 travelling fellowships created at a result of bilateral cooperation agreements in education and training between the Quebec Government and foreign governments. These fellowships are offered to Canadians citizens and permanent residents of Canada who are residents of Quebec, to financially support study or research abroad, in the countries or provinces listed on the MELS Website. (The list is updated from time to time.)

Eligibility: Candidates must be Canadian citizens or Permanent Residents and must have resided in Quebec for the past year at least. Candidates must possess an undergraduate degree and

be registered in a Master's or doctoral level program at a Quebec university at the time that the fellowship is granted. Candidates must also conform to the specific requirements of the particular program through which a fellowship is being sought, and in most cases be fluent in the language of the country where studies will be undertaken. The type of study eligible and the value and duration of these fellowships varies depending on the particular agreement. Prospective applicants are strongly encouraged to carefully consult the MELS Website listed below.

Value: Normally covers travel and living expenses, for between one and twelve months. Some fellowships may be renewable.

Deadline: Varies according to the program.

Application: Up to date information regarding specific application requirements is available on this Website:

www.mels.gouv.qc.ca/ens-sup/ens-univ/bourses.asp.

MOYSE TRAVELLING SCHOLARSHIPS

Eligibility: Founded by the late Right Honourable Lord Atholstan, to commemorate the "splendid services of Dr. Charles E. Moyses, for forty-two years Professor of English, during sixteen of which he was Dean of the Faculty of Arts and Vice-Principal of the University". Two one-year scholarships are awarded. One scholarship will be awarded by the Faculty of Arts and the other by the Faculty of Science. In the absence of applicants of sufficient merit in either of the faculties, applicants from final years in other undergraduate faculties, or from graduate students may be considered. Holders must devote the year of tenure to advanced study, preferably in a British or European university, but not to the exclusion of other institutions approved by the Faculty of Arts or of Science. Applicants must be available for interviews 30 April - 4 May.

Value: Arts & Science - \$11,000.

Deadline: April 2 at Office of Dean of Arts or Dean of Science.

Application: For Arts, see www.mcgill.ca/arts/undergraduate/moyse; for Science, see: www.mcgill.ca/science/student/moyse. Further information on application procedures and forms are available from the Offices of the Deans of Arts and Science (see the Student Affairs Office at: Dawson Hall, Room 110, McGill University, 853 Sherbrooke Street West, Montreal, Quebec H3A 2T6, Tel.: 514-398-4210, Fax: 514-398-7185).

ONTARIO-QUÉBEC EXCHANGE FELLOWSHIPS

Eligibility: The Ontario-Quebec Exchange Fellowship Program allows students from Ontario to pursue full-time graduate studies at the master's or doctoral level at a university in Quebec. This program offers outstanding students from Ontario the opportunity to live and study in the cultural milieu of Quebec. The program is sponsored by the Ontario-Quebec Commission for Co-operation in accordance with the interprovincial Agreement for Co-operation and Exchange in Educational and Cultural Matters.

Value: \$10,000 per year for Master's; \$12,000 for doctoral level. Renewable, but recipients must apply to have the fellowship renewed.

Deadline: January 31.

Application: Information and application materials available from the Ontario Quebec Exchange Fellowship Program Website at: <http://osap.gov.on.ca>. The Website is also navigable in French - proceed from the homepage to the Other Bursaries, Fellowships, Grants, and Scholarships menu. Ministry of Training, Colleges and Universities Student Support, Fellowships, P.O. Box 4500, 189 Red River Road., 4th Floor, Thunder Bay, Ontario P7B 6G9. Tel: (807) 343 7257 (Toll-free: 1-800 465-3957)

ONTARIO GRADUATE SCHOLARSHIP PROGRAM

Eligibility: Canadian citizens or Permanent Residents, or holders of a student visa at the time of application, with at least an A-average in the last two years of study, for graduate studies (Master's or doctoral level) at an Ontario university.

Value: Awarded for one academic year, which may consist of either two or three terms. Applicants receive \$5,000 per term.

Deadline: November 15.

Application: There are different application procedures, depending on your status as an applicant currently enrolled as full-time or part-time students in an Ontario university; applicants who graduated from an Ontario university at any time between November 15, 2005, and November 15, 2006, and are not currently registered; and applicants who are not currently enrolled in an Ontario university. Read the "How to Apply" section of the OGS Website (http://osap.gov.on.ca/eng/not_secure/OGS.htm) carefully. The Website is also navigable in French from the homepage, <http://osap.gov.on.ca>. Information and application forms available from the Ontario Graduate Scholarship Program, Student Support, Ministry of Education and Training, P.O. Box 4500, 189 Red River Road, 4th floor, Thunder Bay, Ontario P7B 6G9. Tel: (807) 343-7257 (Toll-free: 1-800-465-3957), osap.gov.on.ca.

ORGANIZATION OF AMERICAN STATES FELLOWSHIPS

Eligibility: Offered to Canadian citizens and Permanent Residents for graduate study and/or postdoctoral research in any field except the medical sciences and related areas, and introductory language studies. They are tenable in any of the 33 OAS member countries, with the exception of the country where the candidate is a citizen or a permanent resident.

Value: Academic Studies Fellowships may provide funds for university tuition and fees, international travel, health insurance, living expenses, and for the purchase of books or other study materials. These benefits will vary depending on the type of fellowship awarded. The OAS General Secretariat shall establish rates of allowances and ceiling of funds provided, taking into consideration the country of study. These are tenable for between 3 months and 2 years.

Deadline: For submitting online application is January 26.

Applications: Application information is available online at: www.scholarships.gc.ca. See the OAS Application form page at: www.scholarships.gc.ca.

OVERSEAS RESEARCH STUDENTS (ORSAS) AWARDS

Eligibility: Awards are offered on a competitive basis to overseas students for a higher education degree at certain academic institutions in Britain. All fields of study are supported.

Value: Each award covers the difference between the tuition fee for a British graduate student and the "full-cost" fee for an overseas graduate student. Awards are renewable twice and can, therefore, be held for a maximum of three years.

Deadline: Deadline depends on the institution to which one applies.

Application: Applications should be obtained from the Registry or Scholarships Office of the British academic institutions concerned, or from ORSAS at orsas@hefce.ac.uk. Website: www.orsas.ac.uk

PHILIP F. VINEBERG TRAVELLING FELLOWSHIP IN THE HUMANITIES

Established in 1988 by his family in memory of Philip F. Vineberg, O.C., QC, B.A., M.A., B.C.L., LL.D., former student, Professor and Emeritus Governor at McGill University, for a student graduating in a McGill degree program in arts, education, law, library science, music, religious studies or social work, toward one year of further studies in such disciplines at another university. Awarded to the student who best exemplifies the qualities of intelligence as demonstrated by academic record and creative thinking; breadth of interest, perspective and tolerance as demonstrated by cross cultural interests, desire to travel and record of service to others; excellence as demonstrated by a record of disciplined achievement and the promise of more to come.

Eligibility: The award will normally be made to a student in the final year of his or her undergraduate degree going into graduate studies in the next academic year, but exceptionally in cases of students completing graduate degrees and leaving McGill for further graduate or postgraduate studies elsewhere in the next academic year. Applicants who are offered substantial fellowship support from other external agencies may be prohibited from taking up the award.

Value: Up to \$14,500.

Application: Forms and information are available from the GPSO Fellowships and Awards Website, www.mcgill.ca/gps/fellowships.

THE RIGHT HONOURABLE PAUL MARTIN SCHOLARSHIPS TO THE UNIVERSITY OF CAMBRIDGE

Eligibility: These scholarships will be awarded to outstanding students registered in the Bar Admission Course in their articling year or who will be graduating in law from a Canadian University.

Value: Scholarship is for one year, covering complete tuition fees, monthly maintenance allowance contribution, air transportation (return from residence in Canada).

Deadline: December 31

Application: For more information, contact the Canadian Institute for Advanced Legal Studies, Scholarships Awards, 4 Beechwood Avenue, Suite 203, Ottawa, Ontario, K1L 8L9.

STUDENT EXCHANGE PROGRAMS – MCGILL UNIVERSITY AND THE CONFERENCE OF RECTORS AND PRINCIPALS OF THE UNIVERSITIES OF QUÉBEC (CREPUQ)

Note: These are not award or fellowship programs, but may be of interest to students wishing to study abroad for up to one year.

Purpose: These programs provide an opportunity for international education and all its benefits. Student participants remain registered at their home university (McGill), while attending a foreign campus. Currently, McGill University has over 100 bilateral student exchange agreements in 31 countries and more than 200 CREPUQ student exchange agreements in seven countries.

Information: Information on exchange and study abroad opportunities, as well as funding options administered through the Student Exchanges and Study Abroad Office (SESA) are available on the Web at www.mcgill.ca/studyabroad, Enrolment Services, James Administration Building, Room 206, McGill University, Tel: (514) 398-8342. E-mail: studentexchanges@mcgill.ca.

RHODES SCHOLARSHIPS

Eligibility: Two scholarships are awarded annually to scholars from the Province of Quebec. These scholarships are tenable at the University of Oxford. They are granted for two years with the possibility of a third year. Candidates must be Canadian citizens or domiciled in Canada and be between 19 and 25 years of age, without dependants. Students in any faculty may apply.

Value: At least £8,640 per year, which covers personal expenses and tuition.

Deadline: Because graduate students may have to submit directly to the Secretary for the Rhodes Scholarships in the province to which you are applying, it would be wise to contact Michael Rankin early. Completed applications submitted directly to the Secretary were due October 2 for the 2006 competition.

Application: For further details of the exact deadline, tenure, eligibility, qualifications, and application forms apply to the Michael Rankin at the McGill Office of the Dean of Students, Brown Student Services Building, 3600 McTavish St., Suite 4100, Montreal QC H3A 1Y2. Tel: (514) 398-3825, Fax: (514) 398-3857. E-mail: michael.rankin@mcgill.ca

ROTARY FOUNDATION SCHOLARSHIPS

Eligibility: The Rotary Club organization offers three levels of funding, entitled "Ambassadorial Scholarships": Academic-Year Ambassadorial Scholarships provide funding for one academic year of study in another country; Multi-Year Ambassadorial Scholarships are for two years of degree-oriented study in another country; Cultural Ambassadorial Scholarships are for either three or six months of intensive language study and cultural immersion in another country. Applicants must have completed at least two years of college-level coursework or equivalent professional experience before commencing their scholarship studies. Applicants for Academic-Year and Multi-Year Ambassadorial Scholarships must be proficient in the language of the proposed host country.

Value: Depends on the award program, but the most common scholarship, the Academic-Year Ambassadorial, is intended to

help cover round-trip transportation, tuition, fees, room and board expenses, and some educational supplies up to US\$23,000 or its equivalent.

Deadline: Are set by the individual sponsoring club (usually between March and August).

Application: Deadline and scholarship availability varies depending on the local to which one applies. To find your local, see their club locator at: www.rotary.org/support/clubs/index.html. Applications must be made through a Rotary Club in the area of the applicant's permanent residence or place of employment. Information on the scholarship programs as well as application information and suggested locations of tenure, are available at: www.rotary.org/foundation/educational/amb_scho/prospect/award/type.html.

SHASTRI INDO-CANADIAN INSTITUTE – FELLOWSHIPS COMPETITION

Eligibility: Candidates must be Canadian citizens or Permanent Residents and possess a Bachelor's or Master's degree. The fellowships are to be used by students to enrol in an Indian institution of higher learning, to work towards a graduate degree or by students enrolled in graduate programs at Canadian institutions to conduct research on India towards a graduate degree (such students must affiliate with an Indian institution during the period of the grant). All awards are subject to approval by the Government of India. All awardees must be affiliated with an Indian institution. The Government of India does not permit research in strategic areas or on sensitive regional, political and social themes.

Value: India Studies Fellowships provide a monthly living allowance of Rs 16,000 a monthly research stipend of Rs 4,000 and return airfare to India.

Deadline: June 30.

Application: For further information regarding competitions and applications, see the India Studies Fellowship Webpage at: <http://www.ucalgary.ca/uofc/Others/SICI/apply1.html>.

Information regarding application requirements and application forms is also available from the Programme Officer, India Studies, Shastri Indo-Canadian Institute, Room 1402, Education Tower, 2500 University Dr. NW, Calgary, Alberta, Canada T2N 1N4. Phone: (403) 220-7467, Fax: (403) 289-0100. E-mail: sici@ucalgary.ca

THOMAS SHEARER STEWART TRAVELLING FELLOWSHIP

Eligibility: The fellowship was established in 1967 by the family of the late Thomas Shearer Stewart, QC, a graduate of the Faculty of Law class of 1908 and is granted to a recent graduate of the Faculty of Law designated by the Dean of the Faculty. Preference is given to a graduate who is a Canadian citizen intending to reside in Canada upon completion of studies.

Value: \$12,000, awarded at the discretion of the Faculty of Law.

Deadline: May 1.

Application: Further information is available from the Student Affairs Office, Faculty of Law.

Alexander A. McGregor Fellowship in Earth and Planetary Sciences	98
Alexander Mackenzie Fellowship in Political Science	77
Alexander McFee Fellowship	89
Alexander McFee Fellowship (Physical Sciences and Engineering)	88, 96
Alison (Delise) Graduate Prizes	70
Allen (Clive V.) Fellowship in International Business Law	87
Allen (F. Moyra) Prize	91
Allen Oliver Fellowships in Economics and Political Science	75, 77
Alma Mater Fellowship	66
Alma Mater Student Travel Grant	102
Alumnae Association of the McGill School of Nursing Scholarship	91
Alvaro Ortega Award	83
Alvin J. Walker Graduate Fellowship	86
Ambridge (D.W.) Award	69
American Institute of Architects Henry Adams Medal and Certificates of Merit	83
Amy Wong Biotechnology Award	72
Amy Wong Fellowship	71, 100
Anderson (Maureen) Prizes in Architecture	83
André Courtemanche Fellowship for Excellence in Computer Science	98
André Courtemanche Fellowships in Bioinformatics	98
Anne Dudley Noad Award	76
Antonio D'Andrea Memorial Fund	76
Architecture (School of) Fellowships	84
ARCOP/ALCAN Award	83
Armstrong (Donald E.) Award	86
Arthur and Dawn Weston Fellowship in Teaching and Learning in Higher Education	69
Arthur and Helen Henderson Scholarship	94
Arthur and Jessie Lothead Bursary Fund	93
Arthur C. Tagge Fellowship in the Humanities and Social Sciences	66
Arthur S. Hawkes Fellowship	90
Arthur Willey Memorial Fellowships	97
Arts and Science Class of 1966 Award	73, 96
Association des M.B.A. du Québec Award	86
Association of Universities and Colleges of Canada	102
Aubrey Senez Fellowship	87
Azelie de Lendrecie Clark Award	80

B

B.J. Harrington Bursary in Mining Engineering	85
Bailey (Hugh) Award	71
Bailin (Joan Macfarlane) Research Award	78
Baily (Philip P.) Fellowship	67
Ballon (Edward) Graduate Award in Management	86
Barbara Graw Smythe Award In Library And Information Studies	80
Barbara Rosenthal Prize	93
Bauer (Irma H.) Research Fund	89
Beatty (Sir Edward W.) Memorial Scholarships for Medical Students	89
Beijing Memorial Award	67
Bélanger (Elaine) Graduate Studentship in Medical Research	89
Bell (Max) Foundation Fellowships	65
Bellairs (Commander C.) Graduate Fellowships	103
Bellairs (Commander C.) Postdoctoral Fellowships	101
Bennett (Roger C.) Prize in Marketing	87
Bercovitch (Dr. Lyon) Memorial Award	79
Berger (Miriam and E. Michael) Fellowship	78
Berlind (Sara) Memorial Fellowship	95
Bernard Anderson Ower Award	80
Beta Phi Mu Scholarships	80
Billingsley (Isabel) Prize In French Studies	76
Bindra (Dalbir) Fellowship	66

9 Index of Fellowships and Awards

A

A.F. Dunlop Scholarships	82
A.R. Gordon Awards	93
Abner Kingman Fellowships in Arts	73
Adams (Henry) Medal and Certificates of Merit American Institute of Architects	83
Adler (Eric L.) Fellowship in Electrical Engineering	84
Affleck (Raymond Tait) Prize in Design	83
Agnew (Janet) Scholarship	80
Ajinomoto Heartland/Halchemix Scholarship	72
Albert A. Butler Award in Orthopaedics	92
Albert Tabah Award in the Master of Library and Information Studies Program	80

Binz (Max E.) Fellowship	67	Chalk-Rowles Fellowship	66
Birkett (Dr. Herbert Stanley) Award	80	Chambers (Gretta) Fellowship in Education	80
Bishop (J.M.) Award For Environmental Research	82	Chan (Hiang Siang) Fellowship in Management	85
Blair Postgraduate Fellowships	71	Chan (Tak-Hang (Bill) and Christina) Fellowship in Chemistry	97
Blanc (Paul) Bourse	102	Charles E. Frosst/Merck Fellowship In Pharmacology	101
Bland (John) Scholarship in Architecture	83	Charles James Patton, M.D., and Elizabeth Ross Patton Memorial Prize	88
Blume (Gustav and Romana) Memorial Scholarship	94	Charles Legey Fortescue Fellowship in Electrical Engineering	84
BMO Financial Group Major Fellowships	65	Chief Justice R.A. Greenshields Memorial Scholarships	87
Boeing Fellowships in Air and Space Law	87	CIHR - Canadian Institutes of Health Research - Fellowships Program	64
Bombardier (J. Armand) Internationalist Fellowships	103	Clara Lichtenstein Memorial Fellowship	94
Bourke (Dr. E.T. & Mrs. Marjorie) Award	79	Clark (Azélie de Lendrecie) Award	80
Bourse d'Excellence en Langue et Littérature Françaises Geneviève de la Tour Fondue	76	Claude J.P. Giroud Bursary in Endocrinology	88
Bourse de doctorat Hydro-Québec en droit	87	Clifford C.F. Wong Fellowship	66
Bourse de doctorat Hydro-Québec en science	96	Clifford C.F. Wong Fellowship in Architecture	83
Bourse de maîtrise Hydro-Québec en droit	87	Clive V. Allen Fellowship in International Business Law	87
Bourse de maîtrise Hydro-Québec en science	96	Cole Foundation Fellowships in Medicine, The	101
Bourse de Recherche Anne Lang Etienne	93	Coll McFee Memorial Scholarship (Chemistry)	97
Bourse de Recherche en milieu clinique et Bourse d'études supérieures	93	Collip (J.P.) Fellowship in Medical Research	89
Bourse Paul Blanc	102	Commander C. Bellairs Graduate Fellowships	103
Brace (Florence Marjorie) Award	94	Commander C. Bellairs Postdoctoral Fellowships	101
Bradbury (John) Award in Geography	98	Commonwealth Scholarships for Graduate Studies	103
Bradley (John R.E.) Prizes	94	Conrad F. Harrington Postdoctoral Fellowships	101
Bram Garber Fellowship in Art History	74	Corporation of Nurses of the District of Montreal Bursary	91
Brecher (Nathan) Fellowship in Economics and Political Science	75, 77	Courtemanche (André) Fellowship for Excellence in Computer Science	98
Briant (Dr. Peter) Award for Entrepreneurship	86	Courtemanche (André) Fellowships in Bioinformatics	98
British Chevening Scholarships	102	Cremona Memorial Fellowship in Linguistics	76
Brown (Jean) Scholarship	81	Croll (Neil) Memorial Award	67
Brownstein (Morton and Bernice) Fellowship in Jewish Studies	76	Crossley (Ethelwyn M.) Scholarship Fund	80
Bruce and Barbara Trigger Graduate Prize in Archaeology	74	Cundill (Peter) Fellowships in History	75
Bryant (Dr. John A.) Memorial Awards	80	Cushing (Esther) Fellowship	89
Burke (Hugh E.) Research Fund	89		
Burns (Dr. Mildred) - Delta Kappa Gamma Award for Leadership in Education	80	D	
Burns (Margaret Mary) Award	78	D.W. Ambridge Award	69
Butler (Albert A.) Award in Orthopaedics	92	D'Andrea (Antonio) Memorial Fund	76
Byrd (Kenneth F.) Prize	85	Daisy A. Latimer Memorial Prize in History	75
		Dalbir Bindra Fellowship	66
C		Dale C. Thomson Prize in Political Science	77
C. Douglas Mellor Prize	85	Daniel Q. Marisi Award	81
CAE Award in Engineering Excellence	82	David Fate Norton and Mary J. Norton Fellowship in Philosophy	77
Caley (Herbert C.) Award	94	David G. Guthrie Fellowships in Medicine	88
Cambridge Canadian Trust – Graduate Scholarships	102	David Harrigan Memorial Prize	98
Canada-United States Fulbright Scholarships for Graduate Students	103	David J. Simkin Award in Physical Chemistry	97
Canadian Bureau for International Education (CBIE) Scholarships 103		David L. Montgomery Memorial Award	81
Canadian Chinese Cultural Society of Montreal Inc. Scholarship	70, 74	David Stewart Memorial Fellowship	66
Canadian Institute of Mining and Metallurgy Montreal Branch Loan Fund	85	Davidson (Geraldine Elizabeth) Fellowship	98
Canadian Library Association Scholarships	80	Davis (John F.) Award	90
Canadian Nurses Foundation Fellowship	91	Dawson (Sir William) Fellowship in Metallurgy	85
Canadian Society for Chemistry - Montreal 2001 Graduate Award	97	Day (John and Edmund) Award for Graduate Studies in Law	87
Carl A. Winkler Award in Chemistry	97	de Grandpré (Jean) Prize	74
Carl Reinhardt Fellowship	66	de la Tour Fondue (Geneviève) Bourse d'Excellence en Langue et Littérature Françaises	76
Carl Reinhardt Scholarships and Bursaries in Physics and Earth and Planetary Sciences	98	De Lendrecie Clark (Azélie) Award	80
Caroline and Richard Renaud Bursaries	100	Dean's Medal for Great Distinction in the M.B.A. Program	86
Carpenter (Philip) Fellowship in Biology	97	Dechene (Louise) Prize in Canadian History	75
Carr-Harris (Lloyd) Fellowship	67	Defi Corporatif Canderel Studentship and Fellowship	90
Carr-Harris (Lloyd) String Scholarship	95	Deirdre and Robert Stevenson Award	93
Casper W. Owen Fellowship	73	Delise Alison Graduate Prizes	70
Catherine Freeman Fellowship in Human Nutrition	71	Delta Kappa Gamma - Dr. Mildred Burns Award for Leadership in Education	80
Caverhill (G. Rutherford) Fellowship	89	Delta Upsilon Memorial Scholarship	67
Cedrik Goddard Memorial Award in Islamic Studies	76	Desautels (Guy) Memorial Prize	77
Centenary Prize	80	Deutsche Gesellschaft zu Montreal Scholarship	75
		Deutscher Akademischer Austauschdienst (DAAD) – German Academic Exchange Fellowships	104
		Dimmock (Frederick) Memorial Fellowship	73

Dissertation Fellowships	68	Executive Development Institute (E.D.I.) Bursary	86
Donald E. Armstrong Award	86	F	
Donald MacKenzie Munroe Fellowship	71	F. Moyra Allen Prize	91
Douglas (James) Fellowships in Mining Engineering	85	F.C. Harrison Fellowships	91
Dow-Hickson Fellowship in Physics	98	F.O. Fowler Memorial Fellowship	84, 97
Dow-Hickson Fellowship in Theoretical Philosophy	77	F.S.B. Miller Memorial Fund	89
Downes (Kenneth) Graduate Award	70	Farley (David) and Norbert Schoenauer Fellowship in Urban Planning	85
Downey (Margaret) Prize	81	Farley (David) and Norbert Schoenauer Fellowship in Architecture	83
Dr. and Mrs. I.N. Pesner Memorial Prize	79	Fattal (Leon and Suzzane) Graduate Fellowships in Engineering	82
Dr. and Mrs. Milton Leong Fellowships in Science	96	Fetherstonhaugh (H.L.) Book Prize	83
Dr. and Mrs. Milton Leong Graduate Student Awards	96	Financial Assistance for Library Education	80
Dr. Arthur H. Judson Fellowships	88	Finley (Samuel) National Bursary	94
Dr. Benjamin Shore Prize in Plastic Surgery	89	Firing (Lars and Alberta) Graduate Fellowships in Engineering	70, 82
Dr. David T.W. Lin Fellowship	101	Fischer (Lewis A.) Memorial Bursary in Agricultural Economics	72
Dr. E.T. & Mrs. Marjorie Bourke Award	79	Fish (Judy) Graduate Award in Inclusive Education	80
Dr. Ezra Lozinski Prize in Clinical Medicine	90	Fleishman (Syrá Deena Tarshis) Bursary	81
Dr. G.R. Lomer Scholarships	80	Florence Marjorie Brace Award	94
Dr. Gauri Shankar Guha Award in International Development Education	79	Foreign Affairs and International Trade Canada	64
Dr. Gerald B. Price Memorial Awards	91	Foreign Government Awards	104
Dr. Herbert Stanley Birkett Award	80	Foundation for the Advancement of Protestant Education Graduate Fellowship in History, The	76
Dr. James E. Griffiths Award in Material Sciences	96	Fowler (F.O.) Memorial Fellowship	84, 97
Dr. John A. Bryant Memorial Awards	80	FQRNT - Fonds québécois de la recherche sur la nature et les technologies	63
Dr. John A. Lundie Research Fellowship	88	FQRNT-NSERC Bourses en milieu pratique BMP-Innovation	63
Dr. Lyon Bercovitch Memorial Award	79	FQRSC - Fonds québécois de la recherche sur la société et la culture	63
Dr. Milton C. and Nina E. Wilson Award	90	FQRSC-SSHRC Bourses en milieu pratique BMP-Innovation	63
Dr. Peter Briant Award for Entrepreneurship	86	Frankel (Saul and Freda) Prize	74
Dr. Philip Eibel Prize In Orthopedic Surgery	92	Fred Lebensold Memorial Fellowship in Architecture	83
Dr. Premysl "Mike" Pelnar Academic Enrichment Award	90	Freda L. Paltiel Award for Immigrant and Minority Women's Health and Development	78
Dr. Robert G.H. Lee Fellowship	84, 85, 101	Frederick Dimmock Memorial Fellowship	73
Dr. Soo Kim Lan Prize in Architecture	83	Freeman (Catherine) Fellowship in Human Nutrition	71
Dr. Soo Kim Lan Prize in Dentistry	79	Friends of McGill Fellowship	66
Dr. Wah Leung Fellowship	79, 101	Frosst (James) Fellowship	92
Dr. Yu-Ming Lam Fellowship	79	FRSQ - Fonds de la recherche en santé du Québec	63
Drummond (Guy) Fellowship In Political Science	77	G	
Drysdale (J. Keith) Manufacturing Management Graduate Fellowship	86	G. Rutherford Caverhill Fellowship	89
Duchow (Marvin) Memorial Scholarship	95	Gar Lam Yip Memorial Fellowship in Guided Wave Photonics	84
Dunbar (Max) Award in Oceanography	96	Garber (Bram) Fellowship in Art History	74
Dunlop (A.F.) Scholarships	82	Garibaldi-Galavaris (Olympia) Prize	95
DuPorte (E. Melville) Award	72	Gauvin (William H.) Fellowship in Chemical Engineering	84
DuPorte (Margaret) Fellowships	72	Geddes Prize in Biomedical Engineering	90
Dworkin (Ruth and Alex) Scholarship	89	General Electric Award in Environmental Engineering	72
E		George G. Harris Fellowship in Cancer	89
E. Melville DuPorte Award	72	Georges, Paul and Robert Masson Bursaries in Science	100
E. Noel Spinelli Prize in Music	94	Geraldine Elizabeth Davidson Fellowship	98
Eastern Canada Chapter Special Libraries Association Prize	80	Gershman Memorial Scholarship Fund	89
Eaton (Marianna) Scholarship	95	Gian Lyman Memorial Scholarship	94
Eben Hopson Bursary for Study at McGill	100	Gillett (Margaret) Graduate Research Awards	70
Eben Hopson Fellowship for Study at McGill	67	Giroud (Claude J.P.) Bursary in Endocrinology	88
Edward Ballon Graduate Award in Management	86	Goddard (Cedrik) Memorial Award in Islamic Studies	76
Eibel (Dr. Philip) Prize In Orthopedic Surgery	92	Golden Violin Award, The	96
Eileen Peters Fellowship	66	Goldenberg (Mark and Mildred) Fellowship in Social Work	78
Elaine Bélanger Graduate Studentship in Medical Research	89	Gordon (A.R.) Awards	93
Elizabeth and Andre Rossinger Fellowship In Canadian Rural Sustainability	71	Gordon A. MacLachlan Prize	69
Elizabeth G. Hall Scholarship Fund	80	Gordon J.A. Whitehorne Recruitment Fellowship	73
Elizabeth Steffen Memorial Award	89	Gordon Phillips Fund for Research in Cardiovascular Diseases	89
Ellen Edith Grubb Stansfield Award	79	Gosselin (Rolande and Marcel) Graduate Studentships	90
Emil Nenniger Memorial Fellowship	84	Government of Italy Scholarships	104
Engineering Class of 1936 Award	82	Government Student Aid	99
ERIC Award	94	Governor General's Gold Medal	69
Eric L. Adler Fellowship in Electrical Engineering	84		
Esterina and Gaetano Liberatore Fellowship	66		
Esther Cushing Fellowship	89		
Esther Kerry Awards	78		
Ethelwyn M. Crossley Scholarship Fund	80		
Evelyn Rocque Malowany Prize in Nursing	91		

Graduate Student Research Support in the Social Sciences and Humanities	104	Hsiang (Paul) Graduate Fellowship in Chinese Poetry and Literature	74
Graduate Students' Bursary Fund	100	Hugh Bailey Award	71
Graduate Students' Loan Fund	100	Hugh E. Burke Research Fund	89
Graupe (Werner) International Fellowships in Engineering	65	Hugh MacLennan Fellowship for the Study of English	75
Graupe (Werner) Memorial MMM Fellowship	86	Hugh MacLennan Memorial Scholarship	83
Graw Smythe (Barbara) Award In Library And Information Studies	80	Hunt (T. Sterry) Awards in Chemistry	97
Greenshields (Chief Justice R.A.) Memorial Scholarships	87	I	
Gretta Chambers Fellowship in Education	80	I.M. Rabinowitch Fellowship	91
Greville Smith Research Fellowship	66	Ingrid Semaan Prize	76
Griffiths (Dr. James E.) Award in Material Sciences	96	Inter American Development Bank (IDB) Scholarships	104
Griffiths (Margaret) Award in Child Welfare	78	International Development Research Centre (IDRC) Fellowships and Research Funding	105
Gualtieri-Doran Award	87	International Federation of University Women (IFUW) International Fellowships	105
Guha (Dr. Gauri Shankar) Award in International Development Education	79	Irma H. Bauer Research Fund	89
Gustav and Romana Blume Memorial Scholarship	94	Irma K. Riley Awards	91
Guthrie (David G.) Fellowships in Medicine	88	Irving Orrin Vincent Bursary	100
Guy Desautels Memorial Prize	77	Isabel Billingsley Prize In French Studies	76
Guy Drummond Fellowship In Political Science	77	Issak Walton Killam Scholarships/ Jeanne Timmins Fellowships (Neurosciences)	90
H		J	
H. Anthony Hampson Award in the McGill Institute for the Study of Canada	70	J. Armand Bombardier Internationalist Fellowships	103
H.E. Herschorn Graduate Scholarship	86	J. Jeffery Semaan Prize	76
H.L. Fetherstonhaugh Book Prize	83	J. Keith Drysdale Manufacturing Management Graduate Fellowship	86
H.W. Wilson Foundation Fellowship	80	J.B. Lynch Fellowship in Earth and Planetary Sciences	98
Hall (Elizabeth G.) Scholarship Fund	80	J.M. Bishop Award For Environmental Research	82
Hall (Helen) Prize	94	J.P. Collip Fellowship in Medical Research	89
Hall (Oswald) Dissertation Fellowship	79	J.W. McConnell Foundation Fellowships in Environment	65
Hall (Oswald) Prize	79	J.W. McConnell Memorial Fellowship	66
Hampson (H. Anthony) Award in the McGill Institute for the Study of Canada	70	James Douglas Fellowships in Mining Engineering	85
Hans and Eugenia Jütting Fellowship	75	James Frost Fellowship	92
Harold H. Helm Fellowship	66	James O. and Maria Meadows Scholarship	89
Harold Spence-Sales Prize in Urban Planning	85	James R. and Frances K. Mallory Graduate Award	77
Harpur (Robert P.) Fellowship in Parasitology	73	Janet Agnew Scholarship	80
Harrigan (David) Memorial Prize	98	Janet L. Morton Award	70
Harrington (B.J.) Bursary in Mining Engineering	85	Japan Foundation - Japanese Study Fellowship Program	105
Harrington (Conrad F.) Postdoctoral Fellowships	101	Japanese Government (Monbusho) Scholarships	106
Harris (George G.) Fellowship in Cancer	89	Jean Brown Scholarship	81
Harrison (F.C.) Fellowships	91	Jean de Grandpré Prize	74
Harrison Watson Scholarship	89	Jeannette and Abram Victor Memorial Scholarship	89
Harry Shankman Scholarships	89	Jenckes (K.B.) Prize	69
Hatch Graduate Fellowships in Engineering	82	Jennie and Joseph Salomon Memorial Bursary	100
Hawkes (Arthur S.) Fellowship	90	Joan Macfarlane Bailin Research Award	78
Hayes (Saul) Graduate Fellowship	67	John and Edmund Day Award for Graduate Studies in Law	87
Hazeldine Smith Bishop Fellowship	78	John Bland Scholarship in Architecture	83
Heartland/Halchemix (Ajinomoto) Scholarship	72	John Bonsall Porter Scholarship	82
Helen Hall Prize	94	John Bradbury Award in Geography	98
Heller Family Fellowships in Arts and Science	73, 96	John F. Davis Award	90
Helm (Harold H.) Fellowship	66	John McCrae Fellowship	89
Henderson (Arthur and Helen) Scholarship	94	John R.E. Bradley Prizes	94
Henry (Thomas Haliburton) Award	84	John Stevenson Medal	98
Henry Oelberg Memorial Award	78	John Williamson Frederick Peacock Memorial Scholarship	68
Herbert A. Morse Memorial Scholarship	94	Joseph and Sandra Rotman Prize For Student Excellence in Public Policy Innovation	70
Herbert C. Caley Award	94	Joseph S. Stauffer Fellowship	82
Hermant (Percy) Fellowships in Ophthalmology	92	Joseph Schubert Memorial Scholarship	89
Herschel and Christine Victor Fellowship in Education	79	Judith Kornbluth-Gelfand Graduate Fellowship	93
Herschorn (H.E.) Graduate Scholarship	86	Judith Mappin Fellowship in Women's Health	99
Hiang Siang Chan Fellowship in Management	85	Judson (Dr. Arthur H.) Fellowships	88
Hitschfeld (Walter) Award	67	Judy Fish Graduate Award in Inclusive Education	80
Hong Kong Fellowship in Dentistry	79	Julius Schloss Memorial Award	95
Hopson (Eben) Bursary for Study at McGill	100	Jütting (Hans and Eugenia) Fellowship	75
Hopson (Eben) Fellowship for Study at McGill	67	K	
Horace G. Young Fellowships	85	K.B. Jenckes Prize	69
Houlding (Margaret) Memorial Prize	95	Katz (Myer) Fellowship in Social Work	78
Houston Bursary	94	Kavita Kulkarni Memorial Prize in Rehabilitation Science	93
Howard (William Henry) Scholarships	98	Keefer Fellowship	78
Howard, QC (T. Palmer) Award in Canadian History	76		

Keenan (Mary) Scholarship in English 75
 Kellogg (W.K.) Foundation Loan Fund 92
 Kenneth Downes Graduate Award 70
 Kenneth F. Byrd Prize 85
 Kent (Lionel Pelham) Scholarship 85
 Kerry (Esther) Awards 78
 Killam (Issak Walton) Scholarships/Timmins (Jeanne)
 Fellowships (Neurosciences) 90
 Kingman (Abner) Fellowships in Arts 73
 Klibansky (Raymond) Prize In Philosophy 77
 Klima (Slava) Prize for Excellence in English
 Literary Studies 75
 Kolessa (Lubka) Piano Award 95
 Kornbluth-Gelfand (Judith) Graduate Fellowship 93
 Kulkarni (Kavita) Memorial Prize in Rehabilitation Science 93

L

Lam (Dr. Yu-Ming) Fellowship 79
 Lan (Dr. Soo Kim) Prize in Architecture 83
 Lan (Dr. Soo Kim) Prize in Dentistry 79
 Lang Etienne (Anne) Bourse de Recherche 93
 Lapitsky (Samuel) Scholarship 79
 Lara Riente Memorial Prize in Linguistics 76
 Lars and Alberta Firing Graduate Fellowships in Engineering
 70, 82
 Latimer (Daisy A.) Memorial Prize in History 75
 Latin America Award 87
 Lau (Ping Kwan) Prize in Architecture 83
 Le Prix Bibliothèque Nationale Du Québec - Charles H. Gould 81
 Lebensold (Fred) Memorial Fellowship in Architecture 83
 Leckie (Nessa) Memorial Award 91
 Lee (Dr. Robert G.H.) Fellowship 84, 85, 101
 Legeyt Fortescue (Charles) Fellowship in Electrical
 Engineering 84
 Leon and Suzzane Fattal Graduate Fellowships in Engineering
 82
 Leong (Dr. and Mrs. Milton) Fellowships in Science 96
 Leong (Dr. and Mrs. Milton) Graduate Student Awards 96
 Lerner (Samuel S.) Memorial Award 89
 LeRoy Memorial Fellowships in Earth and
 Planetary Sciences 98
 Leung (Dr. Wah) Fellowship 79, 101
 Lewis A. Fischer Memorial Bursary in Agricultural
 Economics 72
 Lewis Lutter Bursary 95
 Liberatore (Gaetano and Esterina) Fellowship 66
 Lichtenstein (Clara) Memorial Fellowship 94
 Lin (Dr. David T.W.) Fellowship 101
 Lin (Professor Paul T.K.) Fellowship 75
 Lionel Pelham Kent Scholarship 85
 Lloyd Carr-Harris Fellowship 67
 Lloyd Carr-Harris String Scholarship 95
 Lochead (Arthur and Jessie) Bursary Fund 93
 Lock (Margaret) Prize in Social Studies of Medicine 77
 Loiselle (Roland) Prize in Plant Genetics 73
 Lomer (Dr. G.R.) Scholarships 80
 Lorne Trottier Engineering Graduate Fellowships 82
 Lorne Trottier Science Accelerator Fellowships 65
 Lotte Marcus Sheldon Prize 78
 Louis B. Magil Scholarship in Affordable Homes 83
 Louise Dechene Prize in Canadian History 75
 Lozinski (Dr. Ezra) Prize in Clinical Medicine 90
 Lubka Kolessa Piano Award 95
 Lundie (Dr. John A.) Research Fellowship 88
 Lupovitch (Samuel) Memorial Scholarship 89
 Lutter (Lewis) Bursary 95
 Lyman (Gian) Memorial Scholarship 94
 Lynch (J.B.) Fellowship in Earth and Planetary Sciences 98
 Lynden Laird Lyster Memorial Fellowship 73
 Lyster (Lynden Laird) Memorial Fellowship 73

M

M.B.A. Entrance Award 86
 M.B.A. International Student Award 86
 M.P. Paidoussis Prize in Mechanical Engineering 85
 Macdonald Class of '44 Rowles Graduate Bursary 71
 Macdonald Graduate Fellowships 88
 Macdonald Travelling Scholarship 106
 MacDonald Wells Van Daele (Patricia Ann) Memorial Award 93
 Mackenzie (Alexander) Fellowship in Political Science 77
 Mackenzie King Travelling Scholarships 106
 MacLachlan (Gordon A.) Prize 69
 MacLennan (Hugh) Fellowship for the Study of English 75
 MacLennan (Hugh) Memorial Scholarship 83
 MacSporran (Maysie) Graduate Studentships 89
 Magil (Louis B.) Scholarship in Affordable Homes 83
 Major Recruitment Fellowships 65
 Mallory (James R. and Frances K.) Graduate Award 77
 Malowany (Evelyn Rocque) Prize in Nursing 91
 Manny Weiner Research Award 78
 Mappin (Judith) Fellowship in Women's Health 99
 Margaret Downey Prize 81
 Margaret DuPorte Fellowships 72
 Margaret Gillett Graduate Research Awards 70
 Margaret Griffiths Award in Child Welfare 78
 Margaret Houlding Memorial Prize 95
 Margaret Lock Prize in Social Studies of Medicine 77
 Margaret Mary Burns Award 78
 Margery Trenholme Fellowship 81
 Margery Trenholme Memorial Award in Library Studies 81
 Margherita Rapagna Memorial Prize in Rehabilitation
 Science 93
 Marian and Ralph Sketch Fellowship 71
 Marianna Eaton Scholarship 95
 Marisi (Daniel Q.) Award 81
 Mark and Mildred Goldenberg Fellowship in Social Work 78
 Martin (The Right Honourable Paul) Scholarships to the University
 of Cambridge 107
 Martin (Vivi) Fellowship 81
 Marvin Duchow Memorial Scholarship 95
 Mary Keenan Scholarship in English 75
 Mary Louise Taylor Fellowship 96
 Masson (Georges, Paul and Robert) Bursaries in Science 100
 Maureen Anderson Prizes in Architecture 83
 Maurice Pollack Foundation Fellowship 95
 MAUT Librarian's Section Award 81
 Max Bell Foundation Fellowships 65
 Max Dunbar Award in Oceanography 96
 Max E. Binz Fellowship 67
 Max Stern Fellowship in Humanities and Social Sciences 67
 Max Stern Fellowship in Music 95
 Max Stern McCord Museum Fellowship 65
 Max Stern Recruitment Fellowships 65
 Maysie MacSporran Graduate Studentships 89
 McCall MacBain Fellows 74
 McCall MacBain Fellowships in Arts 74
 McConnell (J.W.) Foundation Fellowships in Environment 65
 McConnell (J.W.) Memorial Fellowship 66
 McCrae (John) Fellowship 89
 McCullagh (Paul F.) Award 75
 McFee (Alexander) Fellowship 89
 McFee (Alexander) Fellowship (Physical Sciences and
 Engineering) 88, 96
 McFee (Coll) Memorial Scholarship (Chemistry) 97
 McGill Alumnae Society Fellowship 67
 McGill Alumni Association Graduate Award 69
 McGill- Canadian Centre for Architecture Collection Research
 Grants Program 74
 McGill Institute for the Study of Canada Fellowships 71
 McGill Major Fellowships 66
 McGill Student Aid 100

McGill University - Montreal Children's Hospital Research Institute Studentships	90	Organization of American States Fellowships	107
McGill University - Montreal Children's Hospital Research Institute Fellowships	90	Ortega (Alvaro) Award	83
McGregor (Alexander A.) Fellowship in Earth and Planetary Sciences	98	Oswald Hall Dissertation Fellowship	79
McLaughlin Fellowship	101	Oswald Hall Prize	79
McNaughton Fellowships in Classics	74, 75	Overseas Research Students (ORSAS) Awards	107
Meadows (James O. and Maria) Scholarship	89	Owen (Casper W.) Fellowship	73
Mellor (C. Douglas) Prize	85	Ower (Bernard Anderson) Award	80
Melville Prize in Pharmacology	92	P	
Meredith (Sir Vincent) Fellowship in Agricultural Economics	72	Paidoussis (M. P.) Prize in Mechanical Engineering	85
Miller (F.S.B.) Memorial Fund	89	Pall Dissertation Award	97
Ministère de l'Éducation, du Loisir et du Sport (MELS) - Programme de bourses des Gouvernements étrangers	106	Paltiel (Freda L.) Award for Immigrant and Minority Women's Health and Development	78
Miriam and E. Michael Berger Fellowship	78	Pao (Sir Yue-Kong) Fellowships	65
Miriam and Philip Vineberg Graduate Fellowship in Economics	75	Parr Gélinas (Verna-Marie) and Paul-Marcel Gélinas Scholarships	96
Miriam H. Tees Scholarship	81	Patricia Ann MacDonald Wells Van Daele Memorial Award	93
Mohan (Richard T.) Scholarship	97	Patrick (Wendy) Award	81
Montgomery (David L.) Memorial Award	81	Patton (Charles James, M.D., and Elizabeth Ross) Memorial Prize	88
Montreal Children's Hospital Research Institute Fellowships	90	Paul F. McCullagh Award	75
Montreal Children's Hospital Research Institute Studentships	90	Paul Hsiang Graduate Fellowship in Chinese Poetry and Literature	74
Montreal League for the Hard of Hearing Award	91	PBEEE - Programmes de bourses d'excellence pour étudiants étrangers	64
More (Robert) Award in Pathology	92	Peacock (John Williamson Frederick) Memorial Scholarship	68
Morrow (Robert E.), QC, Fellowships	88	Pelnar (Dr. Premysl "Mike") Academic Enrichment Award	90
Morse (Herbert A.) Memorial Scholarship	94	Percy Hermant Fellowships in Ophthalmology	92
Morton (Janet L.) Award	70	Pesner (Dr. and Mrs. I.N.) Memorial Prize	79
Morton and Bernice Brownstein Fellowship in Jewish Studies	76	Peter Cundill Fellowships in History	75
Motorola Foundation Graduate Award in Electrical and Computer Engineering	84	Peter Quinlan Fellowship	101
Moyse Travelling Scholarships	106	Peters (Eileen) Fellowship	66
Mr. and Mrs. Johnson Ng Wai Yee Fellowship	74	Philip Carpenter Fellowship in Biology	97
Mulay (Shree) Graduate Award in Gender and Women's Studies	76	Philip F. Vineberg Graduate Fellowship	67
Munroe (Donald MacKenzie) Fellowship	71	Philip F. Vineberg Travelling Fellowship in the Humanities	107
Murphy (Sean) Award	92	Philip P. Baily Fellowship	67
Murray (Virginia) Prize for Cataloguing	81	Phillips (Gordon) Fund for Research in Cardiovascular Diseases	89
Myer Katz Fellowship in Social Work	78	Phyllis and Bernard Shapiro Fellowship in Opera	95
Mysak (Stephen and Anastasia) Graduate Fellowship	96	Phyllis and Bernard Shapiro Fellowship in Theory	95
N		Pilarczyk Fellowship	86
Nathan Brecher Fellowship in Economics and Political Science	75, 77	Pilarczyk Graduate award in Law	88
Nathan Steinberg Fellowship in Political Science	77	Ping Kwan Lau Prize in Architecture	83
Neil Croll Memorial Award	67	Plant Science Postgraduate Award	73
Nenniger (Emil) Memorial Fellowship	84	Pollack (Maurice) Foundation Fellowship	95
Nessa Leckie Memorial Award	91	Porter (John Bonsall) Scholarship	82
Ng Wai Yee (Mr. and Mrs. Johnson) Fellowship	74	Preston Robb Fellowship	90
Noad (Anne Dudley) Award	76	Price (Dr. Gerald B.) Memorial Awards	91
Norbert Schoenauer and David Farley Fellowship in Architecture	83	Professor Paul T.K. Lin Fellowship	75
Norbert Schoenauer and David Farley Fellowship in Urban Planning	85	Q	
Norman Strauss Doctoral Fellowship for Professional Ethics in Business	87	Quebec Universities' Student Exchange Programs – CREPUQ	107
Northern Scientific Training Program	70	Quinlan (Peter) Fellowship	101
Norton (David Fate and Mary J.) Fellowship in Philosophy	77	R	
NSERC/MITACS Industrial Postgraduate Scholarships	63	R.E. Wilkinson Award	81
O		Rabinowitch (I.M.) Fellowship	91
O'Brien Fellowship for Human Rights and Legal Pluralism	88	Rachel and Benjamin Schechter Memorial Scholarship	95
Oelberg (Henry) Memorial Award	78	Rapagna (Margherita) Memorial Prize in Rehabilitation Science	93
"Old Sun" Scholarship	71	Ray (Raymond Tait) Affleck Prize in Design	83
Oliver (Allen) Fellowships in Economics and Political Science	75, 77	Raymond Klibansky Prize In Philosophy	77
Olympia Garibaldi-Galavaris Prize	95	Recruitment Fellowships	65
Onions (Wilfred) Memorial Prize	84	Reinhardt (Carl) Fellowship	66
Ontario Graduate Scholarship Program	106	Reinhardt (Carl) Scholarships and Bursaries in Physics and Earth and Planetary Sciences	98
Ontario-Quebec Exchange Fellowships	106	Renaud (Caroline and Richard) Bursaries	100
Order of Nurses of Quebec Bursaries	92	Rhodes Scholarships	107
		Rice (Ron) Memorial Award	84, 85
		Richard and Edith Strauss Fellowships	92
		Richard F. Salisbury Prize in Anthropology	74

Richard H. Tomlinson Doctoral Fellowships	65	Shree Mulay Graduate Award in Gender and Women's Studies	76
Richard H. Tomlinson Fellowships	65	Simkin (David J.) Award in Physical Chemistry	97
Richard H. Tomlinson Fellowships in University Science Teaching	70	Sir Edward W. Beatty Memorial Scholarships for Medical Students	89
Richard H. Tomlinson Master's Fellowship in the Faculty of Science	65	Sir Vincent Meredith Fellowship in Agricultural Economics	72
Richard H. Tomlinson Postdoctoral Fellowships	101	Sir William Dawson Fellowship in Metallurgy	85
Richard T. Mohan Scholarship	97	Sir Yue-Kong Pao Fellowships	65
Riente (Lara) Memorial Prize in Linguistics	76	Sketch (Marian and Ralph) Fellowship	71
Riley (Irma K.) Awards	91	Slava Klima Prize for Excellence in English Literary Studies	75
Robb (Preston) Fellowship	90	Smith (Greville) Research Fellowship	66
Robert and Mary Stanfield Dissertation Fellowship	68	Smith Bishop (Hazeldine) Fellowship	78
Robert E. Morrow, QC, Fellowships	88	Smythe (Thomas and Willa Ferguson) Fellowship	68
Robert More Award in Pathology	92	Solvay Fellowship	67
Robert P. Harpur Fellowship in Parasitology	73	Sourkes (Theodore) Prize	92
Robert Vogel Memorial Award in History	75	Special Libraries Association Scholarships	81
Robert Zamboni Prize(s) in Chemistry	97	Spence-Sales (Harold) Prize in Urban Planning	85
Roger C. Bennett Prize in Marketing	87	Spinelli (E. Noel) Prize in Music	94
Roland Loiselle Prize in Plant Genetics	73	SR Telecom Awards	67
Rolande and Marcel Gosselin Graduate Studentships	90	St. John Ambulance (Order of St. John) of Canada Bursaries	92
Ron Rice Memorial Award	84, 85	Standard Life Dissertation Fellowship	68
Rosenthal (Barbara) Prize	93	Stanfield (Robert and Mary) Dissertation Fellowship	68
Rossinger (Elizabeth and Andre) Fellowship In Canadian Rural Sustainability	71	Stansfield (Ellen Edith Grubb) Award	79
Rotary Club of Montreal International Agricultural Award	72	Stauffer (Joseph S.) Fellowship	82
Rotary Foundation Scholarships	107	Steffen (Elizabeth) Memorial Award	89
Rotman (Joseph and Sandra) Prize For Student Excellence in Public Policy Innovation	70	Steinberg (Nathan) Fellowship in Political Science	77
Royal Architectural Institute of Canada Medal	83	Stephen and Anastasia Mysak Graduate Fellowship	96
Royal Victoria Hospital School of Nursing Almunae Association Bursary	92	Stern (Max) Fellowship in Humanities and Social Sciences	67
Rugh (William Stewart) Scholarship	85	Stern (Max) Fellowship in Music	95
Ruth and Alex Dworkin Scholarship	89	Stern (Max) McCord Museum Fellowship	65
Ruth Shamah Scholarship, The 2007-2009	93	Stern (Max) Recruitment Fellowships	65
S		Stevenson (Deirdre and Robert) Award	93
Salisbury (Richard F.) Prize in Anthropology	74	Stevenson (John) Medal	98
Salomon (Jennie and Joseph) Memorial Bursary	100	Stewart (David) Memorial Fellowship	66
Samuel Finley National Bursary	94	Stewart (Thomas Shearer) Travelling Fellowship	108
Samuel Lapitsky Scholarship	79	Stewart (Walter M.) Postgraduate Scholarship in Agriculture	72
Samuel Lupovitch Memorial Scholarship	89	Strauss (Norman) Doctoral Fellowship for Professional Ethics in Business	87
Samuel S. Lerner Memorial Award	89	Strauss (Richard and Edith) Fellowships	92
Sara Berlind Memorial Fellowship	95	Stuart A. Wilson Memorial Prize	84
Saul and Freda Frankel Prize	74	Student Exchange Programs - McGill University and the Conference of Rectors and Principals of the Universities of Quebec (CREPUQ)	107
Saul Hayes Graduate Fellowship	67	Student Financial Assistance	99
Schechter (Rachel and Benjamin) Memorial Scholarship	95	Sustainable Agriculture Fellowship	102
Schloss (Julius) Memorial Award	95	Syra Deena Tarshis Fleishman Bursary	81
Schoenauer (Norbert) and David Farley Fellowship in Architecture	83	T	
Schoenauer (Norbert) and David Farley Fellowship in Urban Planning	85	T. Palmer Howard, QC Award in Canadian History	76
School of Architecture Fellowships	84	T. Sterry Hunt Awards in Chemistry	97
School of Social Work Alumni Prizes	78	Tabah (Albert) Award in the Master of Library and Information Studies Program	80
Schubert (Joseph) Memorial Scholarship	89	Tagge (Arthur C.) Fellowship in the Humanities and Social Sciences	66
Schulich Scholarships	95	Tak-Hang (Bill) and Christina Chan Fellowship in Chemistry	97
Schulich School of Music Entrance Scholarships	95	Taylor (Mary Louise) Fellowship	96
Schulich School of Music Scholarships	95	Tees (Miriam H.) Scholarship	81
Sean Murphy Award	92	Teresa Troide Prize for Excellence in Information Studies	81
Semaan (Ingrid) Prize	76	The 2007-2009 Ruth Shamah Scholarship	93
Semaan (J. Jeffery) Prize	76	The Foundation for the Advancement of Protestant Education Graduate Fellowship in History	76
Senez (Aubrey) Fellowship	87	The Golden Violin Award	96
Setsuko Ushioda-Aoki Prize	88	The Right Honourable Paul Martin Scholarships to the University of Cambridge	107
Shamah (Ruth) Scholarship, The 2007-2009	93	Theodore Sourkes Prize	92
Shankman (Harry) Scholarships	89	Thomas and Willa Ferguson Smythe Fellowship	68
Shapiro (Phyllis and Bernard) Fellowship in Opera	95	Thomas Haliburton Henry Award	84
Shapiro (Phyllis and Bernard) Fellowship in Theory	95	Thomas Shearer Stewart Travelling Fellowship	108
Shastri Indo-Canadian Institute Fellowships	108	Thomson (Dale C.) Prize in Political Science	77
Sheila Wellington BMO Financial Group Award	87		
Sheldon (Lotte Marcus) Prize	78		
Shore (Dr. Benjamin) Prize in Plastic Surgery	89		

Timmins (Jeanne) Fellowships/ Killam (Issak Walton) Scholarships (Neurosciences)	90	Women in Science Fellowship	96
Tomlinson (Richard H.) Doctoral Fellowships	65	Wong (Amy) Biotechnology Award	72
Tomlinson (Richard H.) Fellowships	65	Wong (Amy) Fellowship	71, 100
Tomlinson (Richard H.) Fellowships in University Science Teaching	70	Wong (Clifford C.F.) Fellowship	66
Tomlinson (Richard H.) Master's Fellowship in the Faculty of Science	65	Wong (Clifford C.F.) Fellowship in Architecture	83
Tomlinson (Richard H.) Postdoctoral Fellowships	101	World Meteorological Organization (WMO)	64
Tomlinson Centennial Fellowship in Forest Ecology	72	Y	
Topping Memorial Bursary	94	Yaphe (Wilfred) Award	91
Trenholme (Margery) Fellowship	81	Yip (Gar Lam) Memorial Fellowship in Guided Wave Photonics	84
Trenholme (Margery) Memorial Award in Library Studies	81	Young (Horace G.) Fellowships	85
Trigger (Bruce and Barbara) Graduate Prize in Archaeology	74	Z	
Troide (Teresa) Prize for Excellence in Information Studies	81	Zamboni (Robert) Prize(s) in Chemistry	97
Trottier (Lorne) Engineering Graduate Fellowships	82		
Trottier (Lorne) Science Accelerator Fellowships	65		
U			
Udho, Parsini, Diwan Award in Chemistry	97		
Ushioda-Aoki (Setsuko) Prize	88		
V			
Vadasz Doctoral Fellowship in Engineering	82		
Van Berkom and Associates Inc. Bursary	100		
Verna-Marie Parr Gélinas and Paul-Marcel Gélinas Scholarships	96		
Victor (Herschel and Christine) Fellowship in Education	79		
Victor (Jeannette and Abram) Memorial Scholarship	89		
Vincent (Irving Orrin) Bursary	100		
Vineberg (Miriam and Philip) Graduate Fellowship in Economics	75		
Vineberg (Philip F.) Graduate Fellowship	67		
Vineberg (Philip F.) Travelling Fellowship in the Humanities	107		
Vineberg Family Fellowship	97		
Virginia Murray Prize for Cataloguing	81		
Vivi Martin Fellowship	81		
Vogel (Robert) Memorial Award in History	75		
W			
W.K. Kellogg Foundation Loan Fund	92		
W.M. Birks Awards	94		
W.M. Birks Fellowship	94		
Wainwright Scholarship for Law	88		
Walker (Alvin J.) Graduate Fellowship	86		
Walter Hitschfeld Award	67		
Walter M. Stewart Postgraduate Scholarship in Agriculture	72		
Warren (Roger) Fellowships in Geographic Information Systems	98		
Warren Fellowship in the McGill Institute for the Study of Canada	71		
Watson (Harrison) Scholarship	89		
Weiner (Manny) Research Award	78		
Wellington (Sheila) BMO Financial Group Award	87		
Wendy Patrick Award	81		
Werner Graupe International Fellowships in Engineering	65		
Werner Graupe Memorial MMM Fellowship	86		
Weston (Arthur and Dawn) Fellowship in Teaching and Learning in Higher Education	69		
Whitehorne (Gordon J.A.) Recruitment Fellowship	73		
Wilfred Onions Memorial Prize	84		
Wilfred Yaphe Award	91		
Wilkinson (R.E.) Award	81		
Willey (Arthur) Memorial Fellowships	97		
William H. Gauvin Fellowship in Chemical Engineering	84		
William Henry Howard Scholarships	98		
William Stewart Rugh Scholarship	85		
Wilson (Dr. Milton C. and Nina E.) Award	90		
Wilson (H.W.) Foundation Fellowship	80		
Wilson (Stuart A.) Memorial Prize	84		
Winkler (Carl A.) Award in Chemistry	97		
Wirth Family Fellowship in Music	96		

Index of Academic Units by Faculty

Agricultural and Environmental Sciences, Faculty of

Agricultural Economics, Department of	120
Animal Science, Department of	122
Bioresource Engineering, Department of	154
Dietetics and Human Nutrition, School of	189
Food Science and Agricultural Chemistry, Department of	239
Natural Resource Sciences, Department of	363
Parasitology, Institute of	386
Plant Science, Department of	413

Arts, Faculty of

Anthropology, Department of	125
Art History (Department of Art History and Communication Studies)	134
Classics, Graduate Program in	173
Communication Studies (Department of Art History and Communication Studies)	178
Developing-Area Studies, Centre for	189
East Asian Studies, Department of	197
Economics, Department of	200
English, Department of	228
French Language and Literature, Department of	241
German Studies, Department of	250
Hispanic Studies, Department of	251
History, Department of	253
Islamic Studies, Institute of	281
Italian Studies, Department of	285
Jewish Studies, Department of	287
Linguistics, Department of	301
Philosophy, Department of	395
Political Science, Department of	417
Québec Studies Program/ Programme d'études sur le Québec	430
Russian and Slavic Studies, Department of	437
Social Work, School of	440
Sociology, Department of	445

Dentistry, Faculty of

	186
--	-----

Education, Faculty of

Educational and Counselling Psychology, Department of	204
Information Studies, School of	262
Integrated Studies in Education, Department of	270
Kinesiology and Physical Education, Department of	289

Engineering, Faculty of

Architecture, School of	129
Chemical Engineering, Department of	160
Civil Engineering and Applied Mechanics, Department of	169
Electrical and Computer Engineering, Department of	221
Mechanical Engineering, Department of	325
Mining and Materials Engineering, Department of	342
Urban Planning, School of	455

Environment, McGill School of

	231
--	-----

Law, Faculty of

	293
--	-----

Management, Desautels Faculty of

	304
--	-----

Medicine, Faculty of

Anatomy and Cell Biology, Department of	120
Biochemistry, Department of	142
Biomedical Engineering, Department of	152
Biomedical Ethics Unit	146
Communication Sciences and Disorders, School of	174
Epidemiology and Biostatistics, Department of	233
Experimental Medicine, Division of	334
Human Genetics, Department of	258
Medical Physics Unit	332
Microbiology and Immunology, Department of	339
Neurology and Neurosurgery, Department of	371
Nursing, School of	375
Occupational Health, Department of	382
Otolaryngology, Department of	385
Pathology, Department of	391
Pharmacology and Therapeutics, Department of	392
Physical and Occupational Therapy, School of Physiology, Department of	400 409
Psychiatry, Department of	424
Social Studies of Medicine, Department of	439
Surgical Research, Division of	452

Music, Schulich School of

	347
--	-----

Religious Studies, Faculty of

	431
--	-----

Science, Faculty of

Atmospheric and Oceanic Sciences, Department of	138
Biology, Department of	147
Chemistry, Department of	163
Computer Science, School of	181
Earth and Planetary Sciences, Department of	193
Geography, Department of	245
Mathematics and Statistics, Department of	320
Physics, Department of	405
Psychology, Department of	426
Redpath Museum	431

Academic Units

Table of Contents

- | | | | |
|----|---|----|---|
| 1 | Agricultural Economics, page 120 | 57 | Occupational Health, page 382 |
| 2 | Anatomy and Cell Biology, page 120 | 58 | Otolaryngology, page 385 |
| 3 | Animal Science, page 122 | 59 | Parasitology, page 386 |
| 4 | Anthropology, page 125 | 60 | Pathology, page 391 |
| 5 | Architecture, page 129 | 61 | Pharmacology and Therapeutics, page 392 |
| 6 | Art History, page 134 | 62 | Philosophy, page 395 |
| 7 | Atmospheric and Oceanic Sciences, page 138 | 63 | Physical and Occupational Therapy, page 400 |
| 8 | Biochemistry, page 142 | 64 | Physics, page 405 |
| 9 | Bioethics, page 146 | 65 | Physiology, page 409 |
| 10 | Biology, page 147 | 66 | Plant Science, page 413 |
| 11 | Biomedical Engineering, page 152 | 67 | Political Science, page 417 |
| 12 | Bioresource Engineering, page 154 | 68 | Psychiatry, page 424 |
| 13 | Chemical Engineering, page 160 | 69 | Psychology, page 426 |
| 14 | Chemistry, page 163 | 70 | Quebec Studies/Études sur le Québec, page 430 |
| 15 | Civil Engineering and Applied Mechanics, page 169 | 71 | Redpath Museum, page 431 |
| 16 | Classics, page 173 | 72 | Religious Studies, page 431 |
| 17 | Communication Sciences and Disorders, page 174 | 73 | Russian and Slavic Studies, page 437 |
| 18 | Communication Studies, page 178 | 74 | Social Studies of Medicine, page 439 |
| 19 | Computer Science, page 181 | 75 | Social Work, page 440 |
| 20 | Dentistry, page 186 | 76 | Sociology, page 445 |
| 21 | Developing-Area Studies, page 189 | 77 | Surgical Research, page 452 |
| 22 | Dietetics and Human Nutrition, page 189 | 78 | Urban Planning, page 455 |
| 23 | Earth and Planetary Sciences, page 193 | 79 | Index of Graduate Programs, page 459 |
| 24 | East Asian Studies, page 197 | | |
| 25 | Economics, page 200 | | |
| 26 | Educational and Counselling Psychology, page 204 | | |
| 27 | Electrical and Computer Engineering, page 221 | | |
| 28 | English, page 228 | | |
| 29 | Environment, page 231 | | |
| 30 | Epidemiology and Biostatistics, page 233 | | |
| 31 | Food Science and Agricultural Chemistry, page 239 | | |
| 32 | French Language and Literature, page 241 | | |
| 33 | Geography, page 245 | | |
| 34 | German Studies, page 250 | | |
| 35 | Hispanic Studies, page 251 | | |
| 36 | History, page 253 | | |
| 37 | Human Genetics, page 258 | | |
| 38 | Information Studies , page 262 | | |
| 39 | Integrated Studies in Education, page 270 | | |
| 40 | Islamic Studies, page 281 | | |
| 41 | Italian Studies, page 285 | | |
| 42 | Jewish Studies, page 287 | | |
| 43 | Kinesiology and Physical Education, page 289 | | |
| 44 | Law, page 293 | | |
| 45 | Linguistics, page 301 | | |
| 46 | Management, Desautels Faculty of, page 304 | | |
| 47 | Mathematics and Statistics, page 320 | | |
| 48 | Mechanical Engineering, page 325 | | |
| 49 | Medical Physics, page 332 | | |
| 50 | Medicine, Experimental, page 334 | | |
| 51 | Microbiology and Immunology, page 339 | | |
| 52 | Mining and Materials Engineering, page 342 | | |
| 53 | Music, Schulich School of, page 347 | | |
| 54 | Natural Resource Sciences, page 363 | | |
| 55 | Neurology and Neurosurgery, page 371 | | |
| 56 | Nursing, page 375 | | |

1 Agricultural Economics

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Assistant Professor

A. Naseem; B.Sc.(McG.), M.Sc., Ph.D.(Mich.)

1.2 Programs Offered

For Program Information please see the Department of **Natural Resource Sciences**, section 54.

2 Anatomy and Cell Biology

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L.R.C.P., F.R.S.C.
Hershey Warshawsky; B.Sc.(Sir G.Wms), M.Sc., Ph.D.(McG.)

Professors

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Gary C. Bennett; B.A., B.Sc.(Sir G.Wms.), M.Sc., Ph.D.(McG.)
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Samuel David; Ph.D.(Manit.) (*joint appt. with Neurology & Neurosurgery*)
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Alfredo Ribeiro-da-Silva; M.D., Ph.D.(Oporto) (*joint appt. with Pharmacology and Therapeutics*)
Wayne Sossin; S.B.(MIT), Ph.D.(Stan.) (*joint appt. with Neurology & Neurosurgery*)
Stefano Stifani; Ph.D.(Rome), Ph.D.(Alta.) (*joint appt. with Neurology & Neurosurgery*)
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Orest W. Blaschuk; B.Sc.(Winn.), M.Sc.(Manit.), Ph.D.(Tor.) (*joint appt. with Surgery*)
Eugene Daniels; M.Sc., Ph.D.(Manit.)
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Nathalie Lamarche-Vane; B.Sc., Ph.D.(Montr.)
John F. Presley; B.A., Ph.D.(Texas)
Dieter Reinhardt; M.S.(Kaiserslautern), Ph.D.(Munich) (*joint appt. with Dentistry*)
Hojatollah Vali; B.Sc., M.Sc., Ph.D.(Munich) (*joint appt. with Earth and Planetary Sciences*)
Gary E. Wild; B.Sc., Ph.D., M.D., C.M.(McG.) (*joint appt. with Medicine*)

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Isabelle Rouiller; Ph.D. (UK)

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Colin Chalk (*Neurology & Neurosurgery*)
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Claudio Cuello (*Pharmacology & Therapeutics*)
Giovanni DiBattista (*Medicine*)
Alyson Fournier (*Neurology & Neurosurgery*)
Janet Henderson (*Medicine*)
Svetlana Komarova (*Dentistry*)
Paul F. Lasko (*Biology*)
Andrea Leblanc (*Neurology & Neurosurgery*)
Peter Metrakos (*Department of Surgery*)
Edward S. Ruthazer (*Neurology & Neurosurgery*)
Philippe Seguela (*Neurology & Neurosurgery*)
Peter Siegel (*Medicine & Biochemistry*)
David Y. Thomas (*Biochemistry*)
Jackie Vogel (*Biology*)

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Michel Cayouette; Ph.D.(Laval)
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Michel Desjardins; M.Sc., Ph.D.(Montr.)
Jacques Drouin; B.Sc., D.Sc.(Laval)
Marko Horb; Ph.D.(SUNY)
Sadayuki Inoue; M.Sc., Ph.D.(Hok. U.)
Artur Kania; Ph.D.(Baylor)
Bartha Knoppers; Ph.D.(France)
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André Nantel; B.Sc., M.Sc.(Laval), Ph.D.(Chapel Hill)
Maureen O'Conner-McCourt; Ph.D.(Alta.)
Joachim Osterman; Ph.D.(U. Munchen, Germany)
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Joseph Schrag; M.Sc., Ph.D.(Ill.)
Atilla Sik; M.Sc., Ph.D.(Hungary)
Pierre Thibault; Ph.D.(Montr.)
Jan Van Oostrum; M.A., M.Phil., Ph.D.(Col.)

Faculty Lecturer:

Ayman Behiery; M.B., Ch.B(Cairo)

2.2 Programs Offered

Graduate research activities leading to the presentation of the M.Sc. and Ph.D. thesis involve original experimental work in one of the areas being actively investigated by the Department's Research Supervisors. Current research projects include: cell biology of secretion; cell biology of endocytosis; signal transduction of cell receptors for growth factors and hormones; synthesis and migration of glycoproteins; subcomponents of the Golgi apparatus and their function; biogenesis and function of lysosomes; cell turnover in various tissues; control of cell growth and proliferation; molecular biology of extracellular matrix; structure, composition and function of basement membranes and connective tissue microfibrils; cell and microfibrils; cell and molecular biology of spermatogenesis; genetic expression of proteins in the formation of cytoskeletal components of spermatozoa; role of endocytosis and secretion by epididymal cells in sperm maturation; molecular biology of Sertoli cell secretions and their interaction with germ cells; synchronization of sperm production; transferrin, transferrin receptors and iron in germinal cells; differentiation of B lymphocytes in bone marrow in relation to mechanisms of humoral immunity, immunodeficiency states and B cell neoplasias; control mechanisms and cytokines in B lymphopoiesis; in situ organization and stromal cell-interactions of B lineage precursor cells in bone marrow; microenvironmental regulation of hemopoiesis; differentiation and regulation of cells mediating natural tumor immunosurveillance; tumor cell biology; cell and molecular biology of the formation of dental enamel, dentin and bone; structure of organic matrices and inorganic crystals of dental enamel; role of hormones and their binding sites with calcified tissues; secretion and degradation of the proteins of enamel matrix, hypothalamo-pituitary function and gonadotropin patterns in ovarian follicular development; polycystic ovarian disease; computer assisted modeling of morphometric and kinetic data; cell biology and molecular genetics of ageing; senescence and cell cycle-specific genes and their products.

Human Systems Biology Stream is offered as a complementary stream to the existing M.Sc. and Ph.D. programs entailing a multidisciplinary approach to achieving a M.Sc. and Ph.D. in Cell Biology and Anatomy. The primary objective of this stream is to offer graduate students academic training in Human Systems Biology. This is an exciting and new multi-disciplinary field that aims to understand molecular human diseases at the systems level.

Research in the Department investigates the dynamics and organization of molecules, organelles, cells and tissues in several major systems of the body. The work makes fundamental contributions to a number of established and emerging multidisciplinary fields: cell and molecular biology, cellular immunology and hematology, reproductive biology, calcified tissue biology, tumor cell biology, developmental biology, neurobiology and ageing.

The Department offers contemporary facilities for the wide range of techniques currently employed in research. Modern methods of cell and molecular biology, immunology and biochemistry are used in conjunction with specialized microscopy in a variety of experimental systems. Techniques used by Department members include labelling with radioisotopes and other tracers, radioautography, immunocytochemistry, histochemistry, cryo immune microscopy, fluorescence microscopy, high resolution electron microscopy, scanning electron microscopy, backscattered electron imaging, confocal microscopy, microinjection, video-microscopy in living cells, X-ray microanalysis, electron diffraction, freeze-fracture replication, computer reconstruction and quantitation, chromatography, subcellular fractionation, recombinant DNA technology, in situ hybridization, tissue grafting, cell and tissue culture, mutant and transgenic mice, hybridomas, and monoclonal antibodies.

The Department has one of the largest electron microscope facilities in Canada. Currently in use are three modern electron microscopes, including a high voltage instrument, the JEOL 2000FX. Combined with some of these microscopes are computer-aided analytical equipment capable of elemental microanalysis, histomorphometry, reconstruction and quantitation. The

high voltage microscope is particularly useful for certain analytical electron optical procedures such as electron diffraction, lattice imaging and stereo electron microscopy.

2.3 Admission Requirements

M.Sc. and Ph.D. Programs

1. A B.Sc. degree in life sciences or any of M.D., D.D.S. or D.V.M. degrees from a university of recognized reputation.
2. Evidence of a high academic achievement with a minimum Cumulative Grade Point Average (CGPA) of 3.3 on 4.0.

Admission to a Qualifying Program

Applicants whose academic degree and standing entitle them to serious consideration for admission to graduate studies, but who are considered inadequately prepared in the area chosen may, upon recommendation of the Graduate Student Affairs Committee and with the permission of the Director of the Graduate and Post-doctoral Studies Office, be admitted to Qualifying Programs. The courses to be taken in qualifying programs will be stipulated by the Graduate Student Affairs Committee. (Note: Only one qualifying program of a maximum of one year is permitted.)

2.4 Application Procedures

Application for admission to graduate studies for the degrees of M.Sc. or Ph.D. in Cell Biology and Anatomy should be made to the Chair of Graduate Studies, Department of Anatomy and Cell Biology.

Application forms and a brochure giving full details of the Graduate Program are available upon request.

Documents Required

1. Two official copies of complete university-level academic records to date (this also applies to McGill University transcripts). It may be desirable to submit a list of the titles of the courses taken, if transcripts give code numbers only. It is the applicant's responsibility to contact the institution(s) attended and request that the transcripts be forwarded directly to the Department of Anatomy.
2. Two letters of recommendation. It is the applicant's responsibility to arrange that these letters are originals, sent directly to the Department of Anatomy from the persons specified by the applicant.
3. Fee of \$80 in Canadian funds for processing the application.
4. TOEFL score (where applicable).

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

2.5 Program Requirements

M.Sc. in Cell Biology and Anatomy (48 credits)

Required Course (9 credits)

ANAT 699 (9) M.Sc. Thesis Research Seminar

Complementary Courses (15 credits)

Histology Stream (9 credits):

ANAT 663D1/D2 (9) Histology

or

Cell Developmental Biology Stream (6 credits):

ANAT 690D1/D2 (6) Cell and Developmental Biology

or

Human Systems Biology Stream (6 credits):

ANAT 690D1/D2 (6) Cell and Developmental Biology

Up to 9 credits from the following to complete the M.Sc. credit requirements:

List A (Histology Stream):

ANAT 541 (3) Cell and Molecular Biology of Aging

ANAT 614D1/D2 (9) Human Anatomy and Embryology

or

List B (Cell Developmental Biology Stream):

ANAT 663D1/D2 (9) Histology

or

List C (Human Systems Biology Stream):

BMDE 502 (3) BME Modelling and Identification
 BMDE 519 (3) Biomedical Signals and Systems
 BTEC 501 (3) Bioinformatics
 COMP 564 (3) Computational Gene Regulation
 COMP 680 (4) Mining Biological Sequences
 EXMD 602 (3) Techniques in Molecular Genetics
 MIMM 613 (3) Current Topics 1
 MIMM 614 (3) Current Topics 2
 MIMM 615 (3) Current Topics 3

Thesis Component - Required (24 credits)

ANAT 698 (24) M.Sc. Thesis Research 1

Ph.D. in Cell Biology and Anatomy

For the Ph.D. degree, the student must take either ANAT 663D1/D2 (9 credits) or ANAT 690D1/D2 (6 credits). In addition, Ph.D. candidates will write a comprehensive examination after eighteen months, ANAT 701.

For both degrees, the major emphasis is placed on the conduct of original research and the preparation of a thesis.

2.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Courses with numbers ending D1 and D2 are taught in two consecutive terms (most commonly Fall and Winter). Students must register for both the D1 and D2 components. No credit will be given unless both components (D1 and D2) are successfully completed in consecutive terms.

The course credit weight is given in parentheses after the title.

ANAT 541 CELL AND MOLECULAR BIOLOGY OF AGING. (3) (Winter) (2 hours lecture, 2 hours conference) (Prerequisites: ANAT 212 (or BIOC 212 or BIOL 201), ANAT 261, ANAT 262, or permission of instructor.) (Corequisite: BIOL 301.) Complex aging process, including theories and mechanisms of aging, animal model systems used to study aging, age-dependent diseases, for example, Alzheimer's, osteoporosis, and cancer, and age-related diseases, for example, Werner's syndrome and dyskeratosis congenita.

ANAT 663D1 (4.5), ANAT 663D2 (4.5) HISTOLOGY. (Students must register for both ANAT 663D1 and ANAT 663D2) (No credit will be given for this course unless both ANAT 663D1 and ANAT 663D2 are successfully completed in consecutive terms) The study of the cytology and structure of tissues and organs.

ANAT 690D1 (3), ANAT 690D2 (3) CELL AND DEVELOPMENTAL BIOLOGY. (Students must register for both ANAT 690D1 and ANAT 690D2) (No credit will be given for this course unless both ANAT 690D1 and ANAT 690D2 are successfully completed in consecutive terms) Current developments in molecular cell biology and developmental biology will be presented by course coordinators and staff from primary papers in the scientific literature. These will be researched and critiqued by students through oral and written presentations. Two term papers are required for students taking the course.

ANAT 698 M.Sc. THESIS RESEARCH 1. (24)

ANAT 698D1 (12), ANAT 698D2 (12) M.Sc. THESIS RESEARCH 1. (Students must register for both ANAT 698D1 and ANAT 698D2) (No credit will be given for this course unless both ANAT 698D1 and ANAT 698D2 are successfully completed in consecutive

terms) (ANAT 698D1 and ANAT 698D2 together are equivalent to ANAT 698)

ANAT 699 M.Sc. THESIS RESEARCH SEMINAR. (9)

ANAT 699D1 (4.5), ANAT 699D2 (4.5) M.Sc. THESIS RESEARCH SEMINAR. (Students must register for both ANAT 699D1 and ANAT 699D2) (No credit will be given for this course unless both ANAT 699D1 and ANAT 699D2 are successfully completed in consecutive terms) (ANAT 699D1 and ANAT 699D2 together are equivalent to ANAT 699)

ANAT 701 Ph.D. COMPREHENSIVE EXAMINATION. (0)

ANAT 701D1 (0), ANAT 701D2 (0) Ph.D. COMPREHENSIVE EXAMINATION. (Students must register for both ANAT 701D1 and ANAT 701D2) (No credit will be given for this course unless both ANAT 701D1 and ANAT 701D2 are successfully completed in consecutive terms) (ANAT 701D1 and ANAT 701D2 together are equivalent to ANAT 701)

3 Animal Science

Department of Animal Science
 Macdonald Campus
 21,111 Lakeshore Road
 Sainte-Anne-de-Bellevue, QC H9X 3V9
 Canada

Telephone: (514) 398-7794

Fax: (514) 398-7964

E-mail: animal.science@mcgill.ca

Website: www.mcgill.ca/animal

Chair — TBA

3.1 Staff

Emeritus Professors

U. Kuhnlein; B.Sc.(Fed. Inst. of Tech., Zurich), Ph.D.(Geneva)
 J.E. Moxley; B.Sc.(Agr.), M.Sc.(McG.), Ph.D.(C'nell)
 R.B. Buckland; B.Sc.(Agr.), M.Sc.(McG.), Ph.D.(Md.)

Professors

J.F. Hayes; B.Agr.Sc., M.Agr.Sc.(Dub.), Ph.D.(N.C.St.)
 K.F. Ng-Kwai-Hang; B.Sc.(Agr.), M.Sc., Ph.D.(McG.)
 X. Zhao; B.Sc., M.Sc.(Nanjing), Ph.D.(C'nell) (*James McGill Professor*)

Associate Professors

R.I. Cue; B.Sc.(Newcastle-upon-Tyne), Ph.D.(Edin.) (*on leave 2008-09*)
 H. Monardes; Ing. Agr.(Concepcion, Chile), M.Sc., Ph.D.(McG.)
 A.F. Mustafa; B.Sc., M.Sc.(Khartoum), Ph.D.(Sask.) (*William Dawson Scholar*)
 L.E. Phillip; B.Sc.(Agr.), M.Sc.(Agr.)(McG.), Ph.D.(Guelph)
 K.M. Wade; B.Sc.(Agr.), M.Sc.(Agr.)(Dublin), Ph.D.(C'nell)
 D. Zadworny; B.Sc., Ph.D.(Guelph)

Assistant Professors

V. Bordignon; D.V.M.(URCAMP, Brazil), M.Sc.(UFPeI, Brazil), Ph.D.(Mont.)
 M. Chénier; B.Sc.(Laval), M.Sc.(Queb.), Ph.D.(McG.)
 S. Kimmins; B.Sc.(Dal.), M.Sc.(Nova Scotia Ag.), Ph.D.(Dal.)

Adjunct Professors

P. Lacasse, D. Lefebvre, B. Murphy

3.2 Programs Offered

The Department provides laboratory facilities for research work leading to the degrees of Master of Science and Doctor of Philosophy in the disciplines of animal breeding (genetics), nutrition, reproductive physiology, molecular biology, milk biochemistry and information systems. Within these areas advantage may be taken of strong research programs and expertise in molecular biology

and milk biochemistry. A new inter-disciplinary option in Bioinformatics is also available for doctoral students.

Students registered in the Department of Animal Science may develop programs in conjunction with other units at McGill, for example the Nutrition and Food Science Centre or the School of Dietetics and Human Nutrition.

Each student has an advisory committee composed of the thesis supervisor and at least two other faculty members.

3.3 Admission Requirements

M.Sc. (Thesis)

Candidates are required to have either a Bachelor's degree in Agriculture or a B.Sc. degree in an appropriate, related discipline with an equivalent cumulative grade point average of 3.0/4.0 (second class-upper division) or 3.2/4.0 during the last two years of full-time university study. High grades are expected in courses considered by the academic unit to be preparatory to the graduate program.

M.Sc. Applied

All candidates are required to have a B.Sc. degree or equivalent.

Ph.D.

Candidates are normally required to have a M.Sc. degree in an area related to the chosen field of specialization for the Ph.D. program.

3.4 Application Procedures

Applicants for graduate studies through academic units in the Faculty of Agricultural and Environmental Sciences must forward supporting documents to:

Department of Animal Science
Macdonald Campus of McGill University
21,111 Lakeshore
Sainte-Anne-de-Bellevue, QC H9X 3V9
Canada
Telephone: (514) 398-7792
Fax: (514) 398-7964
E-mail: animal.science@mcgill.ca

Applications will be considered upon receipt of a signed and completed application form, \$80 application fee, and the following supporting documents:

Transcripts - Two official copies of all university level transcripts with proof of degree(s) granted. Transcripts written in a language other than English or French must be accompanied by a certified translation. An explanation of the grading system used by the applicant's university is essential. It is the applicant's responsibility to arrange for transcripts to be sent.

It is desirable to submit a list of the titles of courses taken in the major subject, since transcripts often give code numbers only. Applicants must be graduates of a university of recognized reputation and hold a Bachelor's degree equivalent to a McGill Honours degree in a subject closely related to the one selected for graduate work. This implies that about one-third of all undergraduate courses should have been devoted to the subject itself and another third to cognate subjects.

Letters of Recommendation - Two letters of recommendation on letterhead (official paper) of originating institution or bearing the university seal and with original signatures from two instructors familiar with the applicant's work, preferably in the applicant's area of specialization. It is the applicant's responsibility to arrange for these letters to be sent.

Competency in English - Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English, by appropriate exams, e.g., TOEFL (minimum score 550, 213

on computerized test, or 86 on the Internet-based test, with each component score not less than 20) or IELTS (minimum 6.5 overall band). The MCHE is not considered equivalent. Results must be submitted as part of the application. The University code is 0935 (McGill University, Montreal); please use Department code 31(Graduate Schools), Biological Sciences - Agriculture, to ensure that your TOEFL reaches this office without delay.

Graduate Record Exam (GRE) - The GRE is not required, but it is highly recommended.

DOCUMENTS SUBMITTED WILL NOT BE RETURNED.

Application Fee (non-refundable) - A fee of \$80 Canadian must accompany each application (including McGill students), otherwise it cannot be considered. This sum must be remitted using one of the following methods:

1. Credit card (by completing the appropriate section of the application form). NB: online applications must be paid for by credit card.
2. Certified cheque in CDN\$ drawn on a Canadian bank
3. Certified cheque in US\$ drawn on a U.S. bank
4. Canadian Money order in CDN\$
5. U.S. Money Order in US\$
6. An international draft in Canadian funds drawn on a Canadian bank requested from the applicant's bank in his/her own country.

Deadlines - Applications, including all supporting documents must reach the department no later than May 15 (March 1 for International) for the *Fall Term (September)*; October 15 (July 1 for International) for the *Winter Term (January)*; February 15 (November 1 for International) for the *Summer Term (May)*. It may be necessary to delay review of the applicant's file until the following admittance period if application materials including supporting documents are received after these dates. International applicants are advised to apply well in advance of the deadline because immigration procedures may be lengthy. Applicants are encouraged to make use of the online application form available on the Web at www.mcgill.ca/applying/graduate.

Financial aid is very limited and highly competitive. It is suggested that students give serious consideration to their financial planning before submitting an application.

Acceptance to all programs depends on a staff member agreeing to serve as the student's supervisor and the student obtaining financial support. Normally, a student will not be accepted unless adequate financial support can be provided by the student and/or the student's supervisor. Academic units cannot guarantee financial support via teaching assistantships or other funds.

Qualifying Students - Some applicants whose academic degrees and standing entitle them to serious consideration for admission to graduate studies, but who are considered inadequately prepared in the subject selected may be admitted to a *Qualifying Program* if they have met the Graduate and Postdoctoral Studies Office minimum CGPA of 3.0/4.0. The course(s) to be taken in a *Qualifying Program* will be prescribed by the academic unit concerned. *Qualifying students* are registered in graduate studies, **but not as candidates for a degree**. Only one qualifying year is permitted. **Successful completion of a qualifying program does not guarantee admission to a degree program.**

3.5 Program Requirements

M.Sc. (Thesis) (45 credits)

Four one-term courses or the equivalent and two seminar courses at the postgraduate level are required, as a minimum, although a student may be advised to take additional courses as specified by his/her advisory committee. Advanced undergraduate courses may be considered for graduate credit if approved by the student's committee and the Graduate and Postdoctoral Studies

Office and passed at the graduate level; generally, this will not constitute more than one of the four required courses.

A minimum of 45 credits and completion of an acceptable thesis is required for the M.Sc. degree; 14 credits are for course work and 31 credits for the thesis (ANSC 680, ANSC 681, ANSC 682, and ANSC 683). Exceptional M.Sc. students may be considered for Ph.D. status after one full year in the Department.

M.Sc. Applied (45 credits)

The M.Sc. Applied (Non-Thesis) degree is oriented to animal scientists already working in industry or government, to undergraduate students inspired by concepts in sustainable and integrated animal agriculture, to project leaders interested in animal resource management and to veterinarians. The program aims to provide graduate training in applied areas of animal production with a view towards integrating technology and management in animal production with allied areas of agricultural resource utilization.

Project Component – Required (15 credits)

- ANSC 643 (3) Project 1
- ANSC 644 (3) Project 2
- ANSC 645 (3) Project 3
- ANSC 646 (3) Project 4
- ANSC 647 (3) Project 5

Complementary Courses (30 credits)

12 credits from the following list:

- AEMA 610 (3) Statistical Methods 2
- ANSC 504 (3) Population Genetics
- ANSC 508 (3) Tools in Animal Biotechnology
- ANSC 551 (3) Carbohydrate & Lipid Metabolism
- ANSC 552 (3) Protein Metabolism & Nutrition
- ANSC 605 (3) Estimation: Genetic Parameters
- ANSC 606 (3) Selection Index & Animal Improvement
- ANSC 607 (3) Linear Models in Agricultural Research
- ANSC 611 (3) Advanced Reproductive Biology
- ANSC 622 (3) Selected Topics in Molecular Biology
- ANSC 630 (3) Experimental Techniques: Animal Science: Macro
- ANSC 635 (3) Vitamins and Minerals in Nutrition
- ANSC 636 (3) Analysis - Animal Breeding Research Data
- ANSC 691 (3) Special Topic: Animal Sciences
- ANSC 692 (3) Topic in Animal Sciences 1

18 credits from the following list:

- AGEC 630 (3) Food and Agricultural Policy
- AGEC 633 (3) Environmental and Natural Resource Economics
- AGEC 642 (3) Economics of Agricultural Development
- BREE 518 (3) Bio-Treatment of Wastes
- BTEC 501 (3) Bioinformatics
- BTEC 502 (3) Biotechnology Ethics and Society
- ENTO 550 (3) Veterinary and Medical Entomology
- FDSC 535 (3) Food Biotechnology
- PLNT 602 (3) Forage Crop Experimentation
- PLNT 636 (3) Epidemiology and Management of Plant Disease
- SOIL 521 (3) Soil Microbiology and Biochemistry
- WILD 605 (3) Wildlife Ecology

Ph.D.

Since the Ph.D. is primarily a research degree, the amount of course work required may comprise a smaller portion of the total than is the case for the M.Sc., this will depend on the background of the individual student, and must be approved by the student's advisory committee. This course work must include two seminar courses at the graduate level and the Ph.D. Comprehensive Examination ANSC 701.

The thesis must clearly show originality and be a contribution to knowledge.

Ph.D. in Animal Science– Bioinformatics Option/Concentration

Required Courses (5 credits)

- ANSC 701 (0) Doctoral Comprehensive Examination
- ANSC 797 (1) Animal Science Seminar 3
- ANSC 798 (1) Animal Science Seminar 4
- COMP 616 (3) Bioinformatics Seminar

Complementary Courses (6 credits)

6 credits from the following courses:

- BINF 621 (3) Bioinformatics: Molecular Biology
- BMDE 652 (3) Bioinformatics: Proteomics
- BTEC 555 (3) Structural Bioinformatics
- COMP 618 (3) Bioinformatics: Functional Genomics
- PHGY 603 (3) Systems Biology and Biophysics

Additional courses at the 500, 600, or 700 level may be required at the discretion of the candidate's supervisory committee.

Thesis - Required

3.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

The course credit weight is given in parentheses after the title.

ANSC 504 POPULATION GENETICS. (3) (Fall) (3 lectures) Considerations of the basic principles of Mendelian genetics dealing with the genetic properties of populations and extension to the simultaneous segregation of genes at many loci, polygenic inheritance and an introduction to quantitative genetics, including mechanisms of transmission, segregation, linkages between genes and the effect of natural and artificial selection.

ANSC 506 ADVANCED ANIMAL BIOTECHNOLOGY. (3) (Prerequisites: AEBI 202, ANSC 400.) New concepts and applications of animal biotechnology in agriculture, biomedicine, environmental preservation.

ANSC 508 TOOLS IN ANIMAL BIOTECHNOLOGY. (3) (Fall) (Restriction: Permission of instructor.) Essential laboratory techniques in animal biotechnology: extraction of nucleic acids, PCR technology, gel electrophoresis, construction of gene expression vectors, transformation of bacterial and mammalian cells and monitoring gene expression using reporter genes.

ANSC 551 CARBOHYDRATE AND LIPID METABOLISM. (3) (Winter) (3 lectures) Comparative aspects of nutrition and metabolism of carbohydrate and lipid from the cellular level through the multi-organ of the whole organism. Main topics will include biothermodynamics, calorimetry, cellular metabolism and functions of carbohydrate and lipid, digestion, absorption and utilization of dietary carbohydrate and lipid.

ANSC 552 PROTEIN METABOLISM AND NUTRITION. (3) (Fall) (3 lectures) Comparative aspects of nutrition and metabolism of amino acids and proteins from the cellular level on through the multisystem operation of the whole organism. Main topics include cellular metabolism and functions of amino acids and proteins, digestion, absorption and utilization of dietary protein. Comparison between farm animals and humans.

ANSC 560 BIOLOGY OF LACTATION. (3) (Restriction: Not open to students who have taken ANSC 460.) An interdisciplinary approach to the study of mammary development, the onset of lactation and its cessation, comparing the differences in mammalian species in mammary development from embryological, pre- and post-pubertal and pre- and post-partum aspects. Lactation at the cellular and biochemical levels.

ANSC 565 APPLIED INFORMATION SYSTEMS. (3) (Winter) (3 lectures and one 2-hour lab) Introduction to concepts of an Information System and subsequent application to various scenarios in

agriculture. Industry analysis in terms of users, goals, available data/information, communication, delivery structure, decision making, feedback, exploitation of technology and possible improvements using the Internet. Individual case studies and familiarisation with cutting-edge computer applications.

ANSC 605 ESTIMATION: GENETIC PARAMETERS. (3) (3 lectures) (Given in alternate years.) General methods for the estimation of components of variance and co-variance are considered, with specific emphasis given to their application to heritability, repeatability and genetic correlation estimation.

ANSC 611 ADVANCED REPRODUCTIVE BIOLOGY. (3) (2 lectures, 1 seminar) (Prerequisite: No prerequisites, but students need to have a solid background in reproductive physiology.) (Note: Course offered in alternate years.) An introduction to key concepts in reproductive biology and principles of emerging reproductive technologies. Modules covered include oogenesis and folliculogenesis, fertilization, embryo development, reproductive biotechnology and new directions in reproductive biology.

ANSC 611D1 (1.5), ANSC 611D2 (1.5) ADVANCED REPRODUCTIVE BIOLOGY. (No prerequisites, but students need to have a solid background in reproductive physiology.) (Note: Course offered in alternate years.) (Students must register for both ANSC 611D1 and ANSC 611D2.) (No credit will be given for this course unless both ANSC 611D1 and ANSC 611D2 are successfully completed in consecutive terms.) An introduction to key concepts in reproductive biology and principles of emerging reproductive technologies. Modules covered include oogenesis and folliculogenesis, fertilization, embryo development, reproductive biotechnology and new directions in reproductive biology.

ANSC 622 SELECTED TOPICS IN MOLECULAR BIOLOGY. (3) (1 lecture and 2 seminars) (Prerequisite: MICR 500 or permission of instructor) Key examples of applications of molecular biology to the study of animal physiology and animal genetics will be drawn from the current literature and discussed in depth. The course has a dual purpose. It will familiarize students with current events at the forefront of molecular biology and will teach them how to read and critically evaluate research publications.

ANSC 630 EXPERIMENTAL TECHNIQUES: ANIMAL SCIENCE: MACRO. (3) (1 lecture, 1 lab) Lectures and laboratories dealing with animal experimentation. Emphasis on the design and conduction of animal studies, selection of experimental animals, chemical and biological assays, statistical analysis, interpretation of data and preparation of technical reports.

ANSC 635 VITAMINS AND MINERALS IN NUTRITION. (3) (3 lectures) Modularised course dealing with advanced topics in Nutrition. The core of the course will focus on vitamins and minerals.

ANSC 636 ANALYSIS - ANIMAL BREEDING RESEARCH DATA. (3) (3 lectures) An advanced graduate course to give training and experience in statistical techniques applied to quantitative genetics and animal breeding. To consider aspects of data handling of large data sets (100,000 observations), checks for consistency and connectedness in data. Considerations in choosing efficient analytical procedures in fitting these models and development of efficient numerical algorithms to apply these procedures.

ANSC 643 PROJECT 1. (3) Review of the literature and design of the project. This project relates to the M.Sc. Applied (non-thesis) degree.

ANSC 644 PROJECT 2. (3) Continuation of the review of the literature and design of project. This project relates to the M.Sc. Applied (non-thesis) degree.

ANSC 645 PROJECT 3. (3) Execution and write-up of project. This project relates to the M.Sc. Applied (non-thesis) degree.

ANSC 680 M.Sc. THESIS 1. (7) Independent research under the direction of a supervisor toward completion of M.Sc. thesis.

ANSC 681 M.Sc. THESIS 2. (7) Independent research under the direction of a supervisor toward completion of M.Sc. thesis.

ANSC 682 M.Sc. THESIS 3. (7) Independent research under the direction of a supervisor toward completion of M.Sc. thesis.

ANSC 683 M.Sc. THESIS 4. (10) Final submission and approval of M.Sc. thesis.

ANSC 691 SPECIAL TOPIC: ANIMAL SCIENCES. (3) Prescribed reading, conference or practical work on a selected topic in the student's area of specialization, not otherwise available in other courses; under staff supervision. An approved course outline must be on file in the Departmental office prior to registration deadline.

ANSC 692 TOPIC IN ANIMAL SCIENCES 1. (3) Prescribed reading, conference or practical work on a selected topic in the student's area of specialization, not otherwise available in other courses; under staff supervision. An approved course outline must be on file in the Departmental office prior to registration deadline.

ANSC 695 ANIMAL SCIENCE SEMINAR 1. (1) (1 hour) One of two seminars to be given by all students in an M.Sc. program. Consists of a review of literature in relation to the student's proposed research and an experimental design of the research to be conducted.

ANSC 696 ANIMAL SCIENCE SEMINAR 2. (1) (1 hour) One of two seminars to be given by all students in an M.Sc. program. Presentation of a current scientific topic which is not related to the student's research. The topic for the presentation should be cleared by the thesis supervisor.

ANSC 701 DOCTORAL COMPREHENSIVE EXAMINATION. (0) (See Faculty Regulations)

ANSC 797 ANIMAL SCIENCE SEMINAR 3. (1) (1 hour) One of two seminars to be given by all students in a Ph.D. program. Review of literature in relation to the student's proposed research and an experimental design of the research to be conducted.

ANSC 798 ANIMAL SCIENCE SEMINAR 4. (1) (1 hour) One of two seminars to be given by all students in a Ph.D. program. Presentation of a current scientific topic which is not related to the student's research. The topic for the presentation should be cleared by the thesis supervisor.

4 Anthropology

Department of Anthropology
Stephen Leacock Building
855 Sherbrooke Street W., Room 717
Montreal, QC H3A 2T7
Canada

Telephone: (514) 398-4300
Fax: (514) 398-7476
Website: www.mcgill.ca/anthropology

Chair — Michael S. Bisson

4.1 Staff

Professors

Donald W. Attwood; A.B.(Calif.), Ph.D.(McG.)
Laurel Bossen; B.A.(Barnard), M.A., Ph.D.(SUNY)
Colin A. Chapman; B.Sc., M.A., Ph.D.(Alta.) (*joint appt. with McGill School of Environment*)
Ronald W. Niezen; B.A.(Br. Col.), M.Phil., Ph.D.(Camb.)
Jérôme Rousseau; M.A.(Montr.), Ph.D.(Cant.) (*on leave 2008-2009*)
Philip Carl Salzman; A.B.(Antioch), M.A., Ph.D.(Chic.)
Allan Young; B.A.(Penn.), M.A.(Wash.), Ph.D.(Penn.) (*joint appt. with Social Studies of Medicine*)

Associate Professors

Michael S. Bisson; B.A., M.A., Ph.D.(Calif.)
Ellen Corin; B.A., M.A., Ph.D.(Louvain) (*joint appt. with Psychiatry*)
John Galaty; M.A., Ph.D.(Chic.)
Sandra T. Hyde; B.A.(Calif., Santa Cruz), M.P.H.(Hawaii), Ph.D.(Calif., Berk.) (*on leave Winter 2009*)
Carmen Lambert; B.A.(Montr.), M.A., Ph.D.(McG.)
Kristin Norget; B.A.(Vic. (BC)), M.Phil., D.Phil.(Cant.)

James M. Savelle; B.Sc., M.Sc.(Ott.), M.A.(Ark.), Ph.D.(Alta.) (on leave 2008-2009)
Colin H. Scott; B.A.(Regina), M.A., Ph.D.(McG.)

Assistant Professors

André Costopoulos; B.A.(McG.), M.Sc.(Montr.), Ph.D.(Oulu, Finland)

Ismael Vaccaro; B.A.(Barcelona), M.A.(E.H.E.S.S. Paris), M.A., Ph.D.(Wash.) (joint appt. with McGill School of Environment)

Nicole Couture; B.A.(Trent), M.A., Ph.D.(Chic.)

Setrag Manoukian; B.A.(U.di Venezia), M.A., Ph.D.(Mich.) (joint appt. with Institute of Islamic Studies)

4.2 Programs Offered

The Department offers training leading to the M.A. and Ph.D. in Anthropology. Admission is to the M.A. program, except when a student already holds a Master's degree. It is expected, however, that most applicants will be oriented towards achievement of the Ph.D.

The Department offers several alternative M.A. programs:

1. M.A. with thesis;
2. M.A. with thesis, Development Studies option;
3. M.A. with thesis, Environment option;
4. M.A. with thesis, Gender and Women's Studies option;
5. M.A. with research paper;
6. M.A. in Medical Anthropology

4.3 Admission Requirements

Master's

Admission to the M.A. program is open competitively to students holding an Honours or Major B.A. in Anthropology. Outstanding candidates with B.A. degrees in other disciplines but with substantial background related to anthropology are sometimes admitted on the condition that they complete a specified number of additional courses in Anthropology.

The applicants admitted usually have undergraduate Grade Point Averages of 3.5 or above on a 4.0 point scale.

Ph.D.

Admission to the Ph.D. program is open competitively to students with a Master's degree in Anthropology. In very special circumstances candidates with Master's degrees in related disciplines may be admitted.

4.4 Application Procedures

The deadlines for receipt of all application material for September admission is January 1.

Applications will be considered upon receipt of:

1. Graduate Application Form;
2. application fee (\$80), official transcripts;
3. two letters of recommendation;
4. statement of research interests (including reasons for wanting to pursue them at McGill);
5. test results (GRE); and
6. test results (TOEFL), if required.
(For applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), a minimum TOEFL score of 600 on paper-based, 250 on computer-based test or 100 on an Internet-based test (IBT), with each component score not less than 20, is required.)

The Department admissions committee announces its selections by mid-March.

A number of teaching assistantships are available to graduate students in the Department. Applicants who wish to be considered for an assistantship, a McGill Recruitment Fellowship, or for

Differential Fee Waivers (for international students) should include a note to that effect with their applications. For information regarding a variety of other fellowship programs, see the "Graduate Fellowships and Awards" section of the Graduate and Postdoctoral Studies Calendar.

Application information is available on the Department Website.

4.5 Program Requirements

M.A. Degree

The purpose of the M.A. program is to provide advanced level training in anthropology and to prepare students for research at the Ph.D. level.

M.A. Degree with Thesis (48 credits)

The Master's degree with thesis is a 48-credit program: 4 courses (12 credits) and the M.A. thesis (36 credits).

The student's program of work, which is based on his/her research interests, is developed in consultation with the student's supervisor and the two other members of his or her advisory committee. Students are required to take four courses in the form of seminars and/or tutorials. The set of four courses should be directed toward and converge in the thesis research. M.A. thesis research may take the form of fieldwork but a library thesis is strongly advised so that students can proceed more rapidly to the Ph.D.

M.A. in Anthropology (Thesis) (48 credits)

Required Courses (12 credits)

ANTH 694 (6) M.A. Thesis Tutorial 1

ANTH 695 (6) M.A. Thesis Tutorial 2

Complementary Courses (12 credits)

12 credits of courses to be determined by the student's area of study.

Thesis Component - Required (24 credits)

ANTH 699 (24) M.A. Thesis

M.A. in Anthropology (Thesis) Development Studies Option/Concentration (48 credits)

The Development Studies Option (DSO) is a cross-disciplinary M.A. program offered as an option within existing M.A. programs in the departments of Geography, History, Political Science, Anthropology, Economics, and Sociology. This thesis option is open to master's students specializing in development studies. Students enter through one of the participating departments and must meet the M.A. requirements of that unit. Students will take an interdisciplinary seminar and a variety of graduate level courses on international development issues. The M.A. thesis must be on a topic relating to development studies, approved by the DSO coordinating committee.

Required Courses (15 credits)

ANTH 694 (6) M.A. Thesis Tutorial 1

ANTH 695 (6) M.A. Thesis Tutorial 2

INTD 657 (3) Development Studies Seminar

Complementary Courses (9 credits)

9 credits of courses at the 500 level or higher to be determined by the student's area of study.

Thesis Component - Required (24 credits)

ANTH 699 (24) M.A. Thesis

M.A. in Anthropology (Thesis) Environment Option/Concentration (48 credits)

Required Courses (12 credits)

ANTH 694 (6) M.A. Thesis Tutorial 1

ENVR 610 (3) Foundations of Environmental Policy

ENVR 650 (1) Environmental Seminar 1

ENVR 651 (1) Environmental Seminar 2

ENVR 652 (1) Environmental Seminar 3

Complementary Courses (12 credits)

9 credits of Anthropology seminars and/or tutorials at the 500 level or higher which should be directed toward and converge in the thesis research.

3 credits from:

- ENVR 519 (3) Global Environmental Politics
- ENVR 544 (3) Environmental Measurement and Modelling
- ENVR 580 (3) Topics in Environment 3
- ENVR 611 (3) The Economy of Nature
- ENVR 620 (3) Environment and Health of Species
- ENVR 622 (3) Sustainable Landscapes
- ENVR 630 (3) Civilization and Environment 1
- ENVR 680 (3) Topics in Environment 4

or another graduate course recommended by the advisory committee and approved by the Environment Option Committee

Thesis Component - Required (24 credits)

- ANTH 699 (24) M.A. Thesis

Anthropology Complementary Course List

- ANTH 551 (3) Advanced Topics: Archaeological Research
- ANTH 555 (3) Advanced Topics in Ethnology
- ANTH 602 (3) Theory 1
- ANTH 603 (3) Theory 2
- ANTH 605 (3) Culture Area
- ANTH 607D1/D2 (6) Proseminar in Archaeology
- ANTH 609D1/D2 (6) Proseminar in Anthropology
- ANTH 610 (3) Social Organization
- ANTH 611 (3) Research Design
- ANTH 614 (3) Economic Anthropology 1
- ANTH 615 (3) Seminar in Medical Anthropology
- ANTH 616 (3) Political Anthropology 1
- ANTH 625 (3) Cultural Ecology
- ANTH 631 (3) Symbolic Anthropology 1
- ANTH 634 (3) Anthropology of Development 1
- ANTH 635 (3) Anthropology of Development 2
- ANTH 640 (3) Psychological Anthropology 1
- ANTH 648 (3) Structural Anthropology
- ANTH 652 (3) Anthropology and Gender
- ANTH 660 (3) Research Methods
- ANTH 665 (3) Quantitative Methods
- ANTH 670 (3) Archaeological Theory 1
- ANTH 671 (3) Archaeological Theory 2
- ANTH 673 (3) Archaeological Field Methods
- ANTH 676 (3) Archaeological Area
- ANTH 678 (3) Ethnohistory
- ANTH 680 (3) Tutorial Reading 1
- ANTH 681 (3) Tutorial Reading 2
- ANTH 682 (3) Tutorial Reading 3
- ANTH 683 (3) Tutorial Reading 4
- ANTH 684 (3) Tutorial Reading 5
- ANTH 702 (3) Advanced Anthropological Theory
- ANTH 760 (3) Advanced Anthropological Methods
- ANTH 770 (3) Advanced Archaeological Theory
- ANTH 780 (3) Reading and Research 1
- ANTH 781 (3) Reading and Research 2

M.A. in Anthropology (Thesis) Gender and Women's Studies Option/Concentration (48 credits)

The Graduate Option in Gender and Women's Studies is an interdisciplinary program for students who meet the degree requirements in Anthropology who wish to earn 6 credits of approved coursework focusing on gender and women's studies, and issues in feminist research and methods. The thesis must be on a topic centrally related to gender and/or women's studies.

Required Courses (15 credits)

- WMST 601 (3) Feminist Theories and Methods
- ANTH 694 (6) M.A. Thesis Tutorial 1
- ANTH 695 (6) M.A. Thesis Tutorial 2

Complementary Courses (9 credits)

6 credits of coursework in Anthropology at the 600 level. 3 credits of course work at the M.A. level relating to gender/women's studies, which may be taken outside the department

OR

- ANTH 615 (3) Seminar in Medical Anthropology

Thesis Component - Required (24 credits)

- ANTH 699 (24) M.A. Thesis

M.A. Degree with Research Paper (45 credits)

(Not offered in 2008-09)

The Master's degree with research paper is a 45-credit program: 5 courses (15 credits), a Proseminar (6 credits) and the research paper (24 credits).

The student's program of work is developed in consultation with the student's supervisor and the two other members of his or her advisory committee. It consists of: five courses (seminars or tutorials), only one of which is optional, a research paper proposal and the research paper. They must also attend the Proseminar. The research paper will normally be based on library research but can involve limited and preferably local fieldwork. The research paper should demonstrate the student's ability to define a problem, place it in a theoretical and factual context, collect and analyse data, and write up a report.

M.A. Degree in Medical Anthropology (48 credits)

The M.A. program in Medical Anthropology is given jointly by the Department of Anthropology and the Department of Social Studies of Medicine (SSOM). For additional information, including seminar offerings, please refer to the SSOM section.

The program is open to students with backgrounds in the social sciences, the medical professions, or the medical sciences. The M.A. degree is awarded by the Anthropology Department and admission is granted by a joint admissions committee made up of representatives from Anthropology and SSOM.

M.A. in Medical Anthropology (Thesis) (48 credits)**Required Courses** (42 credits)

- HSSM 605 (3) Medical Anthropology
- ANTH 615 (3) Seminar in Medical Anthropology
- ANTH 694 (6) M.A. Thesis Tutorial 1
- ANTH 695 (6) M.A. Thesis Tutorial 2
- ANTH 699 (24) M.A. Thesis

Complementary Courses (6 credits)

Two Anthropology courses.

Special M.A. with Research Paper

This course of study is taken by students who lack a strong academic background in anthropology. These students are required to take eight courses (24 credits), including two seminars in Medical Anthropology (HSSM 605, ANTH 615) and at least five additional graduate courses in anthropology (Theory 1 and Research Methods are recommended). In addition, students are required to write a research paper.

Ph.D. Degree

The purpose of the Ph.D. program is to enable a student to make an original contribution to anthropological research in the form of a doctoral thesis. This must be based on a comprehensive understanding of prior research relevant to the topic investigated.

All requirements for the M.A. must be completed. Students holding an M.A. from another discipline may be requested to take seminars covering deficiencies in their previous training.

Candidates must (1) pass a language exam; (2) demonstrate comprehensive understanding of prior research in three subfields of anthropology through the successful completion of three courses; these courses are the Ph.D. Tutorials listed below; (3) submit and orally defend a research proposal; and (4) carry out field research and submit an original thesis for examination and oral defence.

- 1) A language examination, normally French, must be passed before an oral examination of the research proposal may be scheduled. Francophone students can satisfy the language requirement by demonstrating competency in English. The purpose of the language requirement is to ensure that the student has access to anthropological literature in at least two languages. Under special circumstances, a language other than English or French may be substituted, provided that there is sufficient anthropological literature on the student's research topic in that language.
- 2) Within the first year of Ph.D. study, students will select a thesis supervisor and at least two other thesis committee members. One of the latter may be from outside the Department. The committee as a whole helps the student to develop a topic for research, to learn the state of the art regarding the topic, and to write a research proposal. To ensure that students understand prior research, they must define three subfields which intersect with the thesis topic. One of these subfields is usually the literature on the geographic region where fieldwork will be carried out. One or more committee members will tutor the student in each selected subfield, and the student will prepare a bibliography of works read and discussed as well as a concise evaluation of the material covered in each. This written work will demonstrate understanding of prior research in each subfield.
- 3) The thesis proposal is also prepared in consultation with the committee members and under the direction of the thesis supervisor. It contains a brief review of the literature and controversies in the three relevant subfields, and a discussion of the proposed research (background, methods and hypotheses to be tested). When the proposal is finished, it must be read and approved by all members of the committee before it is submitted for oral examination. Copies of the proposal and of the bibliographies relating to the three subfields must be made available to all professors in the Department at least one week before the hearing.
The oral examination of the proposal and the three subfields is open to all staff and students. The first part of the examination will explore the student's general understanding of the three subfields selected. In the second part, the student may be questioned on the merits of any part of the proposal: theoretical assumptions, hypotheses, methods, understanding of the literature.
- 4) If the proposal is passed, the student will then carry out field research and write a thesis. Thesis drafts are read and commented on by the thesis committee. When the thesis is ready for examination, it is submitted to the Graduate and Postdoctoral Studies Office, which appoints an internal examiner (usually from within the Department) and an external examiner (an acknowledged authority in the field from outside the university). If both examiners approve the thesis, an oral defence is arranged before a committee appointed by GPSO.

4.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Courses with numbers ending D1 and D2 are taught in two consecutive terms (most commonly Fall and Winter).

The course credit weight is given in parentheses after the title.

ANTH 500 CHINESE DIVERSITY AND DIASPORA. (3) (Winter) (Restrictions: Reserved for U3 Anthropology undergraduate students or graduate students, any other students by permission of instructor.) (Enrolment Limit: 25 students.) Explores ethnic diversity within mainland China, as well as the diversity of Chinese cultures of diaspora, living outside the mainland, often as minorities subject to other dominant cultures.

ANTH 511 COMPUTATIONAL APPROACHES TO PREHISTORY. (3) (Winter) (Prerequisites: ANTH 357 or ANTH 359.) (Restriction: Restricted to U3 and graduate students in the Anthropology Department.) Covers the application of computational methods to archaeological problems and the modeling and simulation of pre-historic populations.

ANTH 512 POLITICAL ECOLOGY. (3) (Fall) Historical, theoretical and methodological development of political ecology as a field of inquiry on the interactions between society and environment, in the context of conflicts over natural resources.

ANTH 540 TOPICS IN ANTHROPOLOGICAL THEORY. (3) (Winter) (Restriction: This course is restricted to U3 Honours students in the Anthropology Department or permission of the instructor.) Examination and discussion of topics of current theoretical interest.

ANTH 551 ADVANCED TOPICS: ARCHAEOLOGICAL RESEARCH. (3) (Fall) Examination and discussion of topics of current theoretical or methodological interest in archaeology. Topics will be announced at the beginning of term.

ANTH 555 ADVANCED TOPICS IN ETHNOLOGY. (3) (Winter) (Restriction: Honours students at the U3 level in the Anthropology Department or with permission of instructor) Examination and discussion of topics of current theoretical or methodological interest in ethnology. Topics will be announced at the beginning of term.

ANTH 575 CONCEPTS OF RACE. (3) (Winter) (Prerequisites: ANTH 201, or ANTH 202, or ANTH 203, and ANTH 352 or ANTH 359.) (Restriction: U3 students and graduate students in Anthropology programs.) Examination of the evolution of the idea of race within anthropology, and the impact which the discipline's debates have had on society.

ANTH 602 THEORY 1. (3)

ANTH 602D1 (1.5), ANTH 602D2 (1.5) THEORY 1. (Students must register for both ANTH 602D1 and ANTH 602D2) (No credit will be given for this course unless both ANTH 602D1 and ANTH 602D2 are successfully completed in consecutive terms) (ANTH 602D1 and ANTH 602D2 together are equivalent to ANTH 602)

ANTH 603 THEORY 2. (3)

ANTH 607D1 (3), ANTH 607D2 (3) PROSEMINAR IN ARCHAEOLOGY. (Students must register for both ANTH 607D1 and ANTH 607D2) (No credit will be given for this course unless both ANTH 607D1 and ANTH 607D2 are successfully completed in consecutive terms)

ANTH 609D1 (3), ANTH 609D2 (3) PROSEMINAR IN ANTHROPOLOGY. (Students must register for both ANTH 609D1 and ANTH 609D2) (No credit will be given for this course unless both ANTH 609D1 and ANTH 609D2 are successfully completed in consecutive terms) (ANTH 609D1 and ANTH 609D2 together are equivalent to ANTH 609)

ANTH 614 ECONOMIC ANTHROPOLOGY 1. (3)

ANTH 615 SEMINAR IN MEDICAL ANTHROPOLOGY. (3)

ANTH 616 POLITICAL ANTHROPOLOGY 1. (3)

ANTH 625 CULTURAL ECOLOGY. (3)

ANTH 631 SYMBOLIC ANTHROPOLOGY 1. (3)

ANTH 634 ANTHROPOLOGY OF DEVELOPMENT 1. (3)

ANTH 635 ANTHROPOLOGY OF DEVELOPMENT 2. (3)

ANTH 640 PSYCHOLOGICAL ANTHROPOLOGY 1. (3)

ANTH 648 STRUCTURAL ANTHROPOLOGY. (3)

ANTH 652 ANTHROPOLOGY AND GENDER. (3)

ANTH 660 RESEARCH METHODS. (3)

ANTH 665 QUANTITATIVE METHODS. (3)

ANTH 670 ARCHAEOLOGICAL THEORY 1. (3)

ANTH 671 ARCHAEOLOGICAL THEORY 2. (3)

ANTH 676 ARCHAEOLOGICAL AREA. (3)

ANTH 678 ETHNOHISTORY. (3)

- ANTH 680 TUTORIAL READING 1.** (3)
ANTH 681 TUTORIAL READING 2. (3)
ANTH 682 TUTORIAL READING 3. (3)
ANTH 683 TUTORIAL READING 4. (3)
ANTH 684 TUTORIAL READING 5. (3)
ANTH 685 RESEARCH TUTORIAL 1. (3)
ANTH 686 RESEARCH TUTORIAL 2. (3)
ANTH 690 RESEARCH PAPER 1. (6)
ANTH 691 RESEARCH PAPER 2. (6)
ANTH 693 RESEARCH PAPER 4. (6)
ANTH 694 M.A. THESIS TUTORIAL 1. (6)
ANTH 695 M.A. THESIS TUTORIAL 2. (6)
ANTH 696 M.A. RESEARCH PAPER. (15)
ANTH 699 M.A. THESIS. (24)
ANTH 699D1 (12), ANTH 699D2 (12) M.A. THESIS. (Students must register for both ANTH 691D1 and ANTH 691D2) (No credit will be given for this course unless both ANTH 699D1 and ANTH 699D2 are successfully completed in consecutive terms) (ANTH 699D1 and ANTH 699D2 together are equivalent to ANTH 699)
ANTH 700 Ph.D. PRELIMINARY EXAMINATION. (6)
ANTH 700D1 (3), ANTH 700D2 (3) Ph.D. PRELIMINARY EXAMINATION. (Students must register for both ANTH 700D1 and ANTH 700D2) (No credit will be given for this course unless both ANTH 700D1 and ANTH 700D2 are successfully completed in consecutive terms) (ANTH 700D1 and ANTH 700D2 together are equivalent to ANTH 700)
ANTH 760 ADVANCED ANTHROPOLOGICAL METHODS. (3)
ANTH 780 READING AND RESEARCH 1. (3)
ANTH 781 READING AND RESEARCH 2. (3)
ANTH 790 Ph.D. TUTORIAL 1. (3)
ANTH 790D1 (1.5), ANTH 790D2 (1.5) Ph.D. TUTORIAL 1. (Students must register for both ANTH 790D1 and ANTH 790D2) (No credit will be given for this course unless both ANTH 790D1 and ANTH 790D2 are successfully completed in consecutive terms) (ANTH 790D1 and ANTH 790D2 together are equivalent to ANTH 790)
ANTH 791 Ph.D. TUTORIAL 2. (3)
ANTH 791D1 (1.5), ANTH 791D2 (1.5) Ph.D. TUTORIAL 2. (Students must register for both ANTH 791D1 and ANTH 791D2) (No credit will be given for this course unless both ANTH 791D1 and ANTH 791D2 are successfully completed in consecutive terms) (ANTH 791D1 and ANTH 791D2 together are equivalent to ANTH 791)
ANTH 792 Ph.D. TUTORIAL 3. (3)
ANTH 792D1 (1.5), ANTH 792D2 (1.5) Ph.D. TUTORIAL 3. (Students must register for both ANTH 792D1 and ANTH 792D2) (No credit will be given for this course unless both ANTH 792D1 and ANTH 792D2 are successfully completed in consecutive terms) (ANTH 792D1 and ANTH 792D2 together are equivalent to ANTH 792)

5 Architecture

School of Architecture
 Macdonald-Harrington Building
 815 Sherbrooke Street West
 Montreal, QC H3A 2K6
 Canada

Telephone: (514) 398-6700
 Fax: (514) 398-7372

Website: www.mcgill.ca/architecture

Director — Michael Jemtrud

Graduate Program Director — Alberto Pérez-Gómez

5.1 Staff

Emeritus Professors

Derek Drummond; B.Arch.(McG.), F.R.A.I.C., O.A.Q., O.A.A.
 (William C. Macdonald Emeritus Professor of Architecture)
 Radoslav Zuk; B.Arch.(McG.), M.Arch.(MIT), D.Sc.(U.A.A.),
 F.R.A.I.C., O.A.Q., O.A.A.

Professors

Annmarie Adams; B.A.(McG.), M.Arch., Ph.D.(Calif.), M.R.A.I.C.
 (William C. Macdonald Professor of Architecture)
 Vikram Bhatt; N.Dip Arch.(Ahmed.), M.Arch.(McG.), M.R.A.I.C.
 Avi Friedman; B.Arch.(Technion), M.Arch.(McG.), Ph.D.(Montr.),
 O.A.Q., I.A.A.
 Alberto Pérez-Gómez; Dipl.Eng.Arch.(Nat. Pol. Inst. Mexico),
 M.A., Ph.D.(Essex), M.R.A.I.C. (Saidye Rosner Bronfman
 Professor of Architectural History)
 Adrian Sheppard; B.Arch.(McG.), M.Arch.(Yale), F.R.A.I.C.,
 O.A.Q., A.A.P.P.Q.

Associate Professors

Martin Bressani; B.Sc., B.Arch.(McG), M.Sc.(Arch.)(MIT), D.E.A.,
 Docteur(Paris-Sorbonne - Paris IV), O.A.Q.
 Ricardo Castro; B.Arch.(Los Andes, Col.), M.Arch., M.A.(Ore.),
 M.R.A.I.C.
 David Covo; B.Sc.(Arch.), B.Arch.(McG.), F.R.A.I.C., O.A.Q.
 Michael Jemtrud; B.A., B.Sc., B.Arch.(Penn. St.), M.Arch.(McG.),
 M.R.A.I.C.
 Robert Mellin; B.Arch., M.Sc.(Arch.) (Penn.), M.Arch.(McG.),
 M.Sc., Ph.D.(Penn.), M.R.A.I.C., N.A.A.
 Pieter Sijpkens; B.Sc.(Arch.), B.Arch.(McG.)

Assistant Professor

Nik Luka; B.A.A.(Ryerson), M.Arch.(Laval), Ph.D.(Tor.), M.C.I.P.

Faculty Lecturer

Julia Bourke

Course Lecturers

Tom Balaban, Eugenio Carelli, Jennifer Carter, Maud Francoeur,
 Kevin Hydes, Simon Jones, Andrea MacElwee, Shannon Pirie,
 Marc-André Plasse, Pierina Saia, David Theodore, Katsuhiro
 Yamazaki

Adjunct Professors

Manon Asselin, Cameron Charlebois, Robert Claiborne, Howard
 Davies, Georges Drolet, François Emond, Julia Gersovitz,
 Richard Klopp, Phyllis Lambert, Seymour Levine, Rosanne Moss,
 Joanna Nash, Harry Parnass, Mark Poddubiuk, Louis Pretty,
 Conor Sampson, Samson Yip, Jozef Zorko

5.2 Programs Offered

M.Arch. (Professional) (Non-Thesis), M.Arch. (Post-professional)
 (Non-Thesis), Graduate Diploma in Housing, Ph.D.

The professional M.Arch. program is accredited by the Canadian Architectural Certification Board (CACB), and is recognized as accredited by the National Council of Architectural Registration Boards (NCARB) in the U.S.A.

There are three areas of study in the Post-professional M.Arch. and Ph.D. programs: Architectural History and Theory, Housing (which includes Affordable Homes, Domestic Environments, and Minimum Cost Housing), and Urban Design.

Information concerning the duration of programs, documents required of applicants, etc., may be obtained from:
profdegree.architecture@mcgill.ca (B.Sc. (Arch.) and M.Arch. (Professional))
postprofmaster.architecture@mcgill.ca (M.Arch. (Post-professional) and Graduate Diploma in Housing), or
phd.architecture@mcgill.ca (Ph.D.).

Architectural Certification in Canada

In Canada, all provincial associations recommend a degree from an accredited professional degree program as a prerequisite for

licensure. The Canadian Architectural Certification Board (CACB), which is the sole agency authorized to accredit Canadian professional degree programs in architecture, recognizes two types of accredited degrees: the Bachelor of Architecture and the Master of Architecture. A program may be granted a five-year, three-year, or two-year term of accreditation, depending on its degree of conformance with established educational standards.

Masters degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree, which, when earned sequentially, comprise an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree.

Since all provincial associations in Canada recommend any applicant for licensure to have graduated from a CACB-accredited program, obtaining such a degree is an essential aspect of preparing for the professional practice of architecture. While graduation from a CACB-accredited program does not assure registration, the accrediting process is intended to verify that each accredited program substantially meets those standards that, as a whole, comprise an appropriate education for an architect.

Please note that the M.Arch. (Post-professional) degree is not a professional degree and does not satisfy the requirements for certification with the CACB.

5.3 Admission Requirements

M.Arch. (Professional) Program (Non-Thesis)

Applicants holding the McGill B.Sc.(Arch.) degree, or equivalent, with a cumulative grade point average of at least 3.0 on a scale of 4.0, are eligible to apply for admission.

M.Arch. (Post-professional) (Non-Thesis) and Graduate Diploma in Housing

Applicants holding an accredited professional degree in architecture, or equivalent, with a cumulative grade point average of at least 3.0 on a scale of 4.0, are eligible to apply for admission. In special cases, candidates with a degree in a related field may be considered.

Ph.D.

Candidates with high standing in McGill's M.Arch. (Post-professional), or who hold an equivalent degree from another university, are eligible to apply to this program. Those who do not have an appropriate background in the chosen research area may be recommended for the M.Arch. (Post-professional) program. Candidates who have an adequate background at the Post-professional Master's level in the proposed area of research will be admitted to Ph.D.II with the stipulation of additional courses from the M.Arch. (Post-professional) curriculum, if necessary.

A working knowledge of a language or languages relevant to the area of research is required.

5.4 Application Procedures

Professional Master of Architecture:

McGill B.Sc.(Arch.) Graduates:

1. Completed online application form accessible from the School's Website at www.mcgill.ca/architecture or from www.mcgill.ca/applying/graduate.
2. A non-refundable application fee of \$80 (CADN).
3. A comprehensive portfolio (8½" x 11" format) that includes the following:
 - selected work from all previous studios (please use Studio Project Description Form*)
 - examples of project work from other courses
 - examples of freehand drawing and sketching (from the Freehand Drawing courses, Sketching School, Summer courses and independent travel and study)
 - examples of professional work; sketches, drawings, images of models, photographs of built work (professional work includes work carried out while employed in architects' offices, as well as personal projects; please identify the architect(s) and your own roles in each project illustrated).

offices, as well as personal projects; please identify the architect(s) and your own roles in each project illustrated).

4. Summary of work experience (please use Work Experience Report form*). A minimum of six (6) months is required.

Others:

1. Completed online application form accessible from the School's Website at www.mcgill.ca/architecture or from www.mcgill.ca/applying/graduate.
2. A non-refundable application fee of \$80 (CADN).
3. A comprehensive portfolio (8½" x 11" format) that includes the following:
 - selected work from all previous design studios (please use Studio Project Description Form*)
 - examples of project work from other courses
 - examples of freehand drawing and sketching
 - examples of professional work; sketches, drawings, images of models, photographs of built work (professional work includes work carried out while employed in architects' offices, as well as personal objects; please identify the architect(s) and your own roles in each project illustrated).
4. Summary of work experience (please use Work Experience Report form*). A minimum of six (6) months is required.
5. Two sets of official transcripts sent directly by the registrars of all universities attended.
6. Two confidential letters of reference sent directly by the referees to the School of Architecture (please use Confidential Report on Applicant form*).
7. Course calendar descriptions of previous college and/or university studies.
8. Completed Program Comparison Chart*.
9. Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English. Before acceptance, appropriate exam results must be submitted directly from the TOEFL (Test of English as a Foreign Language) or IELTS (International English Language Testing Systems) Office. An institutional version of the TOEFL is not acceptable. Applications will not be considered if a TOEFL or IELTS test result is not available. For the TOEFL, a minimum score of 550 is required on the paper-based test (PBT), a minimum score of 213 is required on the computer-based test (CBT), or a minimum overall score of 86 with each component score (ie. reading, writing, speaking, listening) not less than 20 is required on the internet-based test (iBT). (The TOEFL Institution Code for McGill University is 0935.) For the IELTS, a minimum overall band score of 6.5 is required. Please refer to the Graduate admission Website: www.mcgill.ca/applying/graduate.

*These documents are available in PDF format on the School of Architecture Website.

Post-professional programs:

M.Arch. (Post-professional), Ph.D. and Graduate Diploma in Housing

1. Completed online application form accessible from the School's Website at www.mcgill.ca/architecture or from www.mcgill.ca/applying/graduate.
2. A non-refundable application fee of \$80 (CADN), payable by credit card (Visa or MasterCard) after completing the online application.
3. Two sets of official transcripts sent directly by the registrars of all universities previously attended.
4. Two confidential letters of reference sent directly by the referees to the School of Architecture.

5. A statement of objectives (half to one page) indicating the option chosen and the reasons for that choice. Ph.D. applicants must submit a 3-page research proposal.
6. A portfolio (8½" x 11" format) containing at least five examples of the applicant's work. Doctoral applicants may submit evidence of research interests when a portfolio is not available.
7. At least one example of a report or paper (e.g. published work, article or essay) written by the applicant.
8. Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English. Before acceptance, appropriate exam results must be submitted directly from the TOEFL (Test of English as a Foreign Language) or IELTS (International English Language Testing Systems) Office. An institutional version of the TOEFL is not acceptable. Applications will not be considered if a TOEFL or IELTS test result is not available. For the TOEFL, a minimum score of 550 is required on the paper-based test (PBT), a minimum score of 213 is required on the computer-based test (CBT), or a minimum overall score of 86 with each component score (ie. reading, writing, speaking, listening) not less than 20 is required on the internet-based test (iBT). (The TOEFL Institution Code for McGill University is 0935.) For the IELTS, a minimum overall band score of 6.5 is required. Please refer to the Graduate admission Website: www.mcgill.ca/applying/graduate.

5.5 Program Requirements

M.Arch. (Professional) (Non-Thesis)

McGill's professional program in Architecture is structured as a four-and-a-half year, or nine-term, course of study divided into two parts. The first part is a six-term (minimum) design program leading to a non-professional degree, Bachelor of Science (Architecture). Applicants whose background includes a university degree in an area not related to Architecture should apply to the B.Sc.(Arch.) program. Further information on the B.Sc.(Arch.) program can be found in the Faculty of Engineering section of the Undergraduate Programs Calendar, available at www.mcgill.ca. The second part, for students with the McGill B.Sc.(Arch.) degree, or the equivalent, is the professional Master of Architecture program.

The professional Master of Architecture program is a one-and-a-half year, or three-term course of studies leading to the M.Arch. degree. Applicants whose background includes a non-professional degree in Architecture equivalent to the McGill B.Sc.(Arch.) may be eligible for admission directly to the M.Arch. (Professional) program. In certain cases, qualified applicants may be required to complete a qualifying year, up to a maximum of 30 credits or two terms, before entering the three-term M.Arch. (Professional) program. Further information may be obtained at the School of Architecture Website at www.mcgill.ca/architecture/programs/professional.

M.Arch. (Professional) Program of Study (45 credits)

Required Courses (33 credits)

ARCH 550	(4)	Urban Planning and Development
ARCH 671	(6)	Design Research and Methodology
ARCH 672	(6)	Architectural Design 1
ARCH 673	(9)	Architectural Design 2
ARCH 674	(3)	Professional Practice
ARCH 678	(3)	Advanced Construction
ARCH 679	(1)	Architectural Journalism
ARCH 680	(1)	Sketching School 2

Complementary Courses (minimum 6 credits)

6 credits of architectural complementaries from the list below:

ARCH 512	(3)	Architectural Modelling
ARCH 514	(4)	Community Design Workshop

ARCH 515	(3)	Sustainable Design
ARCH 520	(3)	Montreal: Urban Morphology
ARCH 521	(3)	Structure of Cities
ARCH 522	(3)	History of Domestic Architecture in Quebec
ARCH 523	(3)	Significant Texts and Buildings
ARCH 524	(3)	Seminar on Architectural Criticism
ARCH 525	(3)	Seminar on Analysis and Theory
ARCH 526	(3)	Philosophy of Structure
ARCH 527	(3)	Civic Design
ARCH 528	(3)	History of Housing
ARCH 529	(3)	Housing Theory
ARCH 531	(3)	Architectural Intentions Vitruvius - Renaissance
ARCH 532	(3)	Origins of Modern Architecture
ARCH 533	(3)	New Approaches to Arch History
ARCH 534	(3)	Architectural Archives
ARCH 540	(3)	Selected Topics in Architecture 1
ARCH 541	(3)	Selected Topics in Architecture 2
ARCH 554	(2)	Mechanical Services
ARCH 555	(2)	Environmental Acoustics

Unless otherwise indicated, the above courses are restricted to students in the professional program.

Elective Courses (maximum 6 credits)

A maximum of 6 credits may be completed outside the School of Architecture (500 or 600 level electives whose course content relates to the student's terminal design project).

ARCHITECTURE – POST-PROFESSIONAL PROGRAMS

The Post-professional Master's is open to applicants who have a professional degree in architecture. Students holding the McGill B.Arch. (former) or M.Arch. (Professional) (current) degree, or an equivalent professional qualification, with a CGPA of at least 3.0 on a 4.0 point scale, are eligible for admission to the graduate programs. In special cases, applicants with a degree in a related field may be considered. The primary requirement for the M.Arch. (Post-professional) degree is 30 credits of course work, to be completed in the first two terms, and a 15-credit project report that is completed in the Summer term for the History and Theory option and in the Summer or Fall term for the Housing and Urban Design options. The residence requirement for the M.Arch. (Post-professional) degree is three academic terms, making it possible for students who elect to work on their project report in the Summer term to obtain their degree after twelve calendar months in the program.

M.Arch. (Post-professional)

M.Arch. (Non-Thesis) – Affordable Homes (45 credits)

Required Courses (24 credits)

ARCH 623	(3)	Project Preparation
ARCH 627	(3)	Research Methods
ARCH 630	(3)	Housing Seminar 1
ARCH 631	(3)	Housing Seminar 2
ARCH 645	(6)	Housing Project 1
ARCH 646	(6)	Housing Project 2

Complementary Courses (6 credits)

Two 3-credit courses at the 500-level or higher

Project Component - Required (15 credits)

ARCH 628	(15)	Housing Project Report
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M.Arch. (Post-professional)

M.Arch. (Non-Thesis) – Architectural History and Theory (45 credits)

Required Courses (30 credits)

ARCH 622	(3)	Critical Writing
ARCH 623	(3)	Project Preparation
ARCH 650	(8)	Architectural History Seminar 1
ARCH 651	(8)	Architectural History Seminar 2
ARCH 652	(4)	Architectural Theory Seminar 1
ARCH 653	(4)	Architectural Theory Seminar 2

Project Component - Required (15 credits)

ARCH 624 (15) History and Theory Project

M.Arch. (Post-professional)**M.Arch. (Non-Thesis) – Cultural Landscapes** (45 credits)**Required Courses** (12 credits)

ARCH 623 (3) Project Preparation
 ARCH 627 (3) Research Methods
 ARCH 630 (3) Housing Seminar 1
 ARCH 631 (3) Housing Seminar 2

Complementary Courses (18 credits)

Six 3-credit courses at the 500-level or higher

Project Component - Required (15 credits)

ARCH 628 (15) Housing Project Report

M.Arch. (Post-professional)**M.Arch. (Non-Thesis) – Minimum Cost Housing** (45 credits)**Required Courses** (18 credits)

ARCH 623 (3) Project Preparation
 ARCH 627 (3) Research Methods
 ARCH 630 (3) Housing Seminar 1
 ARCH 631 (3) Housing Seminar 2
 ARCH 645 (6) Housing Project 1

Complementary Courses (12 credits)

Four 3-credit courses at the 500-level or higher

Project Component - Required (15 credits)

ARCH 628 (15) Housing Project Report

M.Arch. (Post-professional)**M.Arch. (Non-Thesis) – Urban Design** (45 credits)**Required Courses** (21 credits)

ARCH 623 (3) Project Preparation
 URBD 611 (6) Studio 1: Analysis and Concept
 URBD 612 (3) Seminar 1: Analysis and Concept
 URBD 613 (6) Studio 2: Project Development
 URBD 614 (3) Seminar 2: Project Development

Complementary Courses (9 credits)

ARCH 520 (3) Montreal: Urban Morphology
 ARCH 521 (3) Structure of Cities
 ARCH 527 (3) Civic Design
 ARCH 528 (3) History of Housing
 ARCH 529 (3) Housing Theory
 ARCH 550 (4) Urban Planning and Development
 ARCH 627 (3) Research Methods
 ARCH 630 (3) Housing Seminar 1
 ARCH 631 (3) Housing Seminar 2
 ARCH 652 (4) Architectural Theory Seminar 1
 ARCH 653 (4) Architectural Theory Seminar 2
 URBP 501 (2) Principles and Practice 1
 URBP 505 (3) Geographic Information Systems
 URBP 605 (3) Graduate Seminar
 URBP 607 (3) Reading Course: Urban Planning
 URBP 612 (3) History and Theory of Planning
 URBP 614 (3) Urban Environmental Planning
 URBP 617 (3) Selected Topics 2
 URBP 618 (3) Selected Topics 3
 URBP 619 (3) Transport and Land Development
 URBP 621 (3) Theories of Urban Form
 URBP 625 (2) Principles and Practice 2
 URBP 626 (2) Principles and Practice 3
 URBP 629 (3) Cities in a Globalizing World

Project Component - Required (15 credits)

URBD 615 (15) Project Report

Ph.D.

Doctoral candidates must have their thesis proposal approved by their advisor (ARCH 700) before embarking on their research. A Thesis Advisory Committee is then struck and is responsible for

monitoring the student's research. For course number ARCH 701, a comprehensive research proposal is required, as well as a demonstration of broad knowledge in the field. Candidates will submit two further reports in formal meetings with the Advisory Committee, who will review the work in progress (ARCH 702 and ARCH 703). The final meeting takes place after the Committee has reviewed the full draft of the dissertation. If approved, the dissertation will then be submitted in its final form to the Thesis Office. Acceptance of the thesis by the examiners is followed by an oral defence.

Graduate Diploma in Housing

The Graduate Diploma in Housing is a two-term program of required and elective courses, which extends from September to April. Two options are offered, Affordable Homes and Minimum Cost Housing. A case study approach is used to solve problems related to design, site development, self-help housing, use of low-cost infrastructure components and systems, and the upgrading and integration of technology into undeveloped areas. Seminars cover various topics, and workshop/studio classes focus on design issues. Required courses are offered in the School, and electives may be taken in the School and in other departments. Candidates enrolled in the program must complete a minimum of 30 credits.

Graduate Diploma in Housing**(Affordable Homes)** (30 credits)**Required Courses** (24 credits)

ARCH 528 (3) History of Housing
 ARCH 529 (3) Housing Theory
 ARCH 630 (3) Housing Seminar 1
 ARCH 631 (3) Housing Seminar 2
 ARCH 645 (6) Housing Project 1
 ARCH 646 (6) Housing Project 2

Complementary Courses (6 credits)

Two approved 3-credit courses at the 500-level or higher.

Graduate Diploma in Housing**(Minimum Cost Housing)** (30 credits)**Required Courses** (24 credits)

ARCH 528 (3) History of Housing
 ARCH 529 (3) Housing Theory
 ARCH 630 (3) Housing Seminar 1
 ARCH 631 (3) Housing Seminar 2
 ARCH 634 (6) Housing Report
 ARCH 646 (6) Housing Project 2

Complementary Courses (6 credits)

Two approved 3-credit courses at the 500-level or higher.

5.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

The course credit weight is given in parentheses after the title.

★ Denotes courses taught only in alternate years.

□ Denotes limited enrolment

ARCH 512 ARCHITECTURAL MODELLING. (3) (2-1-6) (Prerequisites: ARCH 304 and ARCH 471 or equivalent.) (Restrictions: Not open to students who have taken ARCH 364.) Architectural modelling using advanced applications in digital media. Topics include: 3-D modelling and rendering; image editing; digital animation; hyper-text and the World Wide Web; issues of representation and methodology; comparison of publishing applications. Projects complement design studio courses and independent studies that are student or instructor initiated.

ARCH 514 COMMUNITY DESIGN WORKSHOP. (4) (4-20-15) (Prerequisite: ARCH 202.) A design-build studio that engages community-based projects with identified needs and a requirement for intervention on real sites. Exploration of selected problems in architectural design and develop solutions from first concept to implementation on-site.

ARCH 515 SUSTAINABLE DESIGN. (3) (3-0-6) (Prerequisite: ARCH 377 or permission of instructor.) This course will address sustainable design theory and applications in the built environment with students from a variety of fields (architecture, urban planning, engineering, sociology, environmental studies, economics, international studies). Architecture will provide the focus for environmental, socio-cultural and economic issues.

ARCH 519 FIELD COURSE ABROAD. (3) (Prerequisite: ARCH 304 or permission of instructor) (Restrictions: Limited enrolment; departmental permission required) (Note: Excursions to neighbouring sites of architectural interest) Advanced and comprehensive studies in-situ of key buildings, landscapes and urban settings; techniques of graphic documentations, analysis of physical configuration, constructional details and present use.

★ **ARCH 520 MONTREAL: URBAN MORPHOLOGY.** (3) (2-1-6) (Prerequisite: ARCH 251) (Given alternate years, alternating with ARCH 521) Historical, geographical, demographical, and regional evolution of the metropolis of Montreal. Topics include: important quarters, the Montreal urban grid, industrialization, reform movements, geographical diversity, urban culture, local building techniques and materials. Basic concepts of urban morphology and their relationships to the contemporary urban context will be explored.

★ **ARCH 521 STRUCTURE OF CITIES.** (3) (2-0-7) (Prerequisite: ARCH 202 or permission of instructor) (Given alternate years, alternating with ARCH 520) Nature, pattern and life of modern cities. Urban networks, special areas, problems and prospects.

□ **ARCH 522 HISTORY OF DOMESTIC ARCHITECTURE IN QUEBEC.** (3) (2-0-7) (Prerequisite: ARCH 251) (Restriction: Departmental permission required) The architecture of houses in Quebec from 1650 to the present. Distinguished buildings are reviewed from the point of view of form, style, siting and material, as influenced by climate, culture and architectural antecedents in France, England and the United States. The course material is presented through alternating bi-weekly lectures and seminars.

□ ★ **ARCH 523 SIGNIFICANT TEXTS AND BUILDINGS.** (3) (2-0-7) (Prerequisite: ARCH 251) (Given alternate years, alternating with ARCH 524) (Restriction: Departmental permission required) Critical study of significant architectural thought since 1750 as it has been expressed in buildings and texts (treatises, manifestos, criticisms). A specific theme will be addressed every year to allow in-depth interpretations of the material presented and discussed.

□ ★ **ARCH 524 SEMINAR ON ARCHITECTURAL CRITICISM.** (3) (2-0-7) (Prerequisite: ARCH 251) (Given alternate years, alternating with ARCH 523) (Restriction: Departmental permission required) The development and current role of architectural criticism with particular reference to its affinities with art and literary criticism.

□ ★ **ARCH 525 SEMINAR ON ANALYSIS AND THEORY.** (3) (2-0-7) (Prerequisite: ARCH 202 or permission of instructor) (Given alternate years, alternating with ARCH 383) (Restriction: Departmental permission required) Analysis and evaluation of significant architectural projects with reference to contemporary architectural theories.

ARCH 526 PHILOSOPHY OF STRUCTURE. (3) (2-0-7) (Prerequisite: ARCH 202 or permission of instructor) (Restriction: Not open to students who have taken ARCH 374) Philosophy of Structure aims to investigate structure in its broadest sense. The course is divided in two halves; the first one gives an overview of the development of theoretical structural frameworks such as mathematics and geometry, while the second one highlights physical structures constructed by nature (geology, turbulence), man or animals.

ARCH 527 CIVIC DESIGN. (3) (2-0-7) (Prerequisite: ARCH 378) The elements of form in buildings and their siting design in the urban setting.

ARCH 528 HISTORY OF HOUSING. (3) (2-0-7) (Prerequisite: ARCH 251 or permission of instructor) Indigenous housing both transient and permanent, from the standpoint of individual structure and pattern of settlements. The principal historic examples of houses including housing in the age of industrial revolution and contemporary housing.

ARCH 529 HOUSING THEORY. (3) (2-0-7) (Prerequisite: ARCH 528 or permission of instructor) A review of environmental alternatives in housing; contemporary housing and the physical and sociological determinants that shape it; Canadian housing.

ARCH 531 ARCHITECTURAL INTENTIONS VITRUVIUS - RENAISSANCE. (3) (2-0-7) (Prerequisite: ARCH 251) Architectural intentions embodied in buildings and writings of architects from antiquity to the Renaissance. Special emphasis is placed on the cultural connections of architecture to science and philosophy.

ARCH 532 ORIGINS OF MODERN ARCHITECTURE. (3) (2-0-7) (Prerequisite: ARCH 251) Examination of architectural intentions (theory and practice) in the European context (especially France, Italy and England), during the crucial period that marks the beginning of the modern era.

ARCH 534 ARCHITECTURAL ARCHIVES. (3) (3-0-6) (Prerequisites: ARCH 250 and ARCH 251 or equivalent.) (Restriction: Open only to architecture students.) Role of archives in architectural culture. Methods of development, documentation and communication. Formats of architectural representation. Problems inherent in the creation and preservation of architectural records, and access to them. Case studies based on 19th and 20th century archives in the John Bland Canadian Architecture Collection, and other collections.

ARCH 540 SELECTED TOPICS IN ARCHITECTURE 1. (3) (2-0-7) A course to allow the introduction of new topics in Architecture as needs arise, by regular and visiting staff.

ARCH 541 SELECTED TOPICS IN ARCHITECTURE 2. (3) (2-0-7) A course to allow the introduction of new topics in Architecture as needs arise, by regular and visiting staff.

ARCH 550 URBAN PLANNING AND DEVELOPMENT. (4) (3-1-8) (Prerequisite: B.Sc.(Arch.) or permission of instructor) (Restriction: Not normally open to Urban Planning students) A survey of municipal, regional and provincial actions to guide urban development in Canada, with a particular emphasis on Montreal and Quebec. It also introduces students to concepts in real-estate development and highlights the relationship between developers and planners.

ARCH 554 MECHANICAL SERVICES. (2) (2-0-4) (Prerequisite: ARCH 405 or permission of instructor) Problems encountered in providing mechanical services in buildings. Physiological and environmental aspects of heat, ventilation and air conditions, estimation of heating and cooling loads and selection and specification of equipment. Sprinkler systems and plumbing. Construction problems produced by installation of this equipment.

ARCH 555 ENVIRONMENTAL ACOUSTICS. (2) (2-0-4) (Prerequisite: ARCH 405 or permission of instructor) Acoustics in architectural design, and in environmental control of buildings. Acoustical requirements in the design of auditoria such as theatres, lecture halls, opera houses, concert halls, churches, motion picture theatres, studios. Principles of noise and vibration control, sound insulating in building construction. Practical noise control in various types of buildings.

ARCH 622 CRITICAL WRITING. (3) (2-1-6) Seminar to critically review an architectural topic.

ARCH 623 PROJECT PREPARATION. (3) (2-1-6) Guided background preparation for the project.

ARCH 624 HISTORY AND THEORY PROJECT. (15) (0-15-30) Thematic, site-specific experimental design with an emphasis on process, including 1) survey/mapping and 2) preparation of text, drawings and models.

ARCH 627 RESEARCH METHODS. (3) (2-1-6) Different approaches and research methods in housing. Setting of goals and objectives, identification of appropriate research methods, collection and evaluation of information, analysis and synthesis of data, and presentation of the findings.

ARCH 628 HOUSING PROJECT REPORT. (15) (0-15-30) A supervised project report based on material developed by candidates in the project preparation course. It may include on-site explorations of housing projects, surveying and documentation, critical analysis, and creative mapping of the same, plus an evaluation report.

ARCH 630 HOUSING SEMINAR 1. (3) (2-0-7) Strategies for affordable and low-cost housing. Investigation of cost-saving measures both at urban and dwelling unit levels. An analysis of recent low-cost housing projects.

ARCH 631 HOUSING SEMINAR 2. (3) (2-0-7) Strategies for affordable and low-cost housing. Investigation of cost-saving measures both at urban and dwelling unit levels. An analysis of recent low-cost housing projects.

ARCH 635 SELECTED TOPICS IN HOUSING 1. (3) (3-0-6) Special topics related to housing.

ARCH 636 SELECTED TOPICS IN HOUSING 2. (3) (3-0-6) Special topics related to housing.

ARCH 645 HOUSING PROJECT 1. (6) (2-10-6) Innovative housing designs; lectures and studio work leading to a design project.

ARCH 646 HOUSING PROJECT 2. (6) (2-10-6) Innovative housing designs; lectures and studio work leading to a design project.

ARCH 650 ARCHITECTURAL HISTORY SEMINAR 1. (8) (3-5-16) Western Architectural history from Antiquity to the Renaissance. A hermeneutic reading of primary sources, i.e. a section or chapter of an historical treatise, a frontispiece or image, in the framework of recent scholarship on the subject.

ARCH 651 ARCHITECTURAL HISTORY SEMINAR 2. (8) (3-5-16) Early Modern European theory of architecture, 17th - 19th centuries. A hermeneutic reading of primary sources, i.e. a section or chapter of an historical treatise, a frontispiece or image, in the framework of recent scholarship on the subject.

ARCH 652 ARCHITECTURAL THEORY SEMINAR 1. (4) (4-0-8) Phenomenology and hermeneutic.

ARCH 653 ARCHITECTURAL THEORY SEMINAR 2. (4) (4-0-8) The experience of modernity in cultural criticism, philosophy, literature and art.

ARCH 671 DESIGN RESEARCH AND METHODOLOGY. (6) (2-10-6) (Prerequisite: ARCH 672.) An architectural design problem is selected, bibliographic research undertaken, site selection established; program developed and theoretical approach evolved in preparation for course ARCH 673.

ARCH 672 ARCHITECTURAL DESIGN 1. (6) (2-10-6) A series of complex architectural and urban design issues are addressed with the intention of improving the student's facility to critically assess existing design solutions, to seek alternatives and to articulate clearly the rational and the impact of alternative proposals.

ARCH 673 ARCHITECTURAL DESIGN 2. (9) (2-14-17) (Prerequisite: ARCH 671 and ARCH 672) An individual, student-selected and faculty-approved study of complex architectural design objectives involving site and building program constraints, the integration of building systems and the demonstration of comprehensive design and presentation skills.

ARCH 674 PROFESSIONAL PRACTICE 1. (3) (3-0-6) (Restriction: Not open to students who have taken ARCH 674, ARCH 675 or ARCH 676 prior to 200509.) The Professional Code, the Architect's Act and the architect's responsibilities to clients, colleagues and society, including professional ethics, responsibility in design, contractual arrangements, business conduct, construction supervision, issuing of certificates, construction and project management, concepts of architectural specification writing, building costs and life cycle costing.

ARCH 678 ADVANCED CONSTRUCTION. (3) (2-0-7) An exploration of construction in relation to architectural design; research in advanced methods of construction and structure related to design problems and built projects; appropriate technologies and alternatives.

ARCH 679 ARCHITECTURAL JOURNALISM. (1) (0-0-3) (Prerequisite: ARCH 674) The project deals with the review and criticism of a recently constructed controversial building.

ARCH 680 SKETCHING SCHOOL 2. (1) (0-0-3) An eight-day supervised field trip in the late summer to sketch places or things having specific visual characteristics.

ARCH 690 THESIS RESEARCH 1. (3) (0-2-7) Ongoing research pertaining to thesis.

ARCH 691 THESIS RESEARCH 2. (6) (0-2-16) Ongoing research pertaining to thesis.

ARCH 692 THESIS RESEARCH 3. (6) (0-2-16) Ongoing research pertaining to thesis.

ARCH 693 THESIS RESEARCH 4. (12) (0-2-34) Ongoing research pertaining to thesis.

ARCH 700 DISSERTATION PROPOSAL. (0) Evaluation of research proposals to finalize a preliminary thesis proposal. Development of a comprehensive framework for the research project.

ARCH 701 COMPREHENSIVE ORAL EXAMINATION. (0) Presentation of research to an Advisory Committee, including a comprehensive review of material in the field.

ARCH 702 PROGRESS REPORT 1. (0) Research in progress and the writing of the dissertation.

ARCH 703 PROGRESS REPORT 2. (0) Final presentation of the dissertation to the committee.

URBD 611 STUDIO 1: ANALYSIS AND CONCEPT. (6) (6-2-10) (Prerequisite: Permission of instructor.) (Corequisite: URBP 612.) Analysis of local conditions, constraints and opportunities, existing urban forms and the development of conceptual plans.

URBD 612 SEMINAR 1: ANALYSIS AND CONCEPT. (3) (3-1-5) (Prerequisite: Permission of instructor.) (Corequisite: URBD 611.) Theoretical and methodological foundations for developing conceptual plans for a specific urban area.

URBD 613 STUDIO 2: PROJECT DEVELOPMENT. (6) (6-2-10) (Prerequisites: URBD 611 and URBD 612, or equivalent, and permission of instructor.) (Corequisite: URBD 614.) Development of detailed plans for urban design projects and of strategies for their implementation.

URBD 614 SEMINAR 2: PROJECT DEVELOPMENT. (3) (3-1-5) (Prerequisites: URBD 611 and URBD 612, or equivalent at UdeM, and permission of instructor.) (Corequisite: URBD 613.) Theoretical and methodological foundations for the development of urban design plans and strategies of implementation for a specific urban area.

URBD 615 PROJECT REPORT. (15) (45-0-0) (Prerequisites: URBD 613 and URBD 614 or equivalent courses at UdeM and permission of instructor.) Final design project: proposal for a major urban intervention, with development program, spatial organization, public-space design, and mechanisms of implementation.

6 Art History

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Chair — Jonathan Sterne

Director, Graduate Programs in Communication Studies — David Crowley

Director, Graduate Programs in Art History — Angela Vanhaelen

Director of Undergraduate Programs in Art History — Richard Taws

Director of Undergraduate Programs in Communication Studies — Carrie Rentschler

6.1 Staff

Emeritus Professors

John M. Fossey; B.A.(Birm.), D.U.(Lyon II), F.S.A., R.P.A.
George Szanto; B.A.(Dart.), Ph.D.(Harv.)

Professor

Marc Raboy; B.Sc., M.A., Ph.D.(McG.)
Christine Ross; M.A.(C' dia.), Ph.D.(Paris I)
Will Straw; B.A.(Car.), M.A., Ph.D.(McG.)

Associate Professors

Darin Barney; B.A., M.A.(S. Fraser), Ph.D.(Tor)
David Crowley; B.A.(Johns Hop.), M.Sc.(Penn.), Ph.D.(McG.)
Jonathan Sterne; B.A.(Minn.), A.M., Ph.D.(Ill.-Urbana-Champaign)
Angela Vanhaelen; B.A.(W.Ont.), M.A., Ph.D.(Br. Col.)

Assistant Professors

Jenny Burman; B.A.(C' dia), M.A., Ph.D.(York)
Mary Hunter; B.A.(Qu.), M.A., Ph.D.(Lond.)
Roberta G. Lentz; B.A.(Arkansas), M.A.(Ill.-Chic.), Ph.D.(Texas-Austin)
Hajime Nakatani; B.L.A.(Tokyo), M.A.(Lond.), Ph.D.(Chic.)
Charmaine Nelson; B.F.A., M.A.(C' dia), Ph.D.(Man.)
Carrie Rentschler; B.A.(Minn.), M.A., Ph.D.(Ill.-Urbana-Champaign)
Richard Taws, B.A., M.A., Ph.D.(Lond.)

Adjunct Professors

David W. Booth, Louis De Moura Sobral, Johanne Lamoureux,
Constance Naubert-Riser

6.2 Programs Offered

M.A. and Ph.D.

Areas of Specialization:

Medieval, Renaissance, the Seventeenth, Eighteenth, Nineteenth, and Twentieth Centuries, Contemporary, Canadian, East Asian, Architectural History, New Media, Gender and Sexuality, Race and Representation, and art historical methodologies, notably feminism and postcolonialism.

To obtain financial aid information please consult the Graduate and Postdoctoral Studies Website at www.mcgill.ca/gps or e-mail graduate.fellowships@mcgill.ca.

For programs in Communication Studies and Art History, refer to [section 18 "Communication Studies"](#).

6.3 Admission Requirements

Entrance into either the M.A. or Ph.D. programs is limited to the best qualified applicants. A minimum CGPA of 3.3 out of 4.0 or the equivalent, i.e. B+ (75%), is required.

To apply to the M.A. program, candidates are normally expected to have a B.A. Honours degree either in Art History alone or in Art History and one other closely related field. But regardless of the program, the Department normally requires a minimum of 36 credits (at least 12 courses) in Art History. For candidates from institutions not offering the above number of credits in Art History, provision is made, upon consultation with

the Director of Graduate Programs, for a program of study which would then qualify the candidate to apply for M.A. work.

In order to apply to the Ph.D. program, candidates must normally hold an M.A. degree preferably in Art History or an M.A. degree in a closely related field together with an appropriate number of Art History credits such as are described for entrance into the M.A. program. Applicants are strongly encouraged to consult with the Director of Graduate Programs. The number of entrants to the doctoral program is necessarily limited to the most highly qualified applicants.

It should be noted that courses in studio practice, although useful, cannot be counted among the 36 Art History credits for either the M.A. or Ph.D. programs. Please see as well the language requirements given under the degree programs below.

The Department also requires a 250-word statement outlining the candidate's major interest in Art History as well as an example of written work. Applicants should send complete dossiers by January 9 (Ph.D. applicants) or by February 6 (M.A. applicants) to the Graduate Administrative Coordinator, Department of Art History and Communication Studies.

6.4 Application Procedures

Applications will be considered upon receipt of:

1. Completed and signed application form.
2. A non-refundable application fee of \$80 Canadian must accompany each application (including McGill students), otherwise it cannot be considered. This sum must be remitted using one of the following methods:
 - a. Credit card (by completing the appropriate section of the application form).
 - b. Certified cheque in CDN currency drawn on a Canadian bank.
 - c. Certified cheque in U.S. currency drawn on a U.S. bank.
 - d. Canadian Money Order in CDN currency.
 - e. U.S. Money Order in U.S. currency.
 - f. An international draft in Canadian funds drawn on a Canadian bank requested from the applicant's bank in his/her own country.
3. Two official copies of all transcripts are required for admission. Transcripts written in a language other than English or French must be accompanied by a certified translation. An explanation of the grading system used by the applicant's university is essential. It is the applicant's responsibility to arrange for transcripts to be sent. Documents submitted will not be returned. It is desirable to submit a list of the titles of courses taken in the major subject, since transcripts often give code numbers only.
4. Two letters of recommendation on letterhead or bearing the university seal and with original signatures from two instructors familiar with the applicant's work, preferably in the applicant's area of specialization, are required. Each letter is to be accompanied by a recommender form that can be downloaded from the admissions page on the Department's Website. It is the applicant's responsibility to arrange for these letters and forms to be sent.
5. Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English, by completing the TOEFL exams (minimum score 550 on the paper-based test, 213 on the computer-based test, or 86 on the Internet-based test with each component score not less than 20). Results must be submitted as part of the application.
6. Statement of interest of at least 250 words addressing the candidate's major interest in Art History and the proposed area of research.
7. An example of written work.
8. Proof of Citizenship (certified photocopy of passport, birth certificate or equivalent).

Deadline for application is January 9 for Ph.D. applicants and February 6 for M.A. applicants.

Inquiries regarding the Programs should be addressed to the Graduate Administrative Coordinator, Department of Art History and Communication Studies (ahcs@mcgill.ca).

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

6.5 Program Requirements

M.A. in Art History – Non-Thesis (45 credits)

Residence Requirements

For students entering the Master's Program in Art History, three semesters of full-time resident study at McGill University is the requirement for the degree. "Residence" means that the student is enrolled on a full-time basis during this period (the semester is not connected with housing or accommodations). This designated period of residence represents the minimum time requirements in order to obtain the degree. There is no guarantee that the work for the degree can be completed in this time. Students may register for additional semesters to complete the Program (see Time Limitations). The Department may permit Master's students to register for a semester in the summer to fulfill part of the residence requirements.

Course Work

Before classes begin, each student will meet with an advisor to determine an appropriate selection of courses which, when considered with the previous record, balances breadth of coverage and specialization.

The candidate is required to pass, with a mark of 65% (B-) or better, all those courses which have been designated by the Department as forming a part of her/his program. These are the courses which have been entered on the registration form. A few extra courses may be taken, but it is then the responsibility of the student to see that these courses are clearly marked "not required" on the registration form.

General Description

The student takes 9 courses including the Proseminar and writes a research paper.

Two of the courses can be taken outside of Art History but at McGill.

One course may be taken at another university in Montreal (more than one seminar may be taken at Université de Montréal by special arrangement).

All courses taken outside of Art History require the approval of the graduate program director, in consultation with the advisor, and the professor teaching the seminar.

The program is designed to be completed in 4 semesters, but may be completed in three semesters.

Language Requirements for the M.A. Degree: In addition to possessing a proficiency in English and French, students must demonstrate reading knowledge of any language relating to their research project assessed by means of a written translation of a text.

Course Sequence

All students must register for 45 credits.

Semester 1 – 12 credits

ARTH 600 (3) Advanced Professional Seminar
ARTH 606 (3) Research Paper Preparation

Two complementary courses (6 credits)

Semester 2 – 12 credits

ARTH 607 (3) Research Paper Proposal
Three complementary courses (9 credits)

Semester 3 – 12 credits

ARTH 608 (6) Research Paper 1
Two complementary courses (6 credits)

Semester 4 – 9 credits

ARTH 609 (6) Research Paper 2
One complementary courses (3 credits)

Program Requirements Overview

Required Course (3 credits)

ARTH 600 (3) Advanced Professional Seminar

Complementary Courses (24 credits)

24 credits chosen from the following:

ARTH 510 (3) The Body and Visual Culture
ARTH 617 (3) Modern Art
ARTH 618 (3) Art History - 1400 to 1900 1
ARTH 630 (3) Directed Reading 1
ARTH 641 (3) Topics: Greek Art & Archaeology
ARTH 642 (3) Topics: Roman Art & Archaeology
ARTH 643 (3) Topics: Medieval Art & Architecture
ARTH 646 (3) Topics: Chinese Visual Culture
ARTH 647 (3) Topics: Renaissance Art & Architecture 1
ARTH 648 (3) Topics: Renaissance Art & Architecture 2
ARTH 653 (3) Topics: Early Modern Visual Culture 1
ARTH 654 (3) Topics: Early Modern Visual Culture 2
ARTH 655 (3) Topics: Baroque Art and Architecture
ARTH 656 (3) Topics: 17th-Century Art & Architecture 1
ARTH 657 (3) Topics: 17th - Century Art & Architecture 2
ARTH 660 (3) Contemporary Art & Criticism 1
ARTH 661 (3) Contemporary Art & Criticism 2
ARTH 673 (3) Topics: 18th - Century Art & Architecture 1
ARTH 674 (3) Topics: 18th - Century Art & Architecture 2
ARTH 675 (3) Topics: 19th - Century Art & Architecture 1
ARTH 678 (3) Topics: 19th - Century Art & Architecture 2
ARTH 679 (3) Topics: Canadian Art & Visual Culture 1
ARTH 687 (3) Topics: Canadian Art & Visual Culture 2

or from the 700-level Complementary courses listed for the Ph.D. Normally only 3 credits at the 500 level are permitted.

Alternatively up to 6 credits may be from other disciplines, as approved by the Department.

Three credits may be taken at another approved university (more than one seminar may be taken at Université de Montréal by special arrangement).

Research Paper - Required (18 credits)

ARTH 606 (3) Research Paper Preparation
ARTH 607 (3) Research Paper Proposal
ARTH 608 (6) Research Paper 1
ARTH 609 (6) Research Paper 2

M.A. in Art History Non-Thesis, Gender and Women's Studies Option/Concentration (45 credits)

The Graduate option in Gender and Women's Studies is an interdisciplinary program for students who meet the degree requirements in Art History who wish to earn 6 credits of approved coursework focusing on gender and women's studies, and issues in feminist research and methods. The final research paper must be on a topic centrally related to gender and/or women's studies. The term "research paper" here refers to the major research paper that students in the non-thesis stream normally (but not necessarily) write for a graduate seminar or independent reading course during the academic year and then revise and expand during the following summer under the supervision of a faculty member.

Required Courses (6 credits)

ARTH 600 (3) Advanced Professional Seminar
 WMST 601 (3) Feminist Theories and Methods

Complementary Courses (21 credits)

All complementary courses must be at the 500-level or higher.
 6 credits of the complementary coursework for the M.A. must be in Gender and Women's Studies

An additional 3 credits of coursework must be either:

WMST 602 (3) Feminist Research Symposium

OR, a 3-credit option-approved course taught outside of WMST (e.g., an option-approved Art History course, COMS 633 Feminist Media Studies (3), or an option-approved course taught in another discipline).

3 credits may be taken at another university in Montreal

Research Paper - Required (18 credits)

ARTH 606 (3) Research Paper Preparation

ARTH 607 (3) Research Paper Proposal

ARTH 608 (6) Research Paper 1

ARTH 609 (6) Research Paper 2

Language Requirements: In addition to possessing a proficiency in English and French, students must demonstrate reading knowledge of any language relating to their research project assessed by means of a written translation of a text.

Ph.D. in Art History

Students should refer to the Departmental Website for information about Ph.D. residency and timing.

Required Courses (3 credits)

ARTH 600 (3) Advanced Professional Seminar

Complementary Courses (12 credits)

12 credits, four courses chosen from the following:

ARTH 711 (3) Studies in the Graphic Arts

ARTH 712 (3) Studies in the Graphic Arts

ARTH 713 (3) Studies in the Graphic Arts

ARTH 714 (3) Directed Reading 2

ARTH 715 (3) Research: Modern Architecture - 1750 to Present

ARTH 716 (3) Research: Modern Architecture - 1750 to Present

ARTH 717 (3) Seminar in Urban Planning and Topography

ARTH 718 (3) Seminar in Urban Planning and Topography

ARTH 719 (3) Seminar in Urban Planning and Topography

ARTH 720 (3) Studies of Drawings

ARTH 721 (3) Studies of Drawings

ARTH 722 (3) Studies of Drawings

ARTH 723 (3) Art Criticism 1

ARTH 724 (3) Art Criticism 2

ARTH 725 (3) Methods in Art History

ARTH 730 (3) Current Problems in Art History 1

ARTH 731 (3) Current Problems in Art History 2

or from the 600-level Complementary courses listed for the M.A.

Alternatively up to 3 of the 12 credits may be from other disciplines, as approved by the Department.

Comprehensive - Required

ARTH 701 (0) Ph.D. Comprehensive Examination

Thesis

In addition to possessing a proficiency in English and French, students must demonstrate reading knowledge of any language, if necessary, relating to their research project assessed by means of a written translation of a text.

The Department is prepared to direct dissertations in fields wherein adequate supervision and resources can be provided: see section 6.2. Candidates are also advised to consult the General Information section of the *Graduate and Postdoctoral Studies Calendar*.

Ph.D. in Art History; Gender and Women's Studies Option/Concentration

Students should refer to the Departmental Website for information about Ph.D. residency and timing.

The Graduate option in Gender and Women's Studies is an interdisciplinary program for students who meet the degree requirements in Art History who wish to earn 9 credits of approved coursework focusing on gender and women's studies, and issues in feminist research and methods. The student's doctoral thesis must be on a topic centrally relating to issues of gender and/or women's studies.

Required Courses (9 credits)

ARTH 600 (3) Advanced Professional Seminar

WMST 601 (3) Feminist Theories and Methods

WMST 602 (3) Feminist Research Symposium

Complementary Courses (9 credits)

An additional 9 credits in Art History, of which 3 credits must be a graduate Option-approved 500 or 600-level ARTH course.

Comprehensive - Required

ARTH 701 (0) Ph.D. Comprehensive Examination

Thesis

Language Requirements: In addition to possessing a proficiency in English and French, students must demonstrate reading knowledge of any language relating to their research project assessed by means of a written translation of a text.

The Department is prepared to direct dissertations in fields wherein adequate supervision and resources can be provided: see section 6.2, "Programs Offered". Candidates are also advised to consult the General Information section of the *Graduate and Postdoctoral Studies Calendar*.

6.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva-students (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Students may also consult the Department Website www.arts.mcgill.ca/programs/AHCS for information.

The course credit weight is given in parentheses after the title.

ARTH 600 ADVANCED PROFESSIONAL SEMINAR. (3)

A seminar course for M.A. and Ph.D. students dealing with methodological issues in Art History.

ARTH 601 MASTERS COMPREHENSIVE PREPARATION. (3) (The general examination for the M.A. degree (ARTH 602, 6 credits; including preparation for it, ARTH 601, 3 credits) carries a total weight of nine (9) credits.)

ARTH 602 MASTERS COMPREHENSIVE EXAMINATION. (6) (The general examination for the M.A. degree (ARTH 602, 6 credits; including preparation for it, ARTH 601, 3 credits) carries a total weight of nine (9) credits.)

ARTH 605 MASTER'S THESIS PREPARATION. (3) (Restriction: For Art History students only.) The aim is to introduce the student to research methods specific to his/her area of thesis work.

ARTH 606 RESEARCH PAPER PREPARATION. (3) (Restriction: For MA Art History non-thesis students only.) A directed reading course related to a student's specific area of research.

ARTH 607 RESEARCH PAPER PROPOSAL. (3) (Prerequisite: ARTH 606.) (Restriction: For MA Art History non-thesis students only.) A proposal prepared in consultation with an advisor, detailing the research to be pursued, defining the particular argument to be advanced in the research paper and indicating the methodology to be employed.

ARTH 608 RESEARCH PAPER 1. (6) (Prerequisites: ARTH 606 and ARTH 607.) (Restriction: For MA Art History non-thesis students only.) An extended research project, pursued under supervision of a member of the Department.

ARTH 609 RESEARCH PAPER 2. (6) (Prerequisites: ARTH 606 and ARTH 607. ARTH 608 as Prerequisite or Corequisite.) (Restriction: For MA Art History non-thesis students only.) The continuation of an extended research project, pursued under supervision of a member of the Department.

ARTH 617 MODERN ART. (3)

ARTH 618 ART HISTORY - 1400-1900 1. (3)

ARTH 619 ART HISTORY - 1400-1900 2. (3)

ARTH 630 DIRECTED READING 1. (3) Directed reading.

ARTH 641 TOPICS: GREEK ART & ARCHAEOLOGY. (3) Topics in Greek art and archaeology.

ARTH 642 TOPICS: ROMAN ART & ARCHAEOLOGY. (3) Topics in Roman art and archaeology.

ARTH 643 TOPICS: MEDIEVAL ART & ARCHITECTURE. (3) Topics in medieval art and architecture.

ARTH 646 TOPICS: CHINESE VISUAL CULTURE. (3) Topics in Chinese visual culture.

ARTH 647 TOPICS: RENAISSANCE ART & ARCHITECTURE 1. (3) Topics in Renaissance art and architecture.

ARTH 648 TOPICS: RENAISSANCE ART & ARCHITECTURE 2. (3) Topics in Renaissance art and architecture.

ARTH 653 TOPICS: EARLY MODERN VISUAL CULTURE 1. (3) W09: Making Publics, Producing Spaces. Topics in early modern visual culture.

ARTH 654 TOPICS: EARLY MODERN VISUAL CULTURE 2. (3) Topics in early modern visual culture.

ARTH 655 TOPICS: BAROQUE ART AND ARCHITECTURE. (3) Topics in Baroque art and architecture.

ARTH 656 TOPICS: 17TH-CENTURY ART & ARCHITECTURE 1. (3) Topics in 17th - century art and architecture.

ARTH 657 TOPICS: 17TH - CENTURY ART & ARCHITECTURE 2. (3) Topics in 17th - century art and architecture.

ARTH 660 CONTEMPORARY ART & CRITICISM 1. (3) Topics in contemporary art and criticism.

ARTH 661 CONTEMPORARY ART & CRITICISM 2. (3) Creating Time II. Topics in contemporary art and criticism.

ARTH 673 TOPICS: 18TH - CENTURY ART & ARCHITECTURE 1. (3) W09: Print and Popular Culture. Topics in 18th - century art and architecture.

ARTH 674 TOPICS: 18TH - CENTURY ART & ARCHITECTURE 2. (3) Topics in 18th - century art and architecture.

ARTH 675 TOPICS: 19TH - CENTURY ART & ARCHITECTURE 1. (3) W09: Art, Medicine and Sexuality(19th Century). Topics in 19th - century art and architecture.

ARTH 678 TOPICS: 19TH - CENTURY ART & ARCHITECTURE 2. (3) Topics in 19th - century art and architecture.

ARTH 679 TOPICS: CANADIAN ART & VISUAL CULTURE 1. (3) Fall 08: Representing Transatlantic Slavery/Race Geography. Topics in Canadian art and visual culture.

ARTH 680 GRAPHIC THEORIES OF WRITING. (3) Interdisciplinary examination of the major theories of writing since the 1950's, with emphasis on the graphic and material dimensions of inscriptive media.

ARTH 687 TOPICS: CANADIAN ART & VISUAL CULTURE 2. (3) Topics in Canadian art and visual culture.

ARTH 698 THESIS RESEARCH 1. (12) (Restriction: No credit will be given for this course unless both ARTH 698 and ARTH 699 are successfully completed.) For the completion of thesis research.

ARTH 699 THESIS RESEARCH 2. (12) (Prerequisite: ARTH 698.) (Restriction: No credit will be given for this course unless both

ARTH 698 and ARTH 699 are successfully completed.) For the completion of thesis research.

ARTH 701 PH.D. COMPREHENSIVE EXAMINATION. (0)

ARTH 701D1 (0), ARTH 701D2 (0) PH.D. COMPREHENSIVE EXAMINATION. (Students must register for both ARTH 701D1 and ARTH 701D2) (No credit will be given for this course unless both ARTH 701D1 and ARTH 701D2 are successfully completed in consecutive terms) (ARTH 701D1 and ARTH 701D2 together are equivalent to ARTH 701).

ARTH 701N1 PH.D. COMPREHENSIVE EXAMINATION. (0) (Students must also register for ARTH 701N2) (No credit will be given for this course unless both ARTH 701N1 and ARTH 701N2 are successfully completed in a twelve month period) (ARTH 701N1 and ARTH 701N2 together are equivalent to ARTH 701).

ARTH 701N2 PH.D. COMPREHENSIVE EXAMINATION. (0) (Prerequisite: ARTH 701N1) (No credit will be given for this course unless both ARTH 701N1 and ARTH 701N2 are successfully completed in a twelve month period) (ARTH 701N1 and ARTH 701N2 together are equivalent to ARTH 701) See ARTH 701N1 for course description.

ARTH 714 RESEARCH: MODERN ARCHITECTURE - 1750 TO PRESENT 1. (3) Directed reading.

ARTH 724 ART CRITICISM 2. (3) Topics in art criticism.

ARTH 725 METHODS IN ART HISTORY 1. (3)

ARTH 730 CURRENT PROBLEMS IN ART HISTORY 1. (3) Current problems in art history.

ARTH 731 CURRENT PROBLEMS IN ART HISTORY 2. (3) Current problems in art history.

7 Atmospheric and Oceanic Sciences

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Chair — J.R. Gyakum

7.1 Staff

Emeritus Professors

R.R. Rogers; B.S.(Texas), S.M.(MIT), Ph.D.(NYU)

E.J. Stansbury; M.A., Ph.D.(Tor.)

Professors

J.F. Derome; B.Sc., M.Sc.(McG.), Ph.D.(Mich.), F.R.S.C.

J.R. Gyakum; B.Sc.(Penn. St.), M.Sc., Ph.D.(MIT)

H.G. Leighton; B.Sc., M.Sc.(McG.), Ph.D.(Alta.)

C.A. Lin; B.Sc.(Br. Col.), Ph.D.(MIT)

L.A. Mysak; C.M., B.Sc.(Alta.), M.Sc.(Adel.), A.M., Ph.D.(Harv.),

F.R.S.C., *Canada Steamship Lines Professor of Meteorology*

R.E. Stewart; B.Sc.(Man.), M.Sc., Ph.D.(Tor.)

M.K. Yau; S.B., S.M., Sc.D.(MIT)

I. Zawadzki; B.Sc.(Buenos Aires), M.Sc., Ph.D.(McG.), F.R.S.C.

Associate Professors

P. Ariya; B.Sc., Ph.D.(York (Can.)) (*William Dawson Scholar*) (*joint appt. with Chemistry*)

P. Bartello; B.Sc., M.Sc., Ph.D.(McG.) (*joint appt. with Mathematics*)

F. Fabry; B.Sc., M.Sc., Ph.D.(McG.) (*joint appt. with McGill School of Environment*)

D. Straub; B.S., M.S.(SW Louisiana), Ph.D.(Wash.)

Assistant Professors

M. Bourqui; B.Sc., M.Sc.(EPFL, Switzerland), Ph.D.(ETHZ, Switzerland) (*joint appt. with Chemistry*)
 P. Kollias; B.Sc., M.S.(Athens), Ph.D.(Miami)
 B. Tremblay; B.Sc., Ph.D.(McG.), M.Sc.(Car.)

Adjunct Professors

G. Brunet, P. Gauthier, H. Lin, A. Zadra

7.2 Programs Offered

The Department of Atmospheric and Oceanic Sciences offers courses and research opportunities in atmospheric, physical oceanographic, and climate fields leading to the M.Sc. and Ph.D. degrees. Research programs include the main areas of atmospheric science, such as cloud and precipitation physics, dynamic meteorology, numerical weather prediction, atmospheric chemistry, radar and satellite meteorology, and mesoscale meteorology. Research projects in physical oceanography include the modelling of ocean circulations as well as studies of sea ice and paleoclimates. Some faculty members are associated with the Global Environmental and Climate Change Centre (GEC3), which brings together researchers from several departments to work on problems affecting the evolution of our planet, with emphasis on climate-related questions. Topics of research of this nature in the Department include large scale air/sea interaction, air/sea-ice interaction, interannual and longer term variability of the atmosphere and oceans, and cloud-radiation climate interaction.

Other faculty members are associated with the Cooperative Centre for Research in Mesometeorology which also includes researchers in several other departments at McGill, in the Département de Physique at the Université du Québec à Montréal, and in Montreal offices of the Meteorological Service of Canada. The objective of the Centre is to study the evolution, maintenance and decay of mesoscale precipitation systems. Such systems, whose sizes range from 10 to 300 km, are important for the precipitation climatology of southern Quebec.

Facilities include the J. Stewart Marshall Radar Observatory, a radar wind profiler and a laser ceilometer and several years of global atmospheric data. Graduate students have access to large and small computers, including the NEC supercomputer of the Meteorological Service of Canada.

Financial assistance in the form of research or teaching assistantships is available for all qualified graduate students.

7.3 Admission Requirements

Applicants for the M.Sc. program must meet the general requirements of the Graduate and Postdoctoral Studies Office and hold a bachelor's degree with high standing in atmospheric science, physics, mathematics, engineering, or equivalent.

The normal requirement for admission to the Ph.D. program is an M.Sc. degree in atmospheric science, physical oceanography, or related discipline with acceptably high standing. Students without a Master's degree in Atmospheric Science (Meteorology) or Physical Oceanography but with a strong background in related disciplines (physics, mathematics, engineering) may be admitted to the Ph.D. program. They enter at the Ph.D. I rather than the Ph.D. II level, and devote the first year of the program mainly to course work.

Inquiries should be addressed directly to the Chair of Admissions, Department of Atmospheric and Oceanic Sciences.

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

7.4 Program Requirements

M.Sc. in Atmospheric and Oceanic Sciences (Thesis) (45 to 51 credits)

The M.Sc. degree requires a total of a minimum of 45 credits, up to a maximum of 51 credits. The program includes from 9 to 27 credits of course work (depending on the student's

background), a minimum of 24 thesis-research credits, and the completion of a thesis satisfying all the requirements of the Graduate and Postdoctoral Studies Office. Normally the equivalent of 12 months of full-time work is required to obtain the thesis-related credits, in addition to the time needed for the course work. Students can choose to write their thesis based on research in atmospheric, oceanic, or climate topics.

Required Courses (1 - 14 credits*)

ATOC 512*	(3)	Atmospheric and Oceanic Dynamics
ATOC 530*	(3)	Climate Dynamics 1
ATOC 540*	(3)	Synoptic Meteorology 1
ATOC 546*	(1)	Current Weather Discussion
ATOC 550*	(1)	Special Topics Meteorology and Oceanography
ATOC 620*	(3)	Physical Meteorology 1

* Students entering the program with no previous background in atmospheric or oceanic science must take, or be exempted from, these courses.

Complementary Courses (9 - 27 credits**)

9 - 27 credits of 500- or 600-level departmental courses (ATOC up to ATOC 690. Subject to departmental approval, graduate-level courses in other departments may be taken.

** Students entering the program with a strong B.Sc. or Diploma in Meteorology will take at least the 9 credit minimum; those with no previous background in atmospheric science or physical oceanography must take the 27 credit maximum.

Thesis Component – Required (24 - 36 credits)

15 credits from the following two courses:

ATOC 694	(3)	Master's Thesis Progress Report and Seminar
ATOC 699	(12)	Master's Thesis

9 - 21 credits from the following courses:

ATOC 691	(3)	Master's Thesis Literature Review
ATOC 692	(6)	Master's Thesis Research 1
ATOC 693	(6)	Master's Thesis Research 2
ATOC 695	(6)	Master's Thesis Research 3
ATOC 696	(6)	Master's Thesis Research 4

In addition to the above mandatory thesis credits, students must take sufficient thesis courses from the list ATOC 691-696 so that the number of thesis research credits is at least 24, and the total number of credits in the program is at least 45.

M.Sc. in Atmospheric and Oceanic Sciences (Thesis) – Computational Science and Engineering

Option/Concentration (46 - 55 credits)

Required Courses (1 - 15 credits)

ATOC 669D1/D2	(1)	CSE Seminar
ATOC 512*	(3)	Atmospheric and Oceanic Dynamics
ATOC 530*	(3)	Climate Dynamics 1
ATOC 540*	(3)	Synoptic Meteorology 1
ATOC 546*	(1)	Current Weather Discussion
ATOC 550*	(1)	Special Topics Meteorology and Oceanography
ATOC 620*	(3)	Physical Meteorology 1

*Students entering the program with no previous background in atmospheric or oceanic science must take, or be exempted from, these courses.

Complementary Courses (16 credits)

Two courses from List A, two courses from List B (normally ATOC 513 and ATOC 515); the remaining credits to be chosen from graduate-level courses in the Department. Two complementary courses must be taken outside the Department of Atmospheric and Oceanic Sciences.

List A - Scientific Computing Courses:

CIVE 602	(4)	Finite Element Analysis
COMP 522	(4)	Modelling and Simulation

COMP 540	(3) Matrix Computations
COMP 566	(3) Discrete Optimization 1
MATH 578	(4) Numerical Analysis 1
MATH 579	(4) Numerical Differential Equations
<i>List B - Applications and Specialized Methods Courses:</i>	
ATOC 512	(3) Atmospheric and Oceanic Dynamics * Note: ATOC 512 may not be used as a CSE option Complementary Course by students registered in Atmospheric and Oceanic Sciences.
ATOC 513	(3) Waves and Stability
ATOC 515	(3) Turbulence in Atmosphere and Oceans
CIVE 514	(3) Structural Mechanics
CIVE 572	(3) Computational Hydraulics
CIVE 603	(4) Structural Dynamics
CIVE 613	(4) Numerical Methods: Structural Engineering
COMP 505	(3) Advanced Computer Architecture
COMP 557	(3) Fundamentals of Computer Graphics
COMP 558	(3) Fundamentals of Computer Vision
COMP 567	(3) Discrete Optimization 2
COMP 621	(4) Optimizing Compilers
COMP 642	(4) Numerical Estimation Methods
COMP 767	(3) Advanced Topics: Applications 2
ECSE 507	(3) Optimization and Optimal Control
ECSE 532	(3) Computer Graphics
ECSE 547	(3) Finite Elements in Electrical Engineering
ECSE 549	(3) Expert Systems in Electrical Design
MATH 555	(4) Fluid Dynamics
MATH 560	(4) Optimization
MATH 651	(4) Asymptotic Expansion and Perturbation Methods
MATH 761	(4) Topics in Applied Math 1
MECH 533	(3) Subsonic Aerodynamics
MECH 537	(3) High-Speed Aerodynamics
MECH 538	(3) Unsteady Aerodynamics
MECH 539	(3) Computational Aerodynamics
MECH 541	(3) Kinematic Synthesis
MECH 545	(3) Advanced Stress Analysis
MECH 572	(3) Introduction to Robotics
MECH 573	(3) Mechanics of Robotic Systems
MECH 576	(3) Computer Graphics and Geometrical Modelling
MECH 577	(3) Optimum Design
MECH 610	(4) Fundamentals of Fluid Dynamics
MECH 620	(4) Advanced Computational Aerodynamics
MECH 632	(4) Theory of Elasticity
MECH 642	(4) Advanced Dynamics
MECH 650	(4) Heat Transfer
MECH 654	(4) Compt. Fluid Flow and Heat Transfer

Thesis Component – Required (24 - 36 credits)

15 credits from the following two courses:

ATOC 694	(3) Master's Thesis Progress Report and Seminar
ATOC 699	(12) Master's Thesis

9 - 21 credits from the following courses:

ATOC 691	(3) Master's Thesis Literature Review
ATOC 692	(6) Master's Thesis Research 1
ATOC 693	(6) Master's Thesis Research 2
ATOC 695	(6) Master's Thesis Research 3
ATOC 696	(6) Master's Thesis Research 4

In addition to the above mandatory thesis credits, students must take sufficient thesis courses from the list ATOC 691-696 so that the number of thesis research credits is at least 24, and the total number of credits in the program is at least 46.

M.Sc. in Atmospheric and Oceanic Sciences (Thesis) – Environment Option/Concentration (45 credits)**Required Courses** (6 credits)

ENVR 610	(3) Foundations of Environmental Policy
ENVR 650	(1) Environmental Seminar 1
ENVR 651	(1) Environmental Seminar 2
ENVR 652	(1) Environmental Seminar 3

Complementary Courses (24 credits)

9 credits from:

ATOC 691	(3) Master's Thesis Literature Review
ATOC 692	(6) Master's Thesis Research 1
ATOC 693	(6) Master's Thesis Research 2
ATOC 695	(6) Master's Thesis Research 3
ATOC 696	(6) Master's Thesis Research 4

12 credits of 500- or 600-level departmental courses (ATOC up to ATOC 690, EPSC up to EPSC 560).

3 credits chosen from :

ENVR 519	(3) Global Environmental Politics
ENVR 544	(3) Environmental Measurement and Modelling
ENVR 580	(3) Topics in Environment 3
ENVR 611	(3) The Economy of Nature
ENVR 620	(3) Environment and Health of Species
ENVR 622	(3) Sustainable Landscapes
ENVR 630	(3) Civilization and Environment 1
ENVR 680	(3) Topics in Environment 4

or another course at the 500-level or higher recommended by the advisory committee and approved by the Environment Option Committee

Thesis Component – Required (15 credits)

ATOC 694	(3) Master's Thesis Progress Report and Seminar
ATOC 699	(12) Master's Thesis

Ph.D. in Atmospheric and Oceanic Sciences

The Ph.D. program consists of supervised research and normally a minimum of two approved courses. Candidates are required to submit a written thesis proposal, to present a Ph.D. proposal seminar (ATOC 700) and to take the Ph.D. oral comprehensive examination (ATOC 701). The standard Graduate and Postdoctoral Studies Office requirements concerning a thesis must be satisfied.

7.5 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Term(s) offered (Fall, Winter, Summer) may appear after the credit weight to indicate when a course would normally be taught. Please check Class Schedule to confirm this information.

Note: All undergraduate courses administered by the Faculty of Science (courses at the 100- to 500-level) have limited enrolment.

The course credit weight is given in parentheses after the title.

ATOC 512 ATMOSPHERIC AND OCEANIC DYNAMICS. (3) (Fall) (3 hours lectures) (Prerequisite (Undergraduate): Permission of instructor) Introduction to the fluid dynamics of large-scale flows of the atmosphere and oceans. Stratification of atmosphere and oceans. Equations of state, thermodynamics and momentum. Kinematics, circulation, and vorticity. Hydrostatic and quasi-geostrophic flows. Brief introduction to wave motions, flow over topography, Ekman boundary layers, turbulence.

ATOC 513 WAVES AND STABILITY. (3) (Winter) (3 hours lectures) (Prerequisite (Undergraduate): Permission of instructor) Linear theory of waves in rotating and stratified media. Geostrophic

adjustment and model initialization. Wave propagation in slowly varying media. Mountain waves; waves in shear flows. Barotropic, baroclinic, symmetric, and Kelvin-Helmholtz instability. Wave-mean flow interaction. Equatorially trapped waves.

ATOC 515 TURBULENCE IN ATMOSPHERE AND OCEANS. (3) (3 hours lectures) (Prerequisite (Undergraduate): ATOC 512 or permission of instructor) Application of statistical and semi-empirical methods to the study of geophysical turbulence. Reynolds' equations, dimensional analysis, and similarity. The surface and planetary boundary layers. Oceanic mixed layer. Theories of isotropic two- and three- dimensional turbulence: energy and enstrophy inertial ranges. Beta turbulence.

ATOC 530 CLIMATE DYNAMICS 1. (3) (Fall) (3 hours lectures) (Prerequisite (Undergraduate): Permission of instructor) (Restriction: Graduate students and final-year Honours Atmospheric Science students. Others by special permission.) Introduction to the components of the climate system. Review of paleoclimates. Physical processes and models of climate and climate change.

ATOC 531 CLIMATE DYNAMICS 2. (3) (Winter) (3 hours lectures) (Prerequisite (Undergraduate): Permission of instructor) (Restriction: Graduate students and final-year Honours Atmospheric Science students. Others by special permission.) The general circulation of the atmosphere and oceans. Atmospheric and oceanic general circulation models. Observations and models of the El Niño and Southern Oscillation phenomena.

ATOC 540 SYNOPTIC METEOROLOGY 1. (3) (Fall) (2 hours lectures; 2 hours laboratory) (Prerequisite (Undergraduate): Permission of instructor) Analysis of current meteorological data. Description of a geostrophic, hydrostatic atmosphere. Ageostrophic circulations and hydrostatic instabilities. Kinematic and thermodynamic methods of computing vertical motions. Tropical and extratropical condensation rates. Barotropic and equivalent barotropic atmospheres.

ATOC 541 SYNOPTIC METEOROLOGY 2. (3) (Winter) (2 hours lectures; 2 hours laboratory) (Prerequisite (Undergraduate): ATOC 412 and ATOC 540 or permission of instructor.) Analysis of current meteorological data. Quasi-geostrophic theory, including the omega equation, as it relates to extratropical cyclone and anticyclone development. Frontogenesis and frontal circulations in the lower and upper troposphere. Cumulus convection and its relationship to tropical and extratropical circulations. Diagnostic case study work.

ATOC 546 CURRENT WEATHER DISCUSSION. (1) (Fall) (2 hours) (Prerequisite (Undergraduate): ATOC 540 or permission of instructor) (Restriction: Graduate students and final-year Honours Atmospheric Science students. Others by special permission.) Half-hour briefing on atmospheric general circulation and current weather around the world using satellite data, radar observations, conventional weather maps, and analyses and forecasts produced by computer techniques.

ATOC 550 SPECIAL TOPICS METEOROLOGY AND OCEANOGRAPHY. (1) (Fall) (1 hour lecture) (Prerequisite (Undergraduate): Permission of instructor) (Restriction: Graduate students and final-year Honours Atmospheric Science students. Others by special permission.) Lectures and seminars on special topics such as hydrology, agricultural meteorology, the limits of predictability, planetary atmospheres, atmospheric and oceanic pollution, coastal currents, and research reviews.

ATOC 551 SELECTED TOPICS 1. (3) (Restriction: Course restricted to students in U3 undergraduate or graduate programs in ATOC or in closely related disciplines, and permission of the instructor.) Topics in atmospheric and oceanic sciences.

ATOC 552 SELECTED TOPICS 2. (3) (Restrictions: Course restricted to students in U3 undergraduate or graduate programs in ATOC or in closely related disciplines, and permission of the instructor.) Topics in atmospheric and oceanic sciences.

ATOC 555 FIELD COURSE 1. (3) (Restrictions: Course restricted to students in U3 undergraduate or graduate programs in ATOC or in closely related disciplines, and permission of the instructor.) Field

studies in selected topics of the atmospheric and oceanic sciences.

ATOC 556 FIELD COURSE 2. (3) (Restrictions: Course restricted to students in U2 undergraduate or graduate programs in ATOC or in closely related disciplines, and permission of the instructor.) Field studies in selected topics of the atmospheric and oceanic sciences.

ATOC 558 NUMERICAL METHODS AND LABORATORY. (3) (Winter) (1 hour lecture; 4 hours laboratory) (Prerequisite (Undergraduate): Permission of instructor) (Restriction: Graduate students and final-year Honours Atmospheric Science students. Others by special permission.) Numerical simulation of atmospheric and oceanic processes. Finite difference, finite element, and spectral modelling techniques. Term project including computer modelling of convection or large-scale flows in the atmosphere or ocean.

ATOC 568 OCEAN PHYSICS. (3) (Winter) (3 hours lectures) (Prerequisite (Undergraduate): ATOC 512 or permission of instructor) (Restriction: Graduate students and final-year Honours Atmospheric Science students. Others by special permission.) Research methods in physical oceanography including data analysis and literature review. Course will be divided into five separate modules focussing on temperature-salinity patterns, ocean circulation, boundary layers, wave phenomena and tides.

ATOC 616 TOPICS - GEOPHYSICAL FLUID DYNAMICS. (3) (3 hours) Advanced topics in the dynamics of oceanic and atmospheric flows.

ATOC 619 ATMOSPHERIC CHEMISTRY. (4) (3 hours) (Prerequisites: CHEM 213, CHEM 273, MATH 222 and MATH 315 or equivalents, or permission of instructor) (Restriction(s): Offered in odd years. Students should register in CHEM 619 in even years. Not open to students who have taken or are taking ATOC 419, CHEM 419, or CHEM 619) Selected areas of atmospheric chemistry from field and laboratory to theoretical modelling are examined. The principles of atmospheric reactions (gas, liquid and heterogeneous phases in aerosols and clouds) and issues related to chemical global change will be explored.

ATOC 620 PHYSICAL METEOROLOGY 1. (3) (2 hours) Thermodynamics of the atmosphere. Instability and convection. Solar and terrestrial radiation. Radiative transfer. Radiation budgets.

ATOC 621 PHYSICAL METEOROLOGY 2. (3) (2 hours) Atmospheric aerosols, nucleation of water and ice. Formation and growth of cloud droplets and ice crystals. Initiation of precipitation. Severe storms and hail. Weather modification. Numerical cloud models.

ATOC 646 MESOSCALE METEOROLOGY. (3) (3 hours) Examination of the theory of important mesoscale phenomena, including fronts, cumulus convection and its organization, and tropical and extratropical cyclones. Application of the theory with detailed case studies of these phenomena. Mesoscale processes in numerical simulations.

ATOC 669D1 (0.5), ATOC 669D2 (0.5) CSE SEMINAR. Techniques and applications in computational science and engineering.

ATOC 670 READING COURSE: METEOROLOGY 1. (3) Assigned reading of a specialized topic in meteorology with formal evaluation.

ATOC 671 READING COURSE: METEOROLOGY 2. (3) Assigned reading of a specialized topic in meteorology with formal evaluation.

ATOC 672 READING COURSE: OCEANOGRAPHY 1. (3) Assigned reading of a specialized topic in oceanography with formal evaluation.

ATOC 673 READING COURSE: OCEANOGRAPHY 2. (3) Assigned reading of a specialized topic in oceanography with formal evaluation.

ATOC 691 MASTER'S THESIS LITERATURE REVIEW. (3) Review of relevant literature in preparation for the M.Sc. research.

ATOC 692 MASTER'S THESIS RESEARCH 1. (6) Independent research under the supervision of the student's M.Sc. supervisor.

ATOC 693 MASTER'S THESIS RESEARCH 2. (6) Independent research under the supervision of the student's M.Sc. supervisor.

ATOC 694 MASTER'S THESIS PROGRESS REPORT AND SEMINAR. (3) Written report on the M.Sc. research progress and oral presentation of the report in seminar form to staff and students.

ATOC 695 MASTER'S THESIS RESEARCH 3. (6) Independent research under the supervision of the student's M.Sc. supervisor.

ATOC 696 MASTER'S THESIS RESEARCH 4. (6) Independent research under the supervision of the student's M.Sc. supervisor.

ATOC 699 MASTER'S THESIS. (12) Independent research under the supervision of the student's M.Sc. supervisor leading to the M.Sc. thesis.

ATOC 700 PH.D. PROPOSAL SEMINAR. (1)

ATOC 701 PH.D. COMPREHENSIVE (GENERAL). (0)

ATOC 751D1 (3), ATOC 751D2 (3) SEMINAR: PHYSICAL METEOROLOGY. (Students must register for both ATOC 751D1 and ATOC 751D2) (No credit will be given for this course unless both ATOC 751D1 and ATOC 751D2 are successfully completed in consecutive terms) (ATOC 751D1 and ATOC 751D2 together are equivalent to ATOC 751)

Seminars on topics in physical meteorology. Students are required to present one or more seminars during the year on their thesis research and to participate actively in the seminars given by others.

ATOC 752D1 (0.5), ATOC 752D2 (0.5) ATMOSPHERIC, OCEANIC AND CLIMATE DYNAMICS. (Students must register for both ATOC 752D1 and ATOC 752D2) (No credit will be given for this course unless both ATOC 752D1 and ATOC 752D2 are successfully completed in consecutive terms) Seminars on topics in atmospheric, oceanic and climate dynamics. Students are required to present one or more seminars during the year on their thesis research and to participate actively in the seminars given by others.

8 Biochemistry

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Website: www.mcgill.ca/biochemistry/chemicalbiology

Chair — David Y. Thomas

Associate Chair — Peter E. Braun

8.1 Staff

Emeritus Professors

Angus F. Graham; M.Sc., Ph.D., D.Sc.(Edin.), F.R.S.C.

Rose M. Johnstone; B.Sc., Ph.D.(McG.), F.R.S.C.

Edward A. Meighen; B.Sc.(Alta.), Ph.D. (Calif.Berk.)

Samuel Solomon; M.Sc., Ph.D.(McG.), F.R.S.C.

Clifford P. Stanners; B.Sc.(McM.), M.A., Ph.D.(Tor.)

Theodore L. Sourkes; M.Sc.(McG.), Ph.D.(C'neil), F.R.S.C.

Professors

Nicole Beauchemin; B.Sc., M.Sc., Ph.D.(Montr.) (*joint appt. with Oncology and Medicine*)

Albert Berghuis; B.Sc., M.Sc.(Rijks Univ. Groningen, The Netherlands), Ph.D.(Br. Col.) (*Canada Research Chair*)

Rhoda Blostein; B.Sc., M.Sc., Ph.D.(McG.), F.R.S.C.

Philip E. Branton; B.Sc., M.Sc., Ph.D.(Tor.) (*Gilman Cheney Professor of Biochemistry*), F.R.S.C.

Peter E. Braun; B.Sc., M.Sc.(Br. Col.), Ph.D.(Calif.Berk.)

Kalle Gehring; M.Sc.(Mich.), Ph.D.(Calif.Berk.) (*Checheur National du FRSQ*)

Vincent Giguère; B.Sc., Ph.D.(Laval) (*joint appt. with Oncology & Medicine*)

Philippe Gros; B.Sc., M.Sc.(Montr.), Ph.D.(McG.) (*James McGill Professor*), F.R.S.C.

Annette A. Herscovics; B.Sc., M.Sc., Ph.D.(McG.), F.R.S.C. (*joint appt. with Oncology & Medicine*)

Robert E. MacKenzie; B.Sc.(Agr.)(McG.), M.N.S., Ph.D.(C'neil)

William Muller; B.Sc., Ph.D.(McG.) (*Canada Research Chair in Molecular Oncology*)

Walter E. Mushynski; B.Sc., Ph.D.(McG.)

Alain Nepveu; B.Sc., M.Sc.(Montr.), Ph.D.(Sher.) (*joint appt. with Oncology & Medicine*) (*James McGill Professor*)

Morag Park; B.Sc., Ph.D.(Glas.) (*Diane & Sal Guerrero Chair in Cancer Genetics*) (*William Dawson Scholar*) (*joint appt. with Oncology & Medicine*)

Jerry Pelletier; B.Sc., Ph.D.(McG.) (*James McGill Professor*)

Gordon C. Shore; B.Sc.(Guelph), Ph.D.(McG.)

Joseph Shuster; B.Sc.(McG.), Ph.D.(Calif.), M.D.(Alta.)

John R. Silvius; B.Sc., Ph.D.(Alta.)

Nahum Sonenberg; M.Sc., Ph.D.(Weizmann Inst.) F.R.S.C., F.R.S. (*James McGill Professor*)

David Y. Thomas; B.Sc.(Brist.), M.Sc., Ph.D.(Univ. College, Lond.), F.R.S.C., (*Canada Research Chair in Molecular Genetics*)

Michel L. Tremblay; B.Sc., M.Sc.(Sher.), Ph.D.(McM.), F.R.S.C.

Maria Zannis-Hadjopoulos; B.Sc., M.Sc., Ph.D.(McG.) (*joint appt. with Oncology & Medicine*)

Associate Professors

Imed Gallouzi; Maitrise, DEA, Ph.D.(Montpellier, France) (*Canada Research Chair in Cellular Information Systems*)

Arnim Pause; B.Sc., M.Sc.(U. Konstanz, Germ.), Ph.D.(McG.) (*Canada Research Chair in Molecular Oncology*)

Assistant Professor

Maxime Bouchard; B.Sc., Ph.D.(Laval) (*Canada Research Chair in Kidney Disease*)

Josée Dostie; B.Sc.(Sher.), Ph.D.(McG.)

Thomas Duchaine; B.Sc., Ph.D. (Montr.)

Bhushan Nagar; B.Sc., Ph.D. (Tor.)

Jose G.Teodoro; B.Sc.(W. Ont.), Ph.D.(McG.)

Jason Young; B.Sc.(Tor.), Ph.D.(McM.)

Associate Members

Karine Auclair (*Chemistry*), William C. Galley (*Chemistry*), Jacques Genest (*Dept. of Medicine*), Matthias Götte (*Micro. & Immunol.*), Michael Hallett (*Computer Science*), Qutayba Hamid

(*Meakins-Christie Labs*), Robert S. Kiss (*Dept. of Medicine*),

Vassilios Papadopoulos (*Dept. of Medicine*), Peter J. Roughley

(*Shriners' Hosp.*), Reza Salavati (*Inst. of Parasitology*), Maya

Saleh (*Dept. of Medicine*), Erwin Schurr (*Exp. Medicine, RVH*),

Charles Scriver (*Pediatrics, MCH*), Peter Siegel (*Dept. of*

Medicine), Bernard Turcotte (*Exp. Medicine, RVH*), Simon Wing

(*Dept. of Medicine*), Xiang-Jiao Yang (*Mol. Oncol., RVH*)

Adjunct Professors

Prabhat Arya (*NRC, Steacie Inst. for Mol. Sciences*); Katherine

Cianflone (*Université Laval*); Mirek Cygler (*NRC/BRI*); Jacques

Drouin (*Clin. Res. Inst.*); Anny Fortin (*Emerillon Therapeutics Inc.*);

Martin Latterich (*U. of Mtl.*); Karen Meerovitch (*Mimetogen*

Pharmaceuticals); Maureen O'Connor (*NRC/BRI*); Tarik Mörröy

(*IRCM*); Donald Nicholson (*Merck Frosst*); Enrico Purisima

(*NRC/BRI*); Martine Raymond (*IRIC*), Alex Therien (*Merck Frosst*

Canada).

8.2 Programs Offered

The Department of Biochemistry offers training at both the M.Sc. and Ph.D. levels. There are a wide variety of areas in which specialized training for the Ph.D. can be obtained. The Department also offers two Interdepartmental options together with other University departments. The first is the Chemical Biology Graduate

Option, offered jointly with the Departments of Chemistry and Pharmacology and Therapeutics. Information on this option can be found on the Web at www.mcgill.ca/biochemistry/chemicalbiology. The Bioinformatics Option available as of January 2006, is offered jointly with several other University departments. For information, consult the Bioinformatics section under the Biochemistry department's Website at www.mcgill.ca/biochemistry.

Students interested in training in these options must first be accepted for graduate studies by one of the participating departments.

The Department concentrates on the following key areas of research: signal transduction; molecular genetics; gene regulation; oncogenes; structure, function and regulation of proteins; membrane structure, function and assembly; intracellular protein targeting; embryonic development; bioinformatics; chemical biology and cellular neurobiology. A summary of the research interest of faculty members is available on the Department's Website.

Funding

Prospective students are urged to make every effort to secure their own funding. All students accepted to the program must be financially supported either by their supervisor or through studentships or fellowships. All applicants accepted by a member of Biochemistry, having a first class standing, will be eligible for a recruitment fellowship. **Applications are not required.** Applications may be made for a variety of fellowships administered by the University or by various private, provincial or federal agencies. Deadlines for completion of most fellowship applications vary from October to February for studies beginning the following September. For more information on fellowships and awards, see the Graduate and Postdoctoral Studies Office Website, www.mcgill.ca/gps.

8.3 Admission Requirements

Admission is based on the candidate's academic record, letters of recommendation, curriculum vitae and personal statement. A minimum grade point average of 3.2/4.0 (B+) is required. Files that do not meet the minimum requirement will not be considered.

Master's Program

Candidates for the M.Sc. degree must hold a B.Sc. degree or its equivalent in Biochemistry or in related disciplines (e.g., biology, chemistry, physics, physiology, microbiology).

Doctoral Program

Candidates who have completed their M.Sc. degree may be admitted directly to the Ph.D. program. Candidates who are admitted to the M.Sc. program and who are interested in the Ph.D. may transfer directly to the Ph.D. program after successfully completing the transfer seminar (BIOC 701) and all course requirements. The M.Sc. thesis requirement is then waived.

Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit the following:

TOEFL: Minimum score of 600, 250 on computer-based test, or 100 on an Internet-based test with each component score of not less than 20.

GRE: Subject Test in Biochemistry, Cell and Molecular Biology with a minimum score of 550. (Not required, but strongly recommended.)

Admissions Requirements - Chemical Biology Option

As for the regular graduate programs of the participating departments, acceptance into the Chemical Biology Option consists of two steps:

1. Preliminary approval by the Department's Graduate Committee based on the student's transcript, references and other documents submitted with the application. The criteria for assessment at this level are the same as for the regular graduate programs of the participating departments.

2. Acceptance by an individual research director. For students wishing to participate in the Chemical Biology Option, the director must propose a research project for the student that provides training in the methods and philosophy of chemical biology. Project proposals are assessed by the Chemical Biology Program Committee.

8.4 Application Procedures

Applications will be considered upon receipt of:

1. application form;
2. curriculum vitae;
3. application fee (\$80);
4. two official letters of recommendation from professors;
5. two official transcripts;
6. test results (TOEFL/GRE) if applicable.

All information is to be submitted to the Admissions Officer, Department of Biochemistry. All applicants are encouraged to approach staff members during or before the application process since no students are accepted without a supervisor.

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

Deadlines

Applications should be submitted as early as possible in order to meet the following deadlines:

Canadian applicants

September 15 for the Winter term (January)

May 15 for the Fall term (September)

International applicants

June 1 for the Winter term (January)

February 1 for the Fall term (September)

8.5 Program Requirements

Coursework

All students are required to complete (in addition to BIOC 696) a minimum of 6 credits of 500 - or higher - level courses as part of their M.Sc. or Ph.D. program, including at least one of BIOC 603, BIOC 604, BIOC 605, or EXMD 615. Other courses are chosen in consultation with the research director. The Graduate Admissions Committee may stipulate additional course work depending on the background of the candidate. BIOC 450 (Protein Structure and Function) and BIOC 454 (Nucleic Acids) are additional requirements for those who have not previously completed equivalent courses in their prior training.

Research Advisory Committee: Each student will have a supervisory committee that will monitor the progress of the studies.

Departmental Seminars: In addition to the above requirements, all M.Sc. and Ph.D. students must take one year of the departmental seminar course (BIOC 696, Seminars in Biochemistry). Members of the staff and visiting scientists present their work to the Department at weekly and bi-weekly intervals respectively throughout the academic year. All graduate students are required to attend all the above seminars and other informal seminars, and are encouraged to attend meetings of scientific communities.

Master's Program (45 credits)

The following requirements must be satisfied:

Required Courses (39 credits)

BIOC 696	(3)	Seminars in Biochemistry
BIOC 697	(9)	Thesis Research 1
BIOC 698	(12)	Thesis Research 2
BIOC 699	(15)	Thesis Research 3

Complementary Courses (6 credits)

At least three credits must be chosen from the following:

BIOC 603	(3)	Genomics and Gene Expression
BIOC 604	(3)	Macromolecular Structure

BIOC 605 (3) Structural Biology and Proteomics
 EXMD 615 (3) Membrane Carbohydrates
 Plus, additional credits, to a minimum of 6 total complementary course-credits, of 500 - or higher level courses in biomedical and allied sciences.

Complementary courses are chosen in consultation with the research director. The Graduate Advisory Committee may stipulate additional coursework depending on the background of the candidate. BIOC 450 Protein Structure and Function and BIOC 454 Nucleic Acids are additional requirements for those who have not previously completed equivalent courses in their prior training.

The M.Sc. program usually requires a minimum of two years of study. Students in the M.Sc. program are required to complete all course requirements and submit a thesis.

Transfer from the M.Sc. to the Ph.D. Program

After 21 months students may transfer to the Ph.D. program only if all transfer requirements have been fulfilled. This includes completion of the Research Seminar 1 (BIOC 701) and the minimum of 9 course credits specified above, plus any additional course work stipulated by the Graduate Admissions Committee. The M.Sc. thesis requirement is then waived.

Ph.D. in Biochemistry

Required Course (3 credits)

BIOC 696 (3) Seminars in Biochemistry

Complementary Courses (6 credits minimum)

At least 3 credits from the courses listed below plus additional credits to a minimum of 6 total complementary course credits of 500-level or higher courses in the biomedical and allied sciences, chosen in consultation with the research director.

BIOC 603 (3) Genomics and Gene Expression
 BIOC 604 (3) Macromolecular Structure
 BIOC 605 (3) Structural Biology and Proteomics
 EXMD 615 (3) Membrane Carbohydrates

The Graduate Advisory Committee may stipulate additional course work depending on the background of the candidate.

BIOC 450 Protein Structure and Function and BIOC 454 Nucleic Acids are additional requirements for those who have not previously completed equivalent courses in their prior training.

Comprehensives - Required

BIOC 701 (0) Research Seminar 1
 BIOC 702 (0) Ph.D. Thesis Proposal
 BIOC 703 (0) Research Seminar 2

Students must complete BIOC 701 in the third term after admission to the program, BIOC 702 in the 5th or 6th term, and BIOC 703 approximately 6 months prior to submission of the Ph.D. thesis.

Thesis - Required

Program Requirements – Chemical Biology Option

The curriculum of the Chemical Biology Option is structured so that in completing the option, students also complete the course requirements for the regular graduate programs in their home departments. For this reason, program requirements are listed separately for each department, even though the 'core' content in Chemical Biology (9 lecture credits plus 2 or 4 seminar credits for each program) is the same for each. The course requirements for the Chemical Biology Option taken through the Biochemistry Department are available at

www.mcgill.ca/biochemistry/chemicalbiology.

M.Sc. in Biochemistry – Chemical Biology Option/Concentration (47 credits)

Required Course (3 credits)

BIOC 696 (3) Seminars in Biochemistry

Complementary Courses (11 credits)

2 credits, two of the following courses:

BIOC 610 (1) Seminars in Chemical Biology 1
 BIOC 611 (1) Seminars in Chemical Biology 3
 CHEM 689 (1) Seminars in Chemical Biology 2

CHEM 690 (1) Seminars in Chemical Biology 4

at least 3 credits from the following courses:

CHEM 502 (3) Advanced Bio-Organic Chemistry
 CHEM 503 (3) Drug Design and Development 1 or PHAR 503

at least 3 credits to be chosen from the following courses:

BIOC 603 (3) Genomics and Gene Expression
 BIOC 604 (3) Macromolecular Structure
 BIOC 605 (3) Structural Biology and Proteomics
 EXMD 615 (3) Membrane Carbohydrate

plus additional credits, to a total of at least 11 complementary course credits from the following list:

CHEM 504 (3) Drug Design and Development 2 or PHAR 504
 CHEM 582 (3) Supramolecular Chemistry
 CHEM 591 (3) Bioinorganic Chemistry
 CHEM 621 (5) Recent Advances in Organic Chemistry
 CHEM 623 (5) Stereochemistry
 CHEM 629 (5) Organic Synthesis
 CHEM 655 (4) Advanced NMR Spectroscopy
 EXMD 510 (3) Bioanalytical Separation Methods
 EXMD 602 (3) Techniques in Molecular Genetics
 PHAR 562 (3) General Pharmacology 1
 PHAR 563 (3) General Pharmacology 2
 PHAR 707 (3) Molecular Pharmacology

Thesis Component - Required (33 credits)

BIOC 695 (6) Thesis Research 1 (Chemical - Biology)
 BIOC 698 (12) Thesis Research 2
 BIOC 699 (15) Thesis Research 3

Ph.D. in Biochemistry – Chemical Biology Option/Concentration

Required Courses (7 credits)

BIOC 696 (3) Seminars in Biochemistry
 BIOC 610 (1) Seminars in Chemical Biology 1
 BIOC 611 (1) Seminars in Chemical Biology 3
 CHEM 689 (1) Seminars in Chemical Biology 2
 CHEM 690 (1) Seminars in Chemical Biology 4

Complementary Courses (9 credits)

at least 3 credits from the following courses:

CHEM 502 (3) Advanced Bio-Organic Chemistry
 CHEM 503 (3) Drug Design and Development 1 or PHAR 503

at least 3 credits to be chosen from the following courses:

BIOC 603 (3) Genomics and Gene Expression
 BIOC 604 (3) Macromolecular Structure
 BIOC 605 (3) Structural Biology and Proteomics
 EXMD 615 (3) Membrane Carbohydrate

plus additional credits, to a total of at least 9 complementary course credits from the following list:

CHEM 504 (3) Drug Design and Development 2 or PHAR 504
 CHEM 582 (3) Supramolecular Chemistry
 CHEM 591 (3) Bioinorganic Chemistry
 CHEM 621 (5) Recent Advances in Organic Chemistry
 CHEM 623 (5) Stereochemistry
 CHEM 629 (5) Organic Synthesis
 CHEM 655 (4) Advanced NMR Spectroscopy
 EXMD 510 (3) Bioanalytical Separation Methods
 EXMD 602 (3) Techniques in Molecular Genetics
 PHAR 562 (3) General Pharmacology 1
 PHAR 563 (3) General Pharmacology 2
 PHAR 707 (3) Molecular Pharmacology

Comprehensives - Required

BIOC 701 (0) Research Seminar 1
 BIOC 702 (0) Ph.D. Thesis Proposal
 BIOC 703 (0) Research Seminar 2

Students must complete BIOC 701 in the third term after admission to the program, BIOC 702 in the 5th or 6th term, and BIOC 703 approximately 6 months prior to submission of the Ph.D. thesis.

Thesis - Required

M.Sc. in Biochemistry – Bioinformatics

Option/Concentration (45 credits)

Required Courses (6 credits)

BIOC 696 (3) Seminars in Biochemistry
COMP 616 (3) Bioinformatics Seminar

Complementary Courses (9 credits)

3 credits to be chosen from the following courses:

BIOC 603 (3) Genomics and Gene Expression
BIOC 604 (3) Macromolecular Structure
BIOC 605 (3) Structural Biology and Proteomics
EXMD 615 (3) Membrane Carbohydrate

plus 6 credits from the following courses:

BINF 621 (3) Bioinformatics: Molecular Biology
BMDE 652 (3) Bioinformatics: Proteomics
BTEC 555 (3) Structural Bioinformatics
COMP 618 (3) Bioinformatics: Functional Genomics
PHGY 603 (3) Systems Biology and Biophysics

The Graduate Advisory Committee may stipulate additional course work depending on the background of the candidate. BIOC 450 Protein Structure and Function and BIOC 454 Nucleic Acids are additional requirements for those who have not previously completed equivalent courses in their prior training.

Thesis Component - Required (30 credits)

BIOC 694 (3) Thesis Research 4
BIOC 698 (12) Thesis Research 2
BIOC 699 (15) Thesis Research 3

Ph.D. in Biochemistry – Bioinformatics

Option/Concentration

Required Courses (6 credits)

BIOC 696 (3) Seminars in Biochemistry
COMP 616 (3) Bioinformatics Seminar

Complementary Courses (9 credits)

3 credits to be chosen from the following courses:

BIOC 603 (3) Genomics and Gene Expression
BIOC 604 (3) Macromolecular Structure
BIOC 605 (3) Structural Biology and Proteomics
EXMD 615 (3) Membrane Carbohydrate

plus 6 credits from the following courses:

BINF 621 (3) Bioinformatics: Molecular Biology
BMDE 652 (3) Bioinformatics: Proteomics
BTEC 555 (3) Structural Bioinformatics
COMP 618 (3) Bioinformatics: Functional Genomics
PHGY 603 (3) Systems Biology and Biophysics

The Graduate Advisory Committee may stipulate additional course work depending on the background of the candidate. BIOC 450 Protein Structure and Function and BIOC 454 Nucleic Acids are additional requirements for those who have not previously completed equivalent courses in their prior training.

Comprehensives - Required

BIOC 701 (0) Research Seminar 1
BIOC 702 (0) Ph.D. Thesis Proposal
BIOC 703 (0) Research Seminar 2

Students must complete BIOC 701 in the third term after admission to the program, BIOC 702 in the 5th or 6th term, and BIOC 703 approximately 6 months prior to submission of the Ph.D. thesis.

Thesis - Required

8.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Term(s) offered (Fall, Winter, Summer) may appear after the credit weight to indicate when a course would normally be taught. Please check Class Schedule to confirm this information.

Note: All undergraduate courses administered by the Faculty of Science (courses at the 100- to 500-level) have limited enrolment.

The course credit weight is given in parentheses after the title.

★ Denotes courses taught only in alternate years.

□ Denotes limited enrolment

□ **BIOC 603 GENOMICS AND GENE EXPRESSION.** (3) (Fall) (Prerequisites: BIOC 454 and permission of instructor.) Examination of recent developments in analysis of eukaryotic cell genomes and control of gene expression. Molecular genetics; genomics and the bioinformatics of analysis of genomic and functional-genomic data; mechanisms and signal-transduction pathways for regulation of gene expression; applications to human disease.

★ **BIOC 604 MACROMOLECULAR STRUCTURE.** (3) (Fall) (Prerequisite: BIOC 450 or equivalent) (Lectures in French and English) (Offered in the Fall term, in even alternate years.) X-Ray crystallography, NMR spectroscopy, computational methods and theoretical approaches to the determination and analysis of macromolecular structures. Theory and practical applications will be covered. Examples will include interpretation of structure as it applies to biological functions. In conjunction with the Université de Montréal.

□ **BIOC 605 STRUCTURAL BIOLOGY AND PROTEOMICS.** (3) (Winter) (Prerequisite: BIOC 450 or equivalent, or permission of instructor.) Examination of recent developments in structural biology and proteomics analysis. Diffraction, NMR and modeling approaches to macromolecular structure; biophysical, proteomics and related approaches to characterize the physical and functional interactions of biological macromolecules; applications to biological problems.

BIOC 610 SEMINARS IN CHEMICAL BIOLOGY 1. (1) (Restrictions: Open only to students registered for the M.Sc. or Ph.D. Graduate Option in Chemical Biology.) First multidisciplinary seminar in chemical biology.

BIOC 611 SEMINARS IN CHEMICAL BIOLOGY 3. (1) (Restrictions: Open only to students registered for the M.Sc. or Ph.D. Graduate Option in Chemical Biology.) Third multidisciplinary seminar in chemical biology.

BIOC 694 THESIS RESEARCH 4. (3) (Restriction: Open to students enrolled in the M.Sc. in Biochemistry (Bioinformatics Option) program.) Laboratory research focusing on the thesis research project for the M.Sc. degree in Biochemistry; Bioinformatics Option.

BIOC 695 THESIS RESEARCH 1 (CHEMICAL - BIOLOGY) (6) (Restrictions: Open only to students registered for the M.Sc. Graduate Option in Chemical Biology.) Research toward completion of thesis.

BIOC 696 SEMINARS IN BIOCHEMISTRY. (3) (Restriction: Open to M.Sc. and Ph.D. Biochemistry students only.) Seminars in biochemistry.

BIOC 696D1 (1.5), BIOC 696D2 (1.5) SEMINARS IN BIOCHEMISTRY. (Students must register for both BIOC 696D1 and BIOC 696D2.) (No credit will be given for this course unless both BIOC 696D1 and BIOC 696D2 are successfully completed in consecutive terms.) Seminars in biochemistry.

BIOC 697 THESIS RESEARCH 1. (9)

BIOC 698 THESIS RESEARCH 2. (12)

BIOC 699 THESIS RESEARCH 3. (15)

BIOC 701 RESEARCH SEMINAR 1. (0) (Biochemistry graduate students) Presentation on original current laboratory research carried out by student.

BIOC 702 PH.D. THESIS PROPOSAL. (0) (Biochemistry graduate students) Dissertation presented to Committee.

BIOC 703 RESEARCH SEMINAR 2. (0) (Restriction: Ph.D. students in Biochemistry) Presentation of the planned thesis including central findings and original contribution to knowledge in the field of research.

ADVANCED UNDERGRADUATE COURSES

BIOC 404 BIOPHYSICAL CHEMISTRY. (3) (Winter) (Prerequisites: CHEM 204, CHEM 214 or equivalent) (Restriction: Not open to students who have taken or are taking CHEM 404.) Hydrodynamic and electrophoretic methods for separation and characterization of macromolecules. Optical and magnetic resonance spectroscopy of biopolymers, and applications to biological systems.

BIOC 450 PROTEIN STRUCTURE AND FUNCTION. (3) (Fall) (Prerequisites: BIOC 311, BIOC 312 and/or sufficient organic chemistry.) (Restriction: Intended primarily for students at the U3 level) Primary, secondary, tertiary and quaternary structure of enzymes. Active site mapping and site-specific mutagenesis of enzymes. Enzyme kinetics and mechanisms of catalysis. Multienzyme complexes.

BIOC 454 NUCLEIC ACIDS. (3) (Fall) (Prerequisites: BIOC 311, BIOC 312 or permission of instructor) Chemistry of RNA and DNA, transcription and splicing of RNA and their control; enzymology of DNA replication. Special topics on transgenics, genetic diseases and cancer.

BIOC 455 NEUROCHEMISTRY. (3) (Winter) (Prerequisites: BIOC 311, BIOC 312 or permission of instructor) Covers biochemical mechanisms underlying central nervous system function. Introduces basic neuroanatomy, CNS cell types and morphology, neuronal excitability, chemically mediated transmission, glial function. Biochemistry of specific neurotransmitters, endocrine effects on brain, brain energy metabolism and cerebral ischemia (stroke). With examples, where relevant, of biochemical processes disrupted in human CNS disease.

BIOC 458 MEMBRANES AND CELLULAR SIGNALING. (3) (Winter) (Prerequisites: BIOC 212, ANAT 262; one of PHGY 201, PHGY 209 or BIOL 205; one of BIOC 312 or ANAT 365; and BIOC 311 or permission of instructors) (Restriction: This course is also listed as ANAT 458. Not open to students who have taken or are taking ANAT 458 or BIOC 456) An integrated treatment of the properties of biological membranes and of intracellular signaling, including the major role that membranes play in transducing and integrating cellular regulatory signals. Biological membrane organization and dynamics: membrane transport; membrane receptors and their associated effectors; mechanisms of regulation of cell growth, morphology, differentiation and death.

BIOC 503 IMMUNOCHEMISTRY. (3) (Winter) (Prerequisites: BIOC 311, BIOC 312) This course, presented in lecture format, emphasizes the molecular, genetic and structure function events that occur in the humoral immune response. Interleukins and other mediators of inflammation, a field in which rapid changes are occurring, are discussed. The clinical significance of fundamental biochemical findings is described.

9 Bioethics

For information, write to:
Chair, Master's Specialization in Bioethics
Biomedical Ethics Unit
3647 Peel Street
Montreal, QC H3A 1X1
Canada
Telephone: (514) 398-6980
Fax: (514) 398-8349
Website: www.mcgill.ca/biomedicalethicsunit/masters

9.1 Staff

E. Bereza; B.A., M.D., C.M.(McG.), C.C.F.P.(C)
A. Campbell; B.A., LL.B., B.C.L.(McG.), LL.M.(Harv.)
C. Ells; R.R.T.(VGH), M.A., Ph.D.(Tenn.)
J.R. Fishman; B.A.(Calif., Berk.), M.A.(Calif., Irvine), Ph.D.(Calif.)
K.C. Glass; A.M.(Chic.), LL.B., B.C.L., D.C.L.(McG.)
N. Gilmore; B.A.(College of the Holy Cross), Ph.D.(Lond.), M.D.(Vt.)
J. Kimmelman; B.S.(Duke), Ph.D.(Yale)
N.B. King; B.A.(Penn.), M.A., Ph.D.(Harv.)
L. Turner; B.A.(Winn.), M.A.(Manit.), M.A., Ph.D.(S. Calif.)

9.2 Programs Offered

Master's Specialization in Bioethics.

The Master's Specialization in Bioethics is sponsored by the:
Faculty of Medicine, Division of Experimental Medicine;
Faculty of Law;
Faculty of Religious Studies; and
Faculty of Arts, Department of Philosophy.

Students receive an M.A., LL.M. or M.Sc. degree in the discipline chosen with a specialization in Bioethics.

9.3 Admission Requirements

M.D., bachelor's level professional training in a health science, or bachelor's degree in law, philosophy or religious studies. Other students may be considered on an individual basis.
Enrolment is limited to 12 students.

9.4 Application Procedures

Applications are made initially through the Biomedical Ethics Unit in the Faculty of Medicine, which administers the program and teaches the core courses.

Applicants must be accepted by the appropriate Faculty, the Bioethics Graduate Studies Advisory Committee, and the Graduate and Postdoctoral Studies Office.

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

9.5 Program Requirements

The curriculum is composed of required courses (for 6 credits) offered in the Biomedical Ethics Unit, bioethics courses (3 credits minimum) offered by the base faculty or department and any graduate courses required or accepted by a base faculty for the granting of a Master's degree, for a total of 21 credits. A minimum of 45 credits is required including the thesis.

Registration Requirements: Depending upon the requirements of the base discipline, a minimum of three terms is required for completion of the program, including course work and thesis.

Thesis Supervision: Thesis supervision for students in the specialization is provided by a participating faculty member in the program. Thesis examination will be conducted according to the

base discipline and the Graduate and Postdoctoral Studies Office norms.

Required Courses – Biomedical Ethics Unit (6 credits)

BIOE 680 (3) Bioethical Theory
BIOE 681 (3) Bioethics Practicum

Required Course – base faculty (3 credits)

one of the following:

BIOE 682 (3) Medical Basis of Bioethics
CMPL 642 (3) Law and Health Care
PHIL 543 (3) Seminar: Medical Ethics
RELG 571 (3) Religion and Medicine

Complementary Courses (12 credits)

the remaining credits are to be taken in any graduate courses required or accepted by the base faculty for the granting of a Master's degree

Thesis Component – Required (24 credits)

BIOE 690 (3) Thesis Literature Survey
BIOE 691 (3) Thesis Research Proposal
BIOE 692 (6) Thesis Research Progress Report
BIOE 693 (12) Thesis

9.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click **Class Schedule**) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. **Class Schedule lists courses by term and includes days, times, locations, and names of instructors.**

The course credit weight is given in parentheses after the title.

BIOE 680 BIOETHICAL THEORY. (3) (Limited enrolment) A survey of some of the main problem areas and common argument forms used in current bioethics. Problem areas include consent, decisions to withhold or withdraw treatment, allocation of scarce resources, research with human subjects and confidentiality. Argument forms include those drawn from diverse ethical theories and traditions.

BIOE 681 BIOETHICS PRACTICUM. (3) (Limited enrolment) Four hours per week supervised placement within health care settings (e.g., intensive care, family practice, clinical ethics committees). In addition, students shall be assigned for the last month of the term to a single intensive placement. Participation in rounds, case discussions, and a weekly seminar.

BIOE 682 MEDICAL BASIS OF BIOETHICS. (3) (Limited enrolment.) The seminar examines the medical basis of timely ethical dilemmas in health care. Content includes: clinical concepts of pathogenesis, disease, screening, diagnosis, therapeutic interventions and prognosis; decision-making in clinical care and institutional policy development; organization of health care systems including socialized medicine, public health and institutions providing health care; medical research.

BIOE 690 M.Sc. THESIS LITERATURE SURVEY. (3)

BIOE 691 M.Sc. THESIS RESEARCH PROPOSAL. (3)

BIOE 692 M.Sc. THESIS RESEARCH PROGRESS REPORT. (6)

BIOE 692D1 (3), BIOE 692D2 (3) M.Sc. THESIS RESEARCH PROGRESS REPORT. (Students must register for both BIOE 692D1 and BIOE 692D2) (No credit will be given for this course unless both BIOE 692D1 and BIOE 692D2 are successfully completed in consecutive terms) (BIOE 692D1 and BIOE 692D2 together are equivalent to BIOE 692)

BIOE 693 M.Sc. THESIS. (12)

BIOE 693D1 (6), BIOE 693D2 (6) M.Sc. THESIS. (Students must register for both BIOE 693D1 and BIOE 693D2) (No credit will be given for this course unless both BIOE 693D1 and BIOE 693D2 are successfully completed in consecutive terms) (BIOE 693D1 and BIOE 693D2 together are equivalent to BIOE 693)

BIOE 694 INDEPENDENT STUDIES 3. (3)

BASE FACULTY COURSES

BIOE 682 MEDICAL BASIS OF BIOETHICS. (3) (Limited enrolment.) The seminar examines the medical basis of timely ethical dilemmas in health care. Content includes: clinical concepts of pathogenesis, disease, screening, diagnosis, therapeutic interventions and prognosis; decision-making in clinical care and institutional policy development; organization of health care systems including socialized medicine, public health and institutions providing health care; medical research.

CMPL 642 LAW AND HEALTH CARE. (3) (Limited enrolment.) The study of legal and ethical issues raised in medicine and healthcare with a particular focus upon the relationship between patient and healthcare professionals.

PHIL 543 SEMINAR: MEDICAL ETHICS. (3) (Prerequisite: PHIL 343 or written permission of the instructor) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced course devoted to a particular philosophical problem as it arises in the context of medical practice or the application of medical technology.

RELG 571 RELIGION AND MEDICINE. (3) (Fall) A study of the resources of major world religions (Judaism, Christianity, Islam, Hinduism, Buddhism, Taoism and Shinto) for thinking about ethical issues related to modern medicine, e.g., health, illness, suffering; new reproductive technologies; genetic engineering; euthanasia; palliative care; animal research; transplants.

10 Biology

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E-mail: gradinfo.biology@mcgill.ca
Website: www.biology.mcgill.ca

Chair — Paul F. Lasko

Chair of Graduate Program — Richard Roy

10.1 Staff

Emeritus Professors

A. Howard Bussey; B.Sc., Ph.D.(Brist.), F.R.S.C.
Robert L. Carroll; B.S.(Mich), M.A., Ph.D.(Harv.), F.R.S.C.
F. Clarke Fraser; O.C., B.Sc.(Acad.), M.Sc., Ph.D., M.D.,
C.M.(McG), D.Sc.(Acad.), F.R.S.C., F.R.C.P.S.(C) (*Molson
Emeritus Professor of Genetics*) (*joint appt. with Human
Genetics*)
Sarah P. Gibbs; A.B., M.S.(C'nell), Ph.D.(Harv.), F.R.S.C.
(*Macdonald Emeritus Professor of Botany*)
Jacob Kalf; M.S.A.(Tor.), Ph.D.(Ind.)
John B. Lewis; B.Sc., M.Sc., Ph.D.(McG.)
Gordon A. MacLachlan; B.Sc., M.A.(Sask.), Ph.D.(Manit.), F.R.S.C.
(*Macdonald Emeritus Professor of Botany*)
Barid B. Mukherjee; B.Sc.(Calc.), M.S.(Brig.Young), Ph.D.(Utah)
(*joint appt. with Human Genetics*)
Rolf O. Sattler; B.Sc.(Tübingen), Ph.D.(Munich), F.R.S.C.

Professors

Graham A.C. Bell; B.A., D.Phil.(Oxf.), F.R.S.C. (*James McGill
Professor*)
Gregory G. Brown; B.Sc.(Notre Dame), Ph.D.(N.Y.)
Lauren Chapman; B.Sc.(Alta.), Ph.D.(McG.)
Ronald Chase; A.B.(Stan.), Ph.D.(MIT)
Rajinder S. Dhindsa; B.Sc., M.Sc.(Punj.), Ph.D.(Wash.)
Siegfried Hekimi; M.Sc., Ph.D.(Geneva)
Donald L. Kramer; B.Sc.(Boston Coll.), Ph.D.(Br. Col.)

Paul F. Lasko; A.B.(Harv.), Ph.D.(MIT) (*Molson Professor of Genetics*) (*Associate Member in Anatomy & Cell Biology*)
 Martin J. Lechowicz; B.A.(Mich. St.), M.S., Ph.D.(Wis.)
 Louis Lefebvre; B.Sc., M.A., Ph.D.(Montr.)
 Michel Loreau; M.Sc., Ph.D.(Free Univ. Brussels)
 Gerald S. Pollack; M.A., Ph.D.(Princ.)
 Catherine Potvin; B.Sc., M.Sc.(Montr.), Ph.D.(Duke)
 Rima Rozen; B.Sc., Ph.D.(McG.) (*James McGill Professor*)
 Daniel J. Schoen; B.Sc., M.Sc.(Mich.), Ph.D.(Calif.) (*Macdonald Professor of Botany*)

Associate Professors

Thomas E. Bureau; B.Sc.(Calif.), Ph.D.(Texas) (*William Dawson Scholar*)
 Joseph Dent; B.Sc.(Mich.), Ph.D.(Col.)
 François Fagotto; Ph.D.(Neuchâtel)
 Gregor Fussmann; Diploma (Berlin), Ph.D.(Max-Planck-Institute)
 Andrew Gonzalez; B.Sc.(U. Nott.), Ph.D.(Imperial College, Lond.)
 Andrew Hendry; B.Sc.(Vic. (BC)), M.Sc., Ph.D.(Wash.) (*joint appoint. with Redpath Museum*) (*on sabbatical*)
 Robert L. Levine; B.Sc.(Brooklyn), M.Sc., Ph.D.(Yale) (*on sabbatical*)
 Laura Nilson; B.A.(Colgate), Ph.D.(Yale) (*Canada Research Chair in Genetics*)
 Neil M. Price; B.Sc.(New Br.), Ph.D.(Br. Col.) (*on sabbatical*)
 Richard Roy; B.Sc.(Bishop's), Ph.D.(Laval)
 Monique Zetka; B.Sc., Ph.D.(Br. Col.)

Assistant Professors

Ehab Abouheif; M.Sc.(C'dia), Ph.D.(Duke)
 Chieh Chang; B.S.(Chung Shan Medical & Dental College, Taiwan), M.S.(National Yang-Ming University, Taiwan), Ph.D.(Calif. Tech.)
 Irene Gregory-Eaves; B.Sc.(Vic., BC), M.Sc., Ph.D.(Qu.) (*on sabbatical Sep 2008 - Dec 2008*)
 Frédéric Guichard; B.Sc.(Montr.), Ph.D.(Laval) (*on sabbatical*)
 Paul Harrison; B.Sc.(National Univ. of Ireland), Ph.D.(Lond.)
 Rudiger Krahe; Diploma(Alexander U.), Ph.D.(Humboldt)
 Brian Leung; B.Sc.(Br. Col.), Ph.D.(Car.)
 Brian McGill; B.A.(Harv.), Ph.D.(Ariz.)
 Frieder Schoeck; Diploma(Erhangen), Ph.D.(Max Planck Institute)
 Jacalyn Vogel; M.Sc.(E.Ill.), Ph.D.(Kansas) (*on sabbatical*)
 Tamara Western; B.Sc. (Dal.), Ph.D.(Br. Col.)
 Hugo Zheng; M.Sc.(Helsinki), Ph.D.(Oxf. Brookes)

Associate Members

Anatomy and Cell Biology: Craig Mandato
 Anthropology: Colin Chapman
 Bellairs: Judith Mendes
 Centre for Research in Neuroscience: Sal Carbonetto, Robert Dunn, Yong Rao, Donald Van Meyel
 Dept. of Human Genetics, Chair: David Rosenblatt
 MCH: Feige Kaplan
 MNI: Kenneth Hastings
 RVH: Hugh J. Clarke (*on sabbatical Sep 2008 - Feb 2009*), Daniel Dufort, Teruko Taketo
 Redpath Museum: Claire de Mazancourt, David Green (*on sabbatical Sep 2008 - Dec 2008*), Hans Larsson, Anthony Ricciardi (*on sabbatical Sep 2008 - Dec 2008*)

Adjunct Professors

NRC Lab: Malcolm S. Whiteway
 STRI: Eldredge Bermingham, Rachel Collin, Edward Allen Herre, Haris Lessios, Mark Torchin
 U. de Montréal: Pierre Drapeau

10.2 Programs Offered

The Department offers graduate training in many areas of biology with particular strengths in the following areas: Molecular Biology & Genetics; Cell & Developmental Biology; Ecology, Biodiversity & Conservation; Evolution; Neurobiology; Bioinformatics; and Plant Biology. A new Bioinformatics option is offered jointly with several other University departments as well as a new Environment option and a Neotropical Environment option.

Graduate programs leading to the M.Sc. and Ph.D. degrees are offered. The emphasis in both programs is on development of the intellectual and technical skills necessary for independent research. The main component of both degrees is a thesis embodying the results of original research. Formal course requirements are few and are largely intended to fill gaps in the student's background.

The Stewart Biology Building is well equipped for graduate training and research in a wide variety of areas of biology. Its resources are greatly extended by affiliation with other organizations such as the Redpath Museum; the Groupe Interuniversitaire de Recherches Océanographiques du Québec (GIROQ); the Biotechnology Research Institute of the National Research Council of Canada; Macdonald Campus; the Montreal Neurological Institute; the Jewish General Hospital; the Montreal General, Montreal Children's and Royal Victoria Hospitals. Field research facilities include the Mont St. Hilaire Field Station (Quebec); the Huntsman Marine Science Centre (New Brunswick); the Subarctic Research Laboratory (Quebec); the Bellairs Research Institute (Barbados); and the Memphremagog Field Station (Quebec).

The Department specifies a minimum level of support for all graduate students. This amount is \$13,500 per annum plus tuition fees. The required minimum duration of support is two years for the M.Sc. program, five years for a Ph.D. student entering as Ph.D.1 (from a Bachelor's) and four years for a Ph.D. student entering as Ph.D.2.

10.3 Admission Requirements

Applicants must have a B.Sc. in a discipline relevant to the proposed field of study with an overall Cumulative Grade Point Average (CGPA) of 3.0/4.0 or a CGPA of 3.2/4.0 for the last two full-time academic years. Graduate Record Examination (GRE) scores are not required, but may be submitted. The Test of English as a Foreign Language (TOEFL) is required of applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone). A score of 550 on the paper-based TOEFL (213 on the computer-based test, or 86 on the Internet-based test with each component score not less than 20) or 6.5 on IELTS, is the minimum standard for admission.

Admission is based on an evaluation by the Graduate Training Committee and on acceptance by a research director who can provide adequate funding for personal and research expenses. Prospective graduate students are encouraged to contact staff members with whom they wish to study before applying for admission.

10.4 Application Procedures

Application to the graduate program in Biology may be made on a paper application form or an online Web application form (a direct link to the online form is on the Department Website). The paper form can be obtained directly from the Graduate Admissions Secretary. It is recommended to apply online.

All applicants should read the academic faculty and admission procedure sections on the Biology Department Website before completing the application form. These guidelines contain specific information on the application process, summaries of the research areas of staff and contact information.

Deadlines for applications and all supporting documents are March 1 for September admission (January 15 for international applicants) and October 15 for January admission (August 15 for international applicants). If application materials are received after these dates, it may be necessary to delay review of the applicant's file until the following admittance period. All inquiries pertaining to admission procedures should be directed to the Graduate Admissions Secretary.

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

10.5 Program Requirements

The graduate program of each student is established and regularly evaluated by a three-member supervisory committee appointed by the Graduate Training Committee and chaired by the student's thesis supervisor.

All graduate students are required to participate regularly in the various seminar series and journal clubs offered by the Department.

MASTER'S REQUIREMENTS

Length of Program – Three full-time terms of resident study at McGill University is the minimum time requirement to complete the Master's degree. The normal and expected duration is two years.

Course Requirements – Forty-five credits are required for the M.Sc. degree; 48 credits if the Environment, Neotropical Environment or Bioinformatics Options are selected. Additional course work may be required if the student's background is insufficient.

A graduate pass (B- or better) is mandatory for all courses required for the M.Sc. Students may take additional courses not required for degree purposes, but they must maintain an overall average of B- or better, including marks in courses that are not required.

Thesis – In Biology, the M.Sc. is considered to be a research degree and the candidate must present a thesis which should contain original contributions to knowledge.

M.Sc. in Biology (45 credits)

Additional course work may be required if the student's background is insufficient.

Complementary Courses (6 credits)

two 3-credit courses, or equivalent, at the 500-level or higher in Biology or other departments, and approved by the Supervisory Committee.

Thesis (39 credits)

BIOL 697 (13) Master's Thesis Research 1
BIOL 698 (13) Master's Thesis Research 2
BIOL 699 (13) Master's Thesis Research 3

M.Sc. in Biology – Environment Option (48 credits)

Required Courses (6 credits)

ENVR 610 (3) Foundations of Environmental Policy
ENVR 650 (1) Environmental Seminar 1
ENVR 651 (1) Environmental Seminar 2
ENVR 652 (1) Environmental Seminar 3

Complementary Course (3 credits)

3 credits, one of the following courses:

ENVR 519 (3) Global Environmental Politics
ENVR 544 (3) Environmental Measurement and Modelling
ENVR 580 (3) Topics in Environment 3
ENVR 611 (3) The Economy of Nature
ENVR 620 (3) Environment and Health of Species
ENVR 622 (3) Sustainable Landscapes
ENVR 630 (3) Civilization and Environment 1
ENVR 680 (3) Topics in Environment 4

or another graduate course at the 500-level or higher recommended by the advisory committee and approved by the Environment Option Committee

Thesis (39 credits)

BIOL 697 (13) Master's Thesis Research 1
BIOL 698 (13) Master's Thesis Research 2
BIOL 699 (13) Master's Thesis Research 3

M.Sc. in Biology – Neotropical Environment Option (48 credits)

Required Courses (6 credits)

BIOL 640 (3) Tropical Biology and Conservation
ENVR 610 (3) Foundations of Environmental Policy

Complementary Course (3 credits)

3 credits, one of the following courses:

AGRI 550 (3) Sustained Tropical Agriculture
BIOL 553 (3) Neotropical Environments
BIOL 641 (3) Issues in Tropical Biology
ENVR 611 (3) The Economy of Nature
ENVR 612 (3) Tropical Environmental Issues
ENVR 680 (3) Topics in Environment 4
POLI 644 (3) Tropical Environmental Politics
SOCI 565 (3) Social Change in Panama

Thesis (39 credits)

BIOL 697 (13) Master's Thesis Research 1
BIOL 698 (13) Master's Thesis Research 2
BIOL 699 (13) Master's Thesis Research 3

Participation in the MSE-Panama Symposium presentation in Montreal is also required.

M.Sc. in Biology – Bioinformatics Option (48 credits)

Required Courses (3 credits)

COMP 616 (3) Bioinformatics Seminar

Complementary Courses (6 credits)

6 credits from the following courses:

BINF 621 (3) Bioinformatics: Molecular Biology
BMDE 652 (3) Bioinformatics: Proteomics
BTEC 555 (3) Structural Bioinformatics
COMP 618 (3) Bioinformatics: Functional Genomics
PHGY 603 (3) Systems Biology and Biophysics

Thesis (39 credits)

BIOL 697 (13) Master's Thesis Research 1
BIOL 698 (13) Master's Thesis Research 2
BIOL 699 (13) Master's Thesis Research 3

Transfer from M.Sc to Ph.D. Program – The student's Supervisory Committee may recommend to the Graduate Training Committee that the student be permitted to transfer to the Ph.D. program. This is normally done at the end of the first year of the Master's program. Students who transfer into the Ph.D. program are required to take their Ph.D. Qualifying Examination within eight months of the transfer.

Ph.D. REQUIREMENTS

Length of Program – Candidates entering Ph.D.1 must complete at least three years of full-time resident study (6 terms). The normal and expected duration of the Ph.D. program is 4-5 years. A student who has obtained a Master's degree at McGill, or at an approved institution elsewhere may, upon the recommendation of the Graduate Training Committee, enter at the Ph.D.2 level.

Ph.D. Qualifying Examination – The Qualifying exam is a formal evaluation of the student's ability to proceed to the attainment of the Ph.D. Students must pass the Qualifying Examination (BIOL 700) no later than 15 months from the date of registration in the program. Students who transfer from the Master's program must take the exam within 8 months. Students who enter the Ph.D. program after completing an M.Sc. in Biology at McGill must take the exam within 12 months.

Ph.D. Seminar – All Ph.D. students must deliver a research seminar (BIOL 702) at some time during the academic session (September-April) towards the end of their studies and preferably at least 3 months prior to the thesis submission.

Thesis – The Ph.D. is a research degree. The candidate must present a thesis which represents high scholastic attainment in a specialized field, demonstrated by independent and original research. After the thesis has been submitted and approved, the candidate is required to orally defend their thesis in an open forum.

Ph.D. in Biology**Complementary Courses** (6 credits)

two 3-credit courses, or equivalent, at the 500-level or higher in Biology or other departments, and approved by the Supervisory Committee.

Seminar Required

BIOL 702 (6) Ph.D. Seminar

Qualifying Exam Required

BIOL 700 Doctoral Qualifying Examination

Thesis Required**Ph.D. in Biology – Environment Option****Required Courses** (6 credits)

ENVR 610 (3) Foundations of Environmental Policy
 ENVR 650 (1) Environmental Seminar 1
 ENVR 651 (1) Environmental Seminar 2
 ENVR 652 (1) Environmental Seminar 3

Complementary Course (3 credits)

3 credits, one of the following courses:

ENVR 519 (3) Global Environmental Politics
 ENVR 544 (3) Environmental Measurement and Modelling
 ENVR 580 (3) Topics in Environment 3
 ENVR 611 (3) The Economy of Nature
 ENVR 620 (3) Environment and Health of Species
 ENVR 622 (3) Sustainable Landscapes
 ENVR 630 (3) Civilization and Environment 1
 ENVR 680 (3) Topics in Environment 4

or another graduate course at the 500-level or higher recommended by the advisory committee and approved by the Environment Option Committee

Seminar Required

BIOL 702 (6) Ph.D. Seminar

Qualifying Exam Required

BIOL 700 Doctoral Qualifying Examination

Thesis Required**Ph.D. in Biology – Neotropical Environment Option****Required Courses** (6 credits)

BIOL 640 (3) Tropical Biology and Conservation
 ENVR 610 (3) Foundations of Environmental Policy

Complementary Course (3 credits)

3 credits, one of the following courses:

AGRI 550 (3) Sustained Tropical Agriculture
 BIOL 553 (3) Neotropical Environments
 BIOL 641 (3) Issues in Tropical Biology
 ENVR 611 (3) The Economy of Nature
 ENVR 612 (3) Tropical Environmental Issues
 ENVR 680 (3) Topics in Environment 4
 POLI 644 (3) Tropical Environmental Politics
 SOCI 565 (3) Social Change in Panama

Seminar Required

BIOL 702 (6) Ph.D. Seminar

Qualifying Exam Required

BIOL 700 Doctoral Qualifying Examination

Thesis Required

Participation in the MSE-Panama Symposium presentation in Montreal is also required.

Ph.D. in Biology – Bioinformatics Option**Seminar - Required** (6 credits)

BIOL 702 (6) Ph.D. Seminar

Qualifying Exam Required

BIOL 700 Doctoral Qualifying Examination

Required Course (3 credits)

COMP 616 (3) Bioinformatics Seminar

Complementary Courses (6 credits)

6 credits from the following courses:

BINF 621 (3) Bioinformatics: Molecular Biology
 BMDE 652 (3) Bioinformatics: Proteomics
 BTEC 555 (3) Structural Bioinformatics
 COMP 618 (3) Bioinformatics: Functional Genomics
 PHGY 603 (3) Systems Biology and Biophysics

Thesis Required**10.6 Courses**

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

The course credit weight is given in parentheses after the title.

★ Denotes courses offered in alternate years.

★ **BIOL 505 DIVERSITY AND SYSTEMATICS SEMINAR.** (3) (Winter) (3 hours seminar) (Prerequisites: BIOL 215 and BIOL 304 or permission) A course dealing in depth with a particular aspect of biological diversity and/or systematics. Topics may include the systematics of a particular taxon, issues in biodiversity, systematics theory and practice, etc. The class will discuss aspects of the chosen topic and prepare individual seminar reports.

★ **BIOL 507 ANIMAL COMMUNICATION.** (3) (Fall) (3 hours lecture) (Corequisites: BIOL 307 or equivalent and one of BIOL 306 or NEUR 310 or PHGY 311 or PSYC 308; or permission of instructor. Since all corequisites may not be offered in the same term, students are advised that they may have to plan their schedules so that they may register in these courses in the term prior to BIOL 507.) Introduction to communication between animals, including humans. Physical and phylogenetic constraints on the evolution of communication systems will be discussed. The approach to communication will draw from behavioural ecology, psychology, physiology and physics.

BIOL 510 ADVANCES IN COMMUNITY ECOLOGY. (3) (Fall) (3 hours lecture/seminar) (Prerequisites: BIOL 308 or GEOG 350 or permission of instructor.) The origin, maintenance and consequences of biological diversity within ecological communities.

BIOL 518 ADVANCED TOPICS IN CELL BIOLOGY. (3) (Winter) (2 hours seminar) (Prerequisite: BIOL 313 and permission) Conserved processes in Eukaryotic organisms, including the cytoskeleton, the cell cycle, complex traits/disease, global analysis/bioinformatics, and innovative studies/techniques in cell biology.

BIOL 520 GENE ACTIVITY IN DEVELOPMENT. (3) (Winter) (3 hours lecture and discussion) (Prerequisites: BIOL 300 and BIOL 303 or permission) An analysis of the role and regulation of gene expression in several models of eukaryotic development. The emphasis will be on critical evaluation of recent literature concerned with molecular or genetic approaches to the problems of cellular differentiation and determination. Recent research reports will be discussed in conferences and analyzed in written critiques.

BIOL 524 TOPICS IN MOLECULAR BIOLOGY. (3) (Fall) (Prerequisites: BIOL 300 and BIOL 303 or permission.) Molecular genetics and molecular, cellular and developmental biology, including signal transduction, cell differentiation and function, genetic diseases in eukaryotes.

BIOL 530 NEURAL BASIS OF BEHAVIOUR. (3) (Winter) (3 hours seminar) (Prerequisite: BIOL 306 or PHGY 311 or PSYC 308 or permission of instructor.) Neural mechanisms underlying behaviour in vertebrate and invertebrate organisms.

BIOL 531 NEUROBIOLOGY LEARNING MEMORY. (3) (Fall) (3 hours lecture and discussion) (Prerequisite: BIOL 306 or PHGY 311 or PSYC 308 or NEUR 310 or permission of instructor.) Properties of nerve cells that are responsible for learning and memory. Recent advances in the understanding of neurophysiological, biochemical and structural processes relevant to neural plasticity. Emphasis on a few selected model systems involving both vertebrate and invertebrate animals.

BIOL 532 DEVELOPMENTAL NEUROBIOLOGY SEMINAR. (3) (Winter) (1 hour lecture, 2 hours seminar) (Prerequisites: BIOL 303 or BIOL 306 or permission) Discussions of all aspects of nervous system development including pattern formation, cell lineage, pathfinding and targeting by growing axons, and neuronal regeneration. The basis for these discussions will be recent research papers and other assigned readings.

BIOL 540 ECOLOGY OF SPECIES INVASIONS. (3) (Winter) (3 hours lecture) (Prerequisite: BIOL 308 or permission of instructor) (Restriction: Not open to U1 or U2 students) (Restriction: Not open to students who are taking or have taken ENVR 540.) Causes and consequences of biological invasion, as well as risk assessment methods and management strategies for dealing with invasive species.

★ **BIOL 544 GENETIC BASIS OF LIFE SPAN.** (3) (Fall) (1 hour lecture, 2 hours seminar) (Prerequisites: BIOL 202, BIOL 300; BIOL 303 recommended or permission) The course will consider how gene action is determining the duration of life in various organisms focusing on the strengths and limitations of the genetic approach. The course will focus particularly on model organisms such as yeast, *Caenorhabditis*, *Drosophila* and mouse, as well as on the characterization of long-lived mutants.

BIOL 553 NEOTROPICAL ENVIRONMENTS. (3) (Winter) (24 hours lecture and 36 hours field work over a 4-week period) (Prerequisites: HISP 218, MATH 203, and BIOL 208/308, or equivalents, and permission of Program Coordinator.) (Corequisites: ENVR 451, GEOG 404 and SOCI 565.) (Restriction: location in Panama. Students must register for a full semester of studies in Panama) Ecology revisited in view of tropical conditions. Exploring species richness. Sampling and measuring biodiversity. Conservation status of ecosystems, communities and species. Indigenous knowledge.

★ **BIOL 555D1 (1.5), ★ BIOL 555D2 (1.5) FUNCTIONAL ECOLOGY OF TREES.** (Fall and Winter) (Prerequisites: BIOL 304, BIOL 308 or permission.) (Students must register for both BIOL 555D1 and BIOL 555D2.) (No credit will be given for this course unless both BIOL 555D1 and BIOL 555D2 are successfully completed in consecutive terms.) (BIOL 555D1 and BIOL 555D2 together are equivalent to BIOL 555.) Discussion of the interactions among traits that underpin the survival of woody plants in diverse environments: physiology, anatomy, architecture, seasonality and phenology, reproductive ecology, life history trade-offs, and the phylogenetic basis of functional diversification.

BIOL 568 TOPICS ON THE HUMAN GENOME. (3) (Winter) (3 hours lecture) (Prerequisites BIOL 202, BIOL 300, BIOL 370, or permission.) Cellular and molecular approaches to characterization of the human genome.

★ **BIOL 569 DEVELOPMENTAL EVOLUTION.** (3) (Winter) (3 hours lecture) (Prerequisites: BIOL 303 and BIOL 304; or permission of instructor.) The influence of developmental mechanisms on evolution. This course draws on recent examples from plants and invertebrate and vertebrate animals. Topics include homology, modularity, dissociation, co-option, evolutionary novelty, evolution of genetic cis-regulation, developmental constraint and evolvability, heterochrony, phenotypic plasticity, and canalization.

BIOL 570 ADVANCED SEMINAR IN EVOLUTION. (3) (Fall or Winter) (3 hours seminar) (Restriction: Open to undergraduates by permission) Detailed analysis of a topic in evolutionary biology, involving substantial original research.

★ **BIOL 571 EXPERIMENTAL EVOLUTION/ECOLOGY.** (3) (Winter) (1 hour lecture, 4 hours laboratory) (Prerequisite: BIOL 435 or equivalent) (Restriction: Restricted to U3 and Graduate students.) Basic

principles and processes of evolution and ecology will be demonstrated using microbial model systems. Topics include mutation, fitness, selection, adaptive radiation, properties of mixtures and community assembly.

★ **BIOL 572 MOLECULAR EVOLUTION.** (3) (Fall) (3 hours lecture/seminar) (Prerequisite: BIOL 300) Evolutionary change in DNA and proteins and its implications for cellular, organismal, and population/species evolution.

BIOL 573 VERTEBRATE PALAEOLOGY FIELD COURSE. (3) (Summer) (Prerequisites: BIOL 304 and BIOL 352 or permission of instructor.) (Notes: Field course with completed project and presentation in the early Fall. Given in a selected early Cretaceous Alberta site. Enrolment limited to 15 students) Terrestrial vertebrate fossils (i.e. dinosaurs, crocodiles and other reptiles) and palaeocommunity analysis, including practical training with fossil identification, mapping, collecting, and stratigraphic interpretation.

BIOL 575 HUMAN BIOCHEMICAL GENETICS. (3) (Winter) (3 hours lecture) (Prerequisites: BIOL 202 and BIOL 300.) Topics on the study of human systems that have led to advances in basic biology.

★ **BIOL 583 ADVANCED BIOMETRY.** (3) (Winter) (Prerequisite: BIOL 373 or permission of instructor.) (Note: You may not be able to receive credit for this course and other statistic courses. Be sure to check the Course Overlap section under Faculty Degree Requirements in the Arts or Science section of the Calendar.) Advanced techniques in biometry surveying a broad number of statistical tools including: philosophy of scientific inference, experimental design and advanced linear models, generalized linear models (esp. logistic regression), modern regression techniques (quantile, local, etc), temporal and spatial statistics, and multivariate techniques.

★ **BIOL 588 MOLECULAR/CELLULAR NEUROBIOLOGY.** (3) (Fall) (1 1/2 hours lecture, 1 1/2 hours seminar) (Prerequisite: BIOL 300 and BIOL 306 or permission) Discussion of fundamental molecular mechanisms underlying the general features of cellular neurobiology. An advanced course based on lectures and on a critical review of primary research papers.

★ **BIOL 590 LINKING COMMUNITY AND ECOSYSTEM ECOLOGY.** (3) (Winter) (1.5 hours lecture, 1.5 hours seminar) (Prerequisite: BIOL 434 or permission of instructor.) Theoretical foundations for a new ecological synthesis that merges the perspectives of population, community, evolutionary and ecosystem ecology. Focus on theory in interaction with experimental and empirical work, and covers current topics at the interface between community and ecosystem ecology.

BIOL 592 INTEGRATED BIOINFORMATICS. (3) (Fall) (3 hours lecture) (Prerequisite: BIOL 301 or permission of instructor.) (Restriction: Not open to students who have taken or are taking BINF 511.) 'Post-genomic' bioinformatics. Concepts behind large-scale computational analysis and comparison of genomes/proteomes (and beyond), and the implications for our understanding of the basic processes of molecular and cell biology and the evolution of those processes.

★ **BIOL 594 ADVANCED EVOLUTIONARY ECOLOGY.** (3) (Fall) (Prerequisite: BIOL 304 and BIOL 308) (Restriction: U3 or permission.) Evolutionary ecology is the study of evolutionary change in natural populations. General predictive approaches in evolutionary ecology, including population genetics, quantitative genetics, optimality, and game theory will be examined. Emphasis will be placed on the mathematical underpinnings of each approach, particularly as they relate to classic and contemporary problems.

BIOL 632 LIMNOLOGY. (3) (2 hours lecture; 3 hours laboratory) (Prerequisites: BIOL 206 and/or permission) A study of the physical, chemical and biological properties of inland waters, with emphasis on their functioning as systems.

★ **BIOL 640 TROPICAL BIOLOGY AND CONSERVATION.** (3) (Restriction: students enrolled in Neotropical Environment Option (NEO) or permission of the instructor) Long-term research at the Smithsonian Tropical Research Institute will be organized and

synthesized to examine historical assembly and ecological maintenance of tropical communities. This synthesis will draw on phylogenetic concepts for historical insight and will examine the probable resilience of these communities to global change, pollution and biodiversity loss.

BIOL 650 RECENT ADVANCES IN BIOLOGY 1. (3) Directed reading, seminar and discussion courses in subjects of current interest in biological research. Intended for students working individually or in classes on selected areas under the supervision of one or more staff members. Content and form are flexible to allow the Department to meet specific student demands or needs. Such courses are arranged by consultation with individual staff.

BIOL 651 RECENT ADVANCES IN BIOLOGY 2. (3) Directed reading, seminar and discussion courses in subjects of current interest in biological research. Intended for students working individually or in classes on selected areas under the supervision of one or more staff members. Content and form are flexible to allow the Department to meet specific student demands or needs. Such courses are arranged by consultation with individual staff.

BIOL 652 RECENT ADVANCES IN BIOLOGY 3. (3) Directed reading, seminar and discussion courses in subjects of current interest in biological research. Intended for students working individually or in classes on selected areas under the supervision of one or more staff members. Content and form are flexible to allow the Department to meet specific student demands or needs. Such courses are arranged by consultation with individual staff.

BIOL 655 LABORATORY PROJECTS AND TECHNIQUES 1. (3) Directed training in selected methods used in areas of current interest in biological research. Intended for individuals or classes working in selected areas under the supervision of one or more staff members. Form and content are flexible to allow the Department to meet specific student demands and needs. Each course is arranged by consultation with individual staff.

BIOL 656 LABORATORY PROJECTS AND TECHNIQUES 2. (3) Directed training in selected methods used in areas of current interest in biological research. Intended for individuals or classes working in selected areas under the supervision of one or more staff members. Form and content are flexible to allow the Department to meet specific student demands and needs. Each course is arranged by consultation with individual staff.

BIOL 697 MASTER'S THESIS RESEARCH 1. (13) Independent research work under the direction of the Thesis Supervisor and the Supervisory Committee.

BIOL 698 MASTER'S THESIS RESEARCH 2. (13) Independent research work under the direction of the Thesis Supervisor and the Supervisory Committee.

BIOL 699 MASTER'S THESIS RESEARCH 3. (13) Independent research work under the direction of the Thesis Supervisor and the Supervisory Committee.

BIOL 700 DOCTORAL QUALIFYING EXAMINATION. (0) The oral Qualifying Examination is a formal evaluation of the candidate's ability to proceed to the attainment of the Ph.D. Candidates must submit a thesis proposal in advance of the exam.

BIOL 702 PH.D. SEMINAR. (6) Doctoral candidates are required to give a public oral presentation of their major results before submitting a thesis.

11 Biomedical Engineering

Department of Biomedical Engineering
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Montreal, QC H3A 2B4
Canada

Telephone: (514) 398-6736
Fax: (514) 398-7461
Website: www.bmed.mcgill.ca

Chair — H.L. Galiana

11.1 Staff

Emeritus Professor

T.M.S. Chang; B.Sc., M.D., C.M., Ph.D.(McG.), F.R.C.P.(C)
F.R.S.(C) (*joint appt. with Physiology*)

Professors

J.D. Bobyn; B.Sc., M.Sc.(McG.), Ph.D.(Tor.) (*joint appt. with Surgery*)

A.C. Evans; B.Sc.(Liv.), M.Sc.(Sur.), Ph.D.(Leeds) (*joint appt. with Neurology and Neurosurgery*)

H.L. Galiana; B.Eng., M.Eng., Ph.D.(McG.)

R.E. Kearney; B.Eng., M.Eng., Ph.D.(McG.)

G.B. Pike; B.Eng., M.Eng., Ph.D.(McG.) (*joint appt. with Neurology and Neurosurgery*)

Associate Professors

D.L. Collins; B.Sc., M.Eng., Ph.D.(McG.) (*joint appt. with Neurology and Neurosurgery*)

W.R.J. Funnell; B.Eng., M.Eng., Ph.D.(McG.) (*joint appt. with Otolaryngology*)

S. Prakash; B.Sc.(Hon.), M.Sc., M.Tech(BHU), Ph.D.(McG.)

M. Tabrizian; B.Sc.(Iran), M.Sc., Ph.D.(PMC-France),

M.B.A.(HEC) (*joint appt. with Dentistry*)

Assistant Professors

D. Juncker; Dipl., Ph.D.(Neuch-Switzerland)

J.L. Nadeau; B.S., Ph.D.(Univ. MN)

Associate Members

C. Baker (*Ophthalmology*), F. Barthelat (*Mechanical Engineering*),

K. Cullen (*Physiology*), S. De Serres (*Physical and Occupational Therapy*),

J. Gotman (*Neurology and Neurosurgery*), D. Guitten (*Neurology and Neurology*),

E. Jones (*Chemical Engineering*),

A. Katsarkas (*Otolaryngology*), A.M. Lauzon (*Medicine*), T. Milner (*Kinesiology & Physical Education*),

L. Mongeau (*Mechanical Engineering*), R. Mongrain (*Mechanical Engineering*),

S.N. Nazhat (*Mining, Metals and Materials Engineering*), B.N. Segal (*Otolaryngology*),

A. Shmuel (*Neurology and Neurosurgery*),

T. Steffen (*Surgery*)

Adjunct Professors

G. Baroud (Sher.), J.H.T. Bates (Vt.), P.G. Charette (Sher.)

11.2 Programs Offered

The Department offers a graduate training program leading to Master's (M.Eng.) and Ph.D. degrees in Biomedical Engineering.

It provides instruction and opportunities for interdisciplinary research in the application of engineering, mathematics, and the physical sciences to problems in medicine and the life sciences. Courses are offered for graduate students in the life sciences and in engineering and the physical sciences.

Excellent laboratory facilities for basic and applied research are available in the Department and in the laboratories of associated staff located elsewhere on campus. The Department operates a network of high performance workstations and well-equipped mechanical and electronics workshops.

Basic research in the Department concentrates on the application of quantitative engineering analysis methods to basic biomedical research problems. Currently active areas of research include: neuromuscular and postural control, muscle mechanics, the vestibular system, oculomotor control, the auditory system, joint prosthetics, biomaterials, artificial cells and organs, cell and tissue engineering, drug delivery, medical imaging, microfluidics, nanotechnology and bioinformatics in genomics and proteomics. Staff members are also active in more applied research related to the development of quantitative analysis tools and instruments for biomedical research. Areas of activity here include: signal analysis, system identification, modeling, simulation and parameter estimation, image processing, pattern recognition, ultrasound, and biorobotics. A new option in bioinformatics is offered jointly with other University departments.

11.3 Admission Requirements

See minimum admission requirements in Section 5 of the General Information section of the *Graduate and Postdoctoral Studies Calendar*. In addition, please see the department Website: www.bmed.mcgill.ca.

11.4 Application Procedures

Please address enquiries directly to the Department. McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

11.5 Program Requirements

Graduate students may also be registered through departments of Medicine, Science and Engineering, and must then fulfill the requirements for advanced degrees imposed by their respective departments.

In addition, all students are required, through course work and independent study, to achieve a degree of inter-disciplinary competence appropriate to their area of specialization.

M.Eng. in Biomedical Engineering (45 credits)

Complementary Courses (21 credits)

12 credits of courses with biomedical content selected from the following:

BMDE 500	(3)	Seminars in Biomedical Engineering
BMDE 501	(3)	Selected Topics in Biomedical Engineering
BMDE 502	(3)	BME Modelling and Identification
BMDE 503	(3)	Biomedical Instrumentation
BMDE 504	(3)	Biomaterials and Bioperformance
BMDE 505	(3)	Cell and Tissue Engineering
BMDE 519	(3)	Biomedical Signals and Systems
BMDE 650	(3)	Advanced Medical Imaging
BMDE 651	(3)	Orthopaedic Engineering
BMDE 652	(3)	Bioinformatics: Proteomics
BIOT 505	(3)	Selected Topics in Biotechnology
COMP 526	(3)	Probabilistic Reasoning and AI
COMP 558	(3)	Fundamentals of Computer Vision
COMP 646	(4)	Computational Perception
COMP 761	(4)	Advanced Topics Theory 2
ECSE 523	(3)	Speech Communications
ECSE 526	(3)	Artificial Intelligence
ECSE 529	(3)	Image Processing and Communication
ECSE 626	(4)	Statistical Computer Vision
ECSE 681	(4)	Colloquium in Electrical Engineering
EXMD 610	(3)	Biomedical Methods in Medical Research
MDPH 607	(3)	Introduction to Medical Imaging
MDPH 611	(2)	Medical Electronics
MDPH 612	(2)	Computers in Medical Imaging
MECH 500	(3)	Selected Topics in Mechanical Engineering
MECH 561	(3)	Biomechanics of Musculoskeletal Systems
PHGY 517	(3)	Artificial Internal Organs
PHGY 518	(3)	Artificial Cells

or, with the approval of the student's Graduate Advisory Committee and the Graduate Program Chair, other graduate-level courses with a content of interest to biomedical engineering.

9 credits selected from the courses listed above, or with approval of the Graduate Chair and Supervisor.

In addition, students are required to present their work as a conference paper or departmental seminar before being granted the M.Eng. degree.

Thesis Component - Required (24 credits)

BMDE 695 (12) Thesis Submission
12 credits selected from the following courses:

BMDE 690	(3)	Thesis Research 1
BMDE 691	(3)	Thesis Research 2
BMDE 692	(3)	Thesis Research 3
BMDE 693	(6)	Thesis Research 4
BMDE 694	(6)	Thesis Research 5

M.Eng. in Biomedical Engineering - Bioinformatics Option/Concentration (45 credits)

Required Course (3 credits)

COMP 616 (3) Bioinformatics Seminar

Complementary Courses (18 credits)

12 credits of courses with biomedical content selected from the following:

BMDE 500	(3)	Seminars in Biomedical Engineering
BMDE 501	(3)	Selected Topics in Biomedical Engineering
BMDE 502	(3)	BME Modelling and Identification
BMDE 503	(3)	Biomedical Instrumentation
BMDE 504	(3)	Biomaterials and Bioperformance
BMDE 505	(3)	Cell and Tissue Engineering
BMDE 506	(3)	Molecular Biology Techniques
BMDE 519	(3)	Biomedical Signals and Systems
BMDE 650	(3)	Advanced Medical Imaging
BMDE 651	(3)	Orthopaedic Engineering
BIOT 505	(3)	Selected Topics in Biotechnology
COMP 526	(3)	Probabilistic Reasoning and AI
COMP 558	(3)	Fundamentals of Computer Vision
COMP 646	(4)	Computational Perception
COMP 761	(4)	Advanced Topics Theory 2
ECSE 523	(3)	Speech Communications
ECSE 526	(3)	Artificial Intelligence
ECSE 529	(3)	Image Processing and Communication
ECSE 626	(4)	Statistical Computer Vision
ECSE 681	(4)	Colloquium in Electrical Engineering
EXMD 610	(3)	Biomedical Methods in Medical Research
MDPH 607	(3)	Introduction to Medical Imaging
MDPH 611	(2)	Medical Electronics
MDPH 612	(2)	Computers in Medical Imaging
MECH 500	(3)	Selected Topics in Mechanical Engineering
MECH 561	(3)	Biomechanics of Musculoskeletal Systems
PHGY 517	(3)	Artificial Internal Organs
PHGY 518	(3)	Artificial Cells

6 credits selected from the following courses:

BINF 621	(3)	Bioinformatics: Molecular Biology
BMDE 652	(3)	Bioinformatics: Proteomics
BTEC 555	(3)	Structural Bioinformatics
COMP 618	(3)	Bioinformatics: Functional Genomics
PHGY 603	(3)	Systems Biology and Biophysics

In addition, students are required to present their work as a conference paper or departmental seminar before being granted the M.Eng. (Bioinformatics Option) degree.

Thesis Component - Required (24 credits)

BMDE 693	(6)	Thesis Research 4
BMDE 694	(6)	Thesis Research 5
BMDE 695	(12)	Thesis Submission

Ph.D. in Biomedical Engineering

All students must compete a thesis and the Ph.D. Comprehensive (BMDE 700); any additional course work required will be determined on an individual basis by the student's advisor and Graduate Program Director. In addition, students must successfully pass the following research meetings:

1) Preliminary; 2) Thesis Proposal; 3) Thesis Progress; and 4) Thesis Submission. Details of each meeting can be found at: www.bmed.mcgill.ca/require_phd.html.

Ph.D. in Biomedical Engineering– Bioinformatics Option/Concentration**Required Courses**

COMP 616 (3) Bioinformatics Seminar
 BMDE 700 (0) Ph.D. Comprehensive

Any additional course work required will be determined on an individual basis by the student's advisor and Graduate Program Director. In addition, students must successfully pass the following research meetings:

1) Preliminary; 2) Thesis Proposal; 3) Thesis Progress; and 4) Thesis Submission. Details of each meeting can be found at: www.bmed.mcgill.ca/require_phd.html.

Complementary Courses (6 credits)

6 credits from the following courses:

BINF 621 (3) Bioinformatics: Molecular Biology
 BMDE 652 (3) Bioinformatics: Proteomics
 BTEC 555 (3) Structural Bioinformatics
 COMP 618 (3) Bioinformatics: Functional Genomics
 PHGY 603 (3) Systems Biology and Biophysics

11.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. 'Class Schedule' lists courses by term and includes days, times, locations, and names of instructors.

The course credit weight is given in parentheses after the title.

BMDE 500D1 (1.5), BMDE 500D2 (1.5) SEMINARS IN BIOMEDICAL ENGINEERING. (Students must register for both BMDE 500D1 and BMDE 500D2.) (No credit will be given for this course unless both BMDE 500D1 and BMDE 500D2 are successfully completed in consecutive terms)

BMDE 501 SELECTED TOPICS IN BIOMEDICAL ENGINEERING. (3) (3-0-6) An overview of how techniques from engineering and the physical sciences are applied to the study of selected physiological systems and biological signals. Using specific biological examples, systems will be studied using: signal or finite-element analysis, system and identification, modelling and simulation, computer control of experiments and data acquisition.

BMDE 502 BME MODELLING AND IDENTIFICATION. (3) (3-0-6) (Prerequisites: Undergraduate basic statistics and: either BMDE 519, or Signals and Systems (e.g., ECSE 303 & ECSE 304) or equivalent) Methodologies in systems or distributed multidimensional processes. System themes include parametric vs non-parametric system representations; linear/non-linear; noise, transients and time variation; mapping from continuous to discrete models; and relevant identification approaches in continuous and discrete time formulations.

BMDE 503 BIOMEDICAL INSTRUMENTATION. (3) (3-0-6) The principles and practice of making biological measurements in the laboratory, including theory of linear systems, data sampling, computer interfaces, basic electronic circuit design and machining.

BMDE 504 BIOMATERIALS AND BIOPERFORMANCE. (3) (3-0-6) (Restriction: graduate and final-year undergraduate students from physical, biological and medical science, and engineering.) Biological and synthetic biomaterials, medical devices, and the issues related to their bioperformance. The physicochemical characteristics of biomaterials in relation to their biocompatibility and sterilization.

BMDE 505 CELL AND TISSUE ENGINEERING. (3) (3-0-6) (1.5 hours lecture/1.5 hours seminar per week) (Restriction: graduate and final year undergraduate students from physical, biological, and medical science, and engineering.) Application of the principles of engineering, physical, and biological sciences to modify and create cells and tissues for therapeutic applications will be discussed, as well as the industrial perspective and related ethical issues.

BMDE 506 MOLECULAR BIOLOGY TECHNIQUES. (3) (1-5-3) (Prerequisites: MATH 222, BIOL 200 or BIOL 201, CHEM 212 or CHEM 213 or PHYS 253) (Restrictions: Limited to 18 students. Calculus required, physics or physical chemistry (thermodynamics, statistical mechanics) preferred. Primarily for graduate students or advanced undergraduate students in the physical sciences who are interested in learning molecular biology techniques. Preference given to graduate students in Biomedical Engineering and Physics. Students who have completed BIOC 300 or MIMM 366 are not eligible.) Introduction to major techniques of molecular biology for physical scientists.

BMDE 519 BIOMEDICAL SIGNALS AND SYSTEMS. (3) (3-0-6) (Prerequisites: Satisfactory standing in U3 Honours Physiology; or U3 Major in Physics-Physiology; or U3 Major Physiology-Mathematics; or permission of instructor.) An introduction to the theoretical framework, experimental techniques and analysis procedures available for the quantitative analysis of physiological systems and signals. Lectures plus laboratory work using the Biomedical Engineering computer system. Topics include: amplitude and frequency structure of signals, filtering, sampling, correlation functions, time and frequency-domain descriptions of systems.

BMDE 650 ADVANCED MEDICAL IMAGING. (3) (Prerequisite: MDPH 607) Review of advanced techniques in medical imaging including: fast magnetic resonance imaging (MRI), functional MRI, MR angiography and quantitative flow measurement, spiral and dynamic x-ray computed tomography, 2D/3D positron emission tomography (PET), basic PET physiology, tracer kinetics, surgical planning and guidance, functional and anatomical brain mapping, 2D and 3D ultrasound imaging, and medical image processing.

BMDE 651 ORTHOPAEDIC ENGINEERING. (3) (Restriction: Permission of the instructor.) Science and technology related to implants used for various orthopaedic reconstructive procedures, with emphasis on artificial hip and knee joint prostheses.

BMDE 652 BIOINFORMATICS: PROTEOMICS. (3) (Prerequisite: Enrolment in Bioinformatics option program or permission by coordinators.) (Note: The course is inter-disciplinary and is targeted to students with different scientific backgrounds. A substantial portion of marks will be given based on practical assignments.) Overview of high-throughput proteomic technologies commonly employed to study the localization and function of all proteins in an organism, and the bioinformatic approaches to analyze raw data and deposit them in proteome databases.

BMDE 690 THESIS RESEARCH 1. (3)

BMDE 691 THESIS RESEARCH 2. (3)

BMDE 692 THESIS RESEARCH 3. (3)

BMDE 694 THESIS RESEARCH 5. (6)

BMDE 695 THESIS SUBMISSION. (12)

BMDE 700 PH.D. COMPREHENSIVE. (0)

12 Bioresource Engineering

Department of Bioresource Engineering
 Macdonald Campus
 21,111 Lakeshore Road
 Sainte-Anne-de-Bellevue, QC H9X 3V9
 Canada

Telephone: (514) 398-7774

Fax: (514) 398-8387

E-mail: susan.gregus@mcgill.ca

Website: www.mcgill.ca/bioeng

Chair — S.O. Prasher

Graduate Program Director — G.S.V. Raghavan

Associate Graduate Program Director — V. Orsat

12.1 Staff

Emeritus Professor

R.S. Broughton; B.S.A., B.A.Sc.(Tor.), S.M.(MIT), Ph.D.(McG.), LL.D.(Dal.)

Professors

S. Barrington; B.Sc.(Agr. Eng.), Ph.D.(McG.)

R. Kok; B.E.Sc., Ph.D.(W. Ont.)

C.A. Madramootoo; B.Sc.(Agr. Eng.), M.Sc., Ph.D.(McG.) (*James McGill Professor*)

E. McKyes; B.Eng., M.Eng., Ph.D.(McG.)

S.O. Prasher; B.Tech, M.Tech.(Punj.), Ph.D.(Br. Col.), LL.D. (Dal.) (*James McGill Professor*)

G.S.V. Raghavan; B.Eng.(B'lore), M.Sc.(Guelph), Ph.D.(Colo. St.) (*James McGill Professor*)

Associate Professors

R.B. Bonnell; B.Sc.(Geo.), B.Sc.(Agr.Eng.), M.Sc., Ph.D.(McG.)

M.O. Ngadi; B.Eng.(Agr.Eng.), M.A.Sc., Ph.D.(Dal.Tech.) (*William Dawson Scholar*)

Assistant Professors

M. Lefsrud; B.Sc.(Sask.), M.Sc.(Rutgers), Ph.D.(Tenn.)

G. Clark; B.Sc.(Alta.), M.Sc., Ph.D.(McG.)

V. Orsat; B.Sc., M.Sc., Ph.D.(McG.)

Research Associates

Y. Garipey, V. Sosle

12.2 Programs Offered

The Department offers M.Sc. and Ph.D. research programs in various areas of bioresource engineering including: plant and animal environments; ecological engineering (ecosystem modelling, design, management, and remediation); water resources management (hydrology, irrigation, drainage, water quality); agricultural machinery, mechatronics and robotics; food engineering and food processing; postharvest technology; waste management and protection of the environment; artificial intelligence. The Department also offers a Graduate Certificate in Bioresource Engineering (Integrated Water Resources Management).

The interdisciplinary nature of bioresource engineering often requires candidates for higher degrees to work in association with, or attend courses given by, a number of other departments at both the McGill University Macdonald Campus and the Downtown Campus.

12.3 Admission Requirements

Candidates for M.Sc. and Ph.D. degrees and Graduate Certificate should indicate in some detail their fields of special interest when applying for admission. An equivalent cumulative grade point average of 3.0/4.0 (second class-upper division) or 3.2/4.0 during the last two years of full-time university study is required at the Bachelor's level. High grades are expected in courses considered by the academic unit to be preparatory to the graduate program. Experience after the undergraduate degree is an additional asset.

12.4 Application Procedures

Applicants for graduate studies through academic units in the Faculty of Agricultural and Environmental Sciences must forward supporting documents to:

Department of Bioresource Engineering
Macdonald Campus of McGill University
21,111 Lakeshore
Sainte-Anne-de-Bellevue, QC H9X 3V9
Canada

Telephone: (514) 398-7774

Fax: (514) 398-8387

E-mail: susan.gregus@mcgill.ca

Applications will be considered upon receipt of a completed application form, \$80 application fee, and the following supporting documents:

Transcripts -Two official copies of all university level transcripts with proof of degree(s) granted. Transcripts written in a language other than English or French must be accompanied by a certified translation. An explanation of the grading system used by the applicant's university is essential. It is the applicant's responsibility to arrange for transcripts to be sent.

It is desirable to submit a list of the titles of courses taken in the major subject, since transcripts often give code numbers only. Applicants must be graduates of a university of recognized reputation and hold a Bachelor's degree equivalent to a McGill Honours degree in a subject closely related to the one selected for graduate work. This implies that about one-third of all undergraduate courses should have been devoted to the subject itself and another third to cognate subjects.

Letters of Recommendation -Two letters of recommendation on letterhead (official paper) of originating institution or bearing the university seal and with original signatures from two instructors familiar with the applicant's work, preferably in the applicant's area of specialization. It is the applicant's responsibility to arrange for these letters to be sent.

Competency in English Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English, by appropriate exams, e.g., TOEFL (minimum score 550 on the paper-based test, 213 on the computer-based test, or 86 on the Internet-based test with each component score not less than 20) or IELTS (minimum overall band 6.5). The MCHE is not considered equivalent. Results must be submitted as part of the application. The University code is 0935 (McGill University, Montreal); please use department code 31 (graduate schools), Biological Sciences - Agriculture to ensure that your TOEFL reaches this Office without delay.

Graduate Record Exam (GRE) - The GRE is not required, but it is highly recommended.

DOCUMENTS SUBMITTED WILL NOT BE RETURNED.

Application Fee (non-refundable) - A fee of \$80 Canadian must accompany each application (including McGill students), otherwise it cannot be considered. This sum must be remitted using one of the following methods:

1. Credit card (by completing the appropriate section of the application form). NB: online applications must be paid for by credit card.
2. Certified cheque in CDN\$ drawn on a Canadian bank.
3. Certified cheque in U.S.\$ drawn on a U.S. bank.
4. Canadian Money order in CDN\$.
5. U.S. Money Order in U.S.\$.
6. An international draft in Canadian funds drawn on a Canadian bank requested from the applicant's bank in his/her own country.

Deadlines - Applications, including all supporting documents must reach the Department no later than May 15 (March 1 for International) for the *Fall Term (September)*; October 15 (July 1 for International) for the *Winter Term (January)*; February 15 (November 1 for International) for the *Summer Term (May)*. It may be necessary to delay review of the applicant's file until the following admittance period if application materials including supporting documents are received after these dates. International applicants are advised to apply well in advance of the deadline because immigration procedures may be lengthy. Applicants are encouraged to make use of the online application form available on the Web at www.mcgill.ca/applying/graduate.

Financial aid is very limited and highly competitive. It is suggested that students give serious consideration to their financial planning before submitting an application.

Acceptance to all programs depends on a staff member agreeing to serve as the student's supervisor and the student obtaining financial support. Normally, a student will not be accepted unless adequate financial support can be provided by the student and/or the student's supervisor. Academic units cannot guarantee financial support via teaching assistantships or other funds.

Qualifying Students – Some applicants whose academic degrees and standing entitle them to serious consideration for admission to graduate studies, but who are considered inadequately prepared in the subject selected may be admitted to a *Qualifying Program* if they have met the Graduate and Postdoctoral Studies Office minimum CGPA of 3.0/4.0. The course(s) to be taken in a *Qualifying Program* will be prescribed by the academic unit concerned. *Qualifying students* are registered in graduate studies, **but not as candidates for a degree**. Only one qualifying year is permitted. **Successful completion of a qualifying program does not guarantee admission to a degree program.**

12.5 Program Requirements

M.Sc. (Bioresource Engineering)

At least 12 months of full-time study are required for this degree.

M.Sc. in Bioresource Engineering (Thesis) (46 credits)

This option for the M.Sc. degree is oriented towards individuals who intend to develop a career in bioresource engineering research.

Required Courses (5 credits)

BREE 651 (1) Departmental Seminar M.Sc. 1
BREE 652 (1) Departmental Seminar M.Sc. 2
BREE 699 (3) Scientific Publication

Complementary Courses (9 credits)

9 credits of graduate-level course work in bioresource engineering and other fields to be determined in consultation with the research director.

Thesis Component - Required (32 credits)

BREE 691 (4) M.Sc. Thesis 1
BREE 692 (4) M.Sc. Thesis 2
BREE 693 (4) M.Sc. Thesis 3
BREE 694 (4) M.Sc. Thesis 4
BREE 695 (4) M.Sc. Thesis 5
BREE 696 (4) M.Sc. Thesis 6
BREE 697 (4) M.Sc. Thesis 7
BREE 698 (4) M.Sc. Thesis 8

M.Sc. in Bioresource Engineering (Thesis) – Environment Option (46 credits)

Required Courses (11 credits)

BREE 651 (1) Departmental Seminar M.Sc. 1
BREE 652 (1) Departmental Seminar M.Sc. 2
BREE 699 (3) Scientific Publication
ENVR 610 (3) Foundations of Environmental Policy
ENVR 650 (1) Environmental Seminar 1
ENVR 651 (1) Environmental Seminar 2
ENVR 652 (1) Environmental Seminar 3

Complementary Courses (3 credits)

3 credits chosen from:

ENVR 519 (3) Global Environmental Politics
ENVR 544 (3) Environmental Measurement and Modelling
ENVR 580 (3) Topics in Environment 3
ENVR 611 (3) The Economy of Nature
ENVR 620 (3) Environment and Health of Species
ENVR 622 (3) Sustainable Landscapes
ENVR 630 (3) Civilization and Environment 1
ENVR 680 (3) Topics in Environment 4

or another graduate course at the 500-level or higher recommended by the advisory committee and approved by the Environment Option Committee

Thesis Component - Required (32 credits)

BREE 691 (4) M.Sc. Thesis 1
BREE 692 (4) M.Sc. Thesis 2
BREE 693 (4) M.Sc. Thesis 3
BREE 694 (4) M.Sc. Thesis 4
BREE 695 (4) M.Sc. Thesis 5
BREE 696 (4) M.Sc. Thesis 6
BREE 697 (4) M.Sc. Thesis 7
BREE 698 (4) M.Sc. Thesis 8

M.Sc. in Bioresource Engineering (Thesis) – Neotropical Environment Option (46 credits)

Participation in the MSE-Panama Symposium presentation in Montreal is required.

Required Courses (11 credits)

BIOL 640 (3) Tropical Biology and Conservation
BREE 651 (1) Departmental Seminar M.Sc. 1
BREE 652 (1) Departmental Seminar M.Sc. 2
BREE 699 (3) Scientific Publication
ENVR 610 (3) Foundations of Environmental Policy

Complementary Courses (3 credits)

3 credits chosen from:

AGRI 550 (3) Sustained Tropical Agriculture
BIOL 553 (3) Neotropical Environments
BIOL 641 (3) Issues in Tropical Biology
ENVR 611 (3) The Economy of Nature
ENVR 612 (3) Tropical Environmental Issues
ENVR 680 (3) Topics in Environment 4
POLI 644 (3) Tropical Environmental Politics
SOCI 565 (3) Social Change in Panama

Thesis Component - Required (32 credits)

BREE 691 (4) M.Sc. Thesis 1
BREE 692 (4) M.Sc. Thesis 2
BREE 693 (4) M.Sc. Thesis 3
BREE 694 (4) M.Sc. Thesis 4
BREE 695 (4) M.Sc. Thesis 5
BREE 696 (4) M.Sc. Thesis 6
BREE 697 (4) M.Sc. Thesis 7
BREE 698 (4) M.Sc. Thesis 8

M.Sc. in Bioresource Engineering (Non-Thesis) – Integrated Water Resources Management Option (47 credits)

Required Courses (11 credits)

BREE 651 (1) Departmental Seminar M.Sc. 1
BREE 652 (1) Departmental Seminar M.Sc. 2
NRSC 512 (3) Water: Ethics, Law and Policy
NRSC 514 (3) Freshwater Ecosystems
PARA 515 (3) Water, Health and Sanitation

Complementary Courses (30 credits)

At least 3 credits from among:

BREE 533 (3) Water Quality Management
CIVE 550 (3) Water Resources Management

And

The remaining credits, at the 500 level or higher, to 30 from the list available in the Department or other graduate-level courses with the approval of the program director.

Required Project (6 credits)

BREE 671 (6) Project 1

M.Sc. Applied in Bioresource Engineering (Non-Thesis) (45 credits)

The non-thesis option is aimed towards individuals already employed in industry or seeking to improve their skills in specific areas (soil and water/structures and environment/waste

management/and environment protection/post harvest technology/food process engineering/environmental engineering) in order to enter the engineering profession at a higher level. The requirements for a candidate registering for this option are:

Required Courses (2 credits)

BREE 651 (1) Departmental Seminar M.Sc. 1
 BREE 652 (1) Departmental Seminar M.Sc. 2

Complementary Courses (31 credits)

31 credits of 500-level or higher courses in bioresource engineering and other fields* to be determined in consultation with the project director.

*Note: 12 of the 31 credits are expected to be from collaborative departments, e.g. food process engineering: 12 credits divided between Food Science and Chemical Engineering.

Project (minimum 12 credits)

BREE 671 (6) Project 1
 BREE 672 (6) Project 2

Candidates must meet the qualifications of a professional engineer either before or during their M.Sc. Applied program.

Each candidate for this option is expected to establish and maintain contact with his/her academic advisor in the Department of Bioresource Engineering some time before registration in order to clarify objectives, investigate project possibilities and plan a program of study.

M.Sc. Applied in Bioresource Engineering (Non-Thesis) – Environment Option (45 credits)

Required Courses (8 credits)

BREE 651 (1) Departmental Seminar M.Sc. 1
 BREE 652 (1) Departmental Seminar M.Sc. 2
 ENVR 610 (3) Foundations of Environmental Policy
 ENVR 650 (1) Environmental Seminar 1
 ENVR 651 (1) Environmental Seminar 2
 ENVR 652 (1) Environmental Seminar 3

Complementary Courses (25 credits)

3 credits, one of the following courses:

ENVR 519 (3) Global Environmental Politics
 ENVR 544 (3) Environmental Measurement and Modelling
 ENVR 580 (3) Topics in Environment 3
 ENVR 611 (3) The Economy of Nature
 ENVR 620 (3) Environment and Health of Species
 ENVR 622 (3) Sustainable Landscapes
 ENVR 630 (3) Civilization and Environment 1
 ENVR 680 (3) Topics in Environment 4

or another graduate course at the 500-level or higher recommended by the advisory committee and approved by the Environment Option Committee

22 additional credits of 500-level or higher courses chosen in consultation with the academic advisor.

Project (12 credits)

BREE 671 (6) Project 1
 BREE 672 (6) Project 2

Candidates must meet the qualifications of a professional engineer either before or during their M.Sc. Applied program.

M.Sc. Applied in Bioresource Engineering (Non-Thesis) – Neotropical Environment Option (45 credits)

Participation in the MSE-Panama Symposium presentation in Montreal is required.

Required Courses (8 credits)

BIOL 640 (3) Tropical Biology and Conservation
 BREE 651 (1) Departmental Seminar M.Sc. 1
 BREE 652 (1) Departmental Seminar M.Sc. 2
 ENVR 610 (3) Foundations of Environmental Policy

Complementary Courses (25 credits)

3 credits, one of the following courses:

AGRI 550 (3) Sustained Tropical Agriculture

BIOL 553 (3) Neotropical Environments
 BIOL 641 (3) Issues in Tropical Biology
 ENVR 611 (3) The Economy of Nature
 ENVR 612 (3) Tropical Environmental Issues
 ENVR 680 (3) Topics in Environment 4
 POLI 644 (3) Tropical Environmental Politics
 SOCI 565 (3) Social Change in Panama

22 additional credits of 500-level or higher courses chosen in consultation with the academic advisor.

Project (12 credits)

BREE 671 (6) Project 1
 BREE 672 (6) Project 2

M.Sc. Applied in Bioresource Engineering (Non-Thesis) – Environmental Engineering Option (45 credits)

This inter-departmental graduate program leads to a Master's degree in Environmental Engineering. The objective of the program is to train environmental professionals at an advanced level. The program is designed for individuals with an undergraduate degree in engineering. This non-thesis degree falls within the M.Eng and M.Sc. programs which are offered in the Departments of Bioresource, Chemical, Civil, and Mining, Metals and Materials Engineering. The Environmental Engineering program emphasizes interdisciplinary fundamental knowledge, practical perspective and awareness of environmental issues through a wide range of technical and non-technical courses offered by collaborating departments and faculties at the university.

Required Core Courses (9 credits)

BREE 533 (3) Water Quality Management
 CIVE 615 (3) Environmental Engineering Seminar
 CHEE 591 (3) Environmental Bioremediation

Complementary Courses (minimum 19 credits)

Data analysis course: 3 credits from the following:

AEMA 611 (3) Experimental Designs
 CIVE 555 (3) Environmental Data Analysis
 PSYC 650 (3) Advanced Statistics 1

Toxicology course: 3 credits from the following:

OCCH 612 (3) Principles of Toxicology
 OCCH 616 (3) Occupational Hygiene

Water pollution engineering course: 4 credits from the following:

CIVE 651 (4) Theory: Water / Wastewater Treatment
 CIVE 652 (4) Biological Treatment: Wastewaters
 CIVE 660 (4) Chemical and Physical Treatment of Waters

Air pollution engineering course: 3 credits from the following

CHEE 592 (3) Industrial Air Pollution Control
 MECH 534 (3) Air Pollution Engineering
 or an approved graduate-level alternative

Environmental impact course: 3 credits from the following:

GEOG 501 (3) Modelling Environmental Systems
 GEOG 551 (3) Environmental Decisions
 or an approved graduate-level alternative

Environmental policy course: 3 credits from the following:

URBP 506 (3) Environmental Policy and Planning
 or an approved graduate-level alternative

Further complementary courses (balance of course work to meet the 45 credit program requirement):

Remaining engineering or non-engineering courses from an approved list of courses, at the 500 level or higher, from the Faculty of Engineering, Faculty of Agricultural and Environmental Sciences, and Departments of Atmospheric and Oceanic Sciences, Biology, Chemistry, Earth and Planetary Sciences, Economics, Epidemiology and Biostatistics, Geography, Law, Management, Occupational Health, Political Science, Religious Studies, Sociology, and the McGill School of Environment.

The following project course may also be taken as part of this requirement:

BREE 671 (6) Project 1

Required Project (6 credits)

BREE 672 (6) Project 2

Ph.D. in Bioresource Engineering

Candidates for the Ph.D. degree will normally register for the M.Sc. degree first. In cases where the research work is proceeding very satisfactorily, or where the equivalent of the M.Sc. degree has been completed previously, candidates may be permitted to proceed directly to the Ph.D. degree.

Required Courses (0 credits)

BREE 701 (0) Ph.D. Comprehensive Examination taken either late in the first, or early in the second, registration year to qualify to proceed to the completion of the Ph.D. degree.

BREE 751 (0) Departmental Seminar Ph.D. 1

BREE 752 (0) Departmental Seminar Ph.D. 2

BREE 753 (0) Departmental Seminar Ph.D. 3

BREE 754 (0) Departmental Seminar Ph.D. 4

Complementary Courses

Courses of study selected for a Ph.D. program will depend on the existing academic qualifications of the candidate, and on those needed for effective pursuit of research in the chosen field.

Candidates are encouraged to take an additional course of study of their own choice in some field of the humanities, sciences or engineering not directly related to their research. The program will be established by consultation of the candidate with a committee that will include the Research Director and at least one other professor.

Thesis

Satisfactory completion of a Ph.D. thesis.

Ph.D. in Bioresource Engineering – Environment Option**Required Courses** (6 credits)

BREE 701 (0) Ph.D. Comprehensive Examination taken either late in the first, or early in the second, registration year to qualify to proceed to the completion of the Ph.D. degree.

BREE 751 (0) Departmental Seminar Ph.D. 1

BREE 752 (0) Departmental Seminar Ph.D. 2

BREE 753 (0) Departmental Seminar Ph.D. 3

BREE 754 (0) Departmental Seminar Ph.D. 4

ENVR 610 (3) Foundations of Environmental Policy

ENVR 650 (1) Environmental Seminar 1

ENVR 651 (1) Environmental Seminar 2

ENVR 652 (1) Environmental Seminar 3

Complementary Courses

One course chosen from:

ENVR 519 (3) Global Environmental Politics

ENVR 544 (3) Environmental Measurement and Modelling

ENVR 580 (3) Topics in Environment 3

ENVR 611 (3) The Economy of Nature

ENVR 620 (3) Environment and Health of Species

ENVR 622 (3) Sustainable Landscapes

ENVR 630 (3) Civilization and Environment 1

ENVR 680 (3) Topics in Environment 4

or another graduate course at the 500-level or higher recommended by the advisory committee and approved by the Environment Option Committee

Thesis

Satisfactory completion of a Ph.D. thesis.

Ph.D. in Bioresource Engineering – Neotropical Environment Option

Participation in the MSE-Panama Symposium presentation in Montreal is required.

Required Courses (6 credits)

BIOL 640 (3) Tropical Biology and Conservation

BREE 701 (0) Ph.D. Comprehensive Examination

taken either late in the first, or early in the second, registration year to qualify to proceed to the completion of the Ph.D. degree.

BREE 751 (0) Departmental Seminar Ph.D. 1

BREE 752 (0) Departmental Seminar Ph.D. 2

BREE 753 (0) Departmental Seminar Ph.D. 3

BREE 754 (0) Departmental Seminar Ph.D. 4

ENVR 610 (3) Foundations of Environmental Policy

Complementary Courses

3 credits, one of the following courses:

AGRI 550 (3) Sustained Tropical Agriculture

BIOL 553 (3) Neotropical Environments

BIOL 641 (3) Issues in Tropical Biology

ENVR 611 (3) The Economy of Nature

ENVR 612 (3) Tropical Environmental Issues

ENVR 680 (3) Topics in Environment 4

POLI 644 (3) Tropical Environmental Politics

SOCI 565 (3) Social Change in Panama

Thesis

Satisfactory completion of a Ph.D. thesis.

Graduate Certificate in Bioresource Engineering – Integrated Water Resources Management (15 credits)**Required Courses** (9 credits)

NRSC 512 (3) Water: Ethics, Law and Policy

NRSC 514 (3) Fresh Water Ecosystems

PARA 515 (3) Water, Health and Sanitation

Complementary Courses (6 credits)

3 credits from the following:

BREE 533 (3) Water Quality Management

CIVE 550 (3) Water Resources Management

and 3 credits from the list available in the Department chosen in consultation with the academic advisor.

12.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

The course credit weight is given in parentheses after the title.

BREE 501 SIMULATION AND MODELLING. (3) (Restrictions: U3 students and above. Not open to students who have taken ABEN 612 or ABEN 501.) Modelling, physical and virtual models of linear, chaotic and stochastic systems, simulation techniques and methods for static and dynamic models, steady and unsteady state. Examples from various areas such as machine design, population dynamics, food processing, biological control, farm management, ecological system design. Mathematics and computer oriented - students must be familiar with microcomputer operation.

BREE 502 DRAINAGE/IRRIGATION ENGINEERING. (3) (Prerequisite: BREE 217 (formerly ABEN 217)) (Restrictions: U3 students and above. Not open to students who have taken ABEN 611 or ABEN 502.) Benefits and importance of drainage; types of drainage systems; design and construction of main, surface and subsurface drainage systems; drainage materials. Crop water requirements; evapotranspiration models; design and layout of surface, sprinkler and drip irrigation systems; pipe hydraulics; pumps.

BREE 504 INSTRUMENTATION AND CONTROL. (3) (3 lectures and one 2-hour lab) (Prerequisite (Undergraduate): BREE 312 (formerly ABEN 312) or ECSE 281) (Restriction: Not open to students who have taken ABEN 504.) Principles and operation of

instrument systems used for measurement and control in agricultural processes and research.

BREE 506 ADVANCES IN DRAINAGE MANAGEMENT. (3) (3 weeks intensive course) (Restriction: Not open to students who have taken ABEN 506.) Land drainage in relation to soils and crops. Design of regional drainage systems, stability of ditches, ice problems. Design of subsurface drainage systems. Theories of flow into drain tubes. Hydraulics of wells. Drainage of irrigated lands. Water table control.

BREE 509 HYDROLOGIC SYSTEMS AND MODELLING. (3) (3 hour lectures) (Restriction: Not open to students who have taken ABEN 509.) Use of deterministic and stochastic models to analyze components of the hydrologic cycle on agricultural and forested watersheds, floods frequency analysis, hydrograph analysis, infiltration, runoff, overland flow, flood routing, erosion and sediment transport. Effects of land-use changes and farm and recreational water management systems on the hydrologic regime.

BREE 510 WATERSHED SYSTEMS ENGINEERING. (3) (3-1-5) (Restrictions: U3 students or above.) (Note: Case studies and a project.) An examination and application of methodologies, tools and algorithms used in environmental systems engineering with an emphasis on allocation of resources within a watershed. Skills addressed include systematic evaluation of alternatives, identification of tradeoffs and assessment of the degree of optimality of design or alternatives.

BREE 512 SOIL CUTTING AND TILLAGE. (3) (2 lectures and one 2-hour lab) (Prerequisite (Undergraduate): BREE 341 (formerly ABEN 341)) (Restriction: Not open to students who have taken ABEN 512.) Soil mechanics applied to cutting, tillage and drain installation tools. Soil cutting forces for two and three dimensional implements. Soil loosening, inversion, sorting and manipulation. Selection of traction machines to match soil cutting and tillage requirements. Depth and grade control systems. Analysis of drainage machines, wheel trenchers, chain trenchers and trenchless plows.

BREE 515 SOIL HYDROLOGIC MODELLING. (3) (3 lectures and one 3-hour lab) (Restriction: Not open to students who have taken ABEN 515.) A review of computer simulation models for designing subsurface drainage systems. Use of CAD systems for designing and drafting drainage plans.

BREE 518 BIO-TREATMENT OF WASTES. (3) (One 3 hour lecture) (Restriction: Not open to students who have taken ABEN 518.) Special topics concerning control of pollution agents from the agricultural industry; odour control, agricultural waste treatment including biological digestion, flocculants, land disposal and sedimentation, pesticide transport.

BREE 519 ADVANCED FOOD ENGINEERING. (3) (3 lectures and one 2-hour lab) (Prerequisites: BREE 325 (formerly ABEN 325) and MECH 426, or permission of instructor) (Restriction: Not open to students who have taken ABEN 519.) Advanced topics in food engineering. Concepts of mathematical modeling and research methodologies in food engineering. Topics include heat and mass transfer in food systems, packaging and distribution of food products, thermal and non-thermal processing, rheology and kinetics of food transformations.

BREE 525 CLIMATE CONTROL FOR BUILDINGS. (3) (3 lectures and one 3-hour lab) (Prerequisite: BREE 301 (formerly ABEN 301)) (Restriction: U3 students or above. Not open to students who have taken ABEN 525.) The analyses of heat and water vapour transfer through the structure of buildings are used to design heating, ventilation and refrigeration systems. Heat conduction and convection as well as radiation are included in the analysis of heat transfer. Ventilation systems are designed for livestock shelters, produce storages and greenhouses.

BREE 530 FERMENTATION ENGINEERING. (3) (3 lectures and one 3-hour lab) (Prerequisite (Undergraduate): BREE 325 (formerly ABEN 325) or equivalent) (Graduate courses available to senior undergraduates with permission of the instructor) (Restriction: Not open to students who have taken ABEN 530.) Advanced topics in

food and fermentation engineering are covered, including brewing, bioreactor design and control and microbial kinetics.

BREE 531 POST-HARVEST DRYING. (3) (Restrictions: U3 students or above. Not open to students who have taken ABEN 621 or ABEN 531.) Heat and moisture transfer with respect to drying of agricultural commodities; techniques of enhancement of heat and mass transfer; drying efficiency and scale-up problems.

BREE 532 POST-HARVEST STORAGE. (3) (Restrictions: Not open to students who have taken ABEN 622 or ABEN 532.) Active, semi-passive and passive storage systems; environmental control systems; post-harvest physiology and pathogenicity; quality assessment and control methodology; economic aspects of long-term storage.

BREE 533 WATER QUALITY MANAGEMENT. (3) (Restriction: Not open to students who have taken BREE 625 (formerly ABEN 625).) Management of water quality for sustainability. Cause of soil degradation, surface and groundwater contamination by agricultural chemicals and toxic pollutants. Screening and mechanistic models. Human health and safety concerns. Water table management. Soil and water conservation techniques will be examined with an emphasis on methods of prediction and best management practices.

BREE 607 ENGINEERING ASPECTS OF PLANT ENVIRONMENT. (3) (3 lectures) (Restriction: Not open to students who have taken ABEN 607.) Advances in soil-water-plant dynamics, topsoil and subsoil compaction, measurement techniques, methods of alleviating compaction, economic analysis.

BREE 608 SPECIAL PROBLEMS IN BIORESOURCE ENGINEERING 1. (3) (2 conferences, either term) (Restriction: Not open to students who have taken ABEN 608.) Laboratory, field and library studies and reports on special problems related to agricultural and biosystems engineering that are not covered in regular course work.

BREE 616 ADVANCED SOIL AND WATER ENGINEERING. (3) (3 lectures) (Restriction: Not open to students who have taken ABEN 616.) Derivation of the governing partial differential equations for both steady and unsteady 3-D flow of groundwater through variably saturated, heterogeneous, anisotropic deformable media, finite difference techniques, numerical method of lines, computer programs, stochastic methods in soil and water engineering.

BREE 623 PROPOSAL PREPARATION. (3) (3 hours conferences) (Restriction: Not open to students who have taken ABEN 623.) Critiques of proposals prepared by others. Preparation and defense of draft proposals for funding agencies.

BREE 651 DEPARTMENTAL SEMINAR M.Sc. 1. (1) (Restriction: Not open to students who have taken ABEN 651.) To give seminars and participate in discussions.

BREE 652 DEPARTMENTAL SEMINAR M.Sc. 2. (1) (Restriction: Not open to students who have taken ABEN 652.) To give seminars and participate in discussions.

BREE 671 PROJECT 1. (6) (Restriction: Not open to students who have taken ABEN 671 or ABEN 671D1/D2.) Supervised research project.

BREE 672 PROJECT 2. (6) (Restriction: Not open to students who have taken ABEN 672 or ABEN 672D1/D2.) Supervised research project.

BREE 672D1 (3), BREE 672D2 (3) PROJECT 2. (Students must register for both ABEN 672D1 and ABEN 672D2.) (No credit will be given for this course unless both ABEN 672D1 and ABEN 672D2 are successfully completed in consecutive terms) (ABEN 672D1 and ABEN 672D2 together are equivalent to ABEN 672) (Restriction: Not open to students who have taken ABEN 672 or ABEN 672D1/D2.) Prepare project outline, execute and report. This project relates to the M.Sc. (Applied) degree.

BREE 673 PROJECT 3. (3) Supervised research project.

BREE 691 M.Sc. THESIS 1. (4) (Restriction: Not open to students who have taken ABEN 691.) Problem definition and literature Review.

BREE 692 M.Sc. THESIS 2. (4) (Restriction: Not open to students who have taken ABEN 692.)

BREE 693 M.Sc. THESIS 3. (4) (Restriction: Not open to students who have taken ABEN 693.) Methodology development.

BREE 694 M.Sc. THESIS 4. (4) (Restriction: Not open to students who have taken ABEN 694.) Experimentation 1.

BREE 695 M.Sc. THESIS 5. (4) (Restriction: Not open to students who have taken ABEN 695.) Experimentation 2.

BREE 696 M.Sc. THESIS 6. (4) (Restriction: Not open to students who have taken ABEN 696.) Data analysis.

BREE 697 M.Sc. THESIS 7. (4) (Restriction: Not open to students who have taken ABEN 697.) Draft thesis preparation.

BREE 698 M.Sc. THESIS 8. (4) (Restriction: Not open to students who have taken ABEN 698.) Thesis completion and acceptance.

BREE 699 SCIENTIFIC PUBLICATION. (3) (Periodic conferences) (Restriction: Not open to students who have taken ABEN 699.) Review and critique papers that are published in field of the candidate. Prepare draft paper(s) following the format of leading journals in field of study undertaken.

BREE 701 Ph.D. COMPREHENSIVE EXAMINATION. (0) (Restriction: Not open to students who have taken ABEN 701.)

BREE 702 SPECIAL PROBLEMS IN BIORESOURCE ENGINEERING 2. (3) (2 conferences, either term) (Restriction: Not open to students who have taken ABEN 702.) Advanced level laboratory, field and library studies and reports on special problems related to agricultural and biosystems engineering which are not covered in regular course work. Designed for doctoral level students with experience in postgraduate studies.

BREE 751 DEPARTMENTAL SEMINAR Ph.D. 1. (0) (Restriction: Not open to students who have taken ABEN 751.) To give seminars and participate in discussions.

BREE 752 DEPARTMENTAL SEMINAR Ph.D. 2. (0) (Restriction: Not open to students who have taken ABEN 752.) To give seminars and participate in discussions.

BREE 753 DEPARTMENTAL SEMINAR Ph.D. 3. (0) (Restriction: Not open to students who have taken ABEN 753.) To give seminars and participate in discussion.

BREE 754 DEPARTMENTAL SEMINAR Ph.D. 4. (0) (Restriction: Not open to students who have taken ABEN 754) To give seminars and participate in discussions.

13 Chemical Engineering

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Chair — D. Berk

13.1 Staff

Professors

D.G. Cooper; B.Sc., Ph.D.(Tor.)
R.J. Munz; B.A.Sc., M.A.Sc.(Wat.), Ph.D.(McG.), Eng.
A.D. Rey; B.Ch.E. (C.C.N.Y.), Ph.D.(Calif.), (*James McGill Professor*)

Associate Professors

D. Berk; B.Sc.(Bosphorus), M.E.Sc.(W. Ont.), Ph.D.(Calg.), P.Eng.
S. Coulombe; B.Sc., M.Sc.A.(Sher.), Ph.D.(McG.), Jr. Eng. (*CRC-Tier II*)

J.-L. Meunier; D.Ing.(E.P.F.L.), M.Sc., Ph.D.(I.N.R.S.), Eng.
S. Omanovic; B.Sc., Ph.D.(Zagreb)
T.M. Quinn; B.Sc.(Qu.), S.M., Ph.D.(M.I.T.)

Assistant Professors

R.J. Hill; B.E.(Auck.), Ph.D.(C'nell), (*CRC-Tier II*)
E. Jones; B.A.Sc.(Wat.), M.S., Ph.D.(Cal. Tech.)
R.L. Leask; B.A.Sc., M.A.Sc.(Wat.), Ph.D.(Tor.), P.Eng., (*William Dawson Scholar*)
M. Maric; B.Eng. & Mgmt.(McM.), Ph.D.(Minn.), P.Eng.
P.D. Servio; B.A.Sc., Ph.D.(Br. Col.) (*CRC-Tier II*)
N. Tufenkji; B.Eng.(McG.), M.Sc., Ph.D.(Yale), Jr. Eng. (*CRC-Tier II*)
V. Yargeau; B.Ch.E., M.Sc.A., Ph.D.(Sher.), Eng.

Emeritus Professors

J.M. Dealy; B.S.(Kansas), M.S.E., Ph.D.(Mich.), Eng.
M.R. Kamal; B.S.(Ill.), M.S., Ph.D.(Carn. Mell), Eng.
J.H. Vera; B.Mat (Chile), Ing.Quim.(U.T.E.), M.S.(Calif.),
Dr.Ing.(Santa Maria), Eng.
M.E. Weber; B.S.E.(Princ.), Sc.D.(MIT), P.Eng.

Paprican Adjunct Professor

G.J. Kubes; B.Sc., M.Sc.(Prague), Ph.D.(Bratislava), P.Eng.

Adjunct Professors

P. Bisailon, M. Davidovsky, A. DeMori, D. Dionne, M. Fokas,
G. Kubes, D.J. McKeagan, M. Mirmehrabi, M. Perrier, B. Sarkis,
R.C. Urquhart

13.2 Programs Offered

The Department offers programs leading to the Master of Engineering and the Doctor of Philosophy degrees.

Two options are available for the M.Eng. degree: the thesis option and the project option. The M.Eng. (Thesis) is a research-oriented degree requiring a limited number of courses and a research thesis; the M.Eng. (Project) is a course-oriented degree which includes a project. A specialized version of the M.Eng. (Project) is also offered: M.Eng. (Project - Environmental Engineering).

The Ph.D. is a research degree requiring a thesis which makes a distinct contribution to knowledge.

The Department's offices and research laboratories are located in the M.H. Wong Building, which was completed in 1996. Members of the Department are active in a number of research areas, including transport phenomena, separation processes, thermodynamics, chemical reaction engineering and catalysis, colloidal phenomena, experimental and computational materials science, electrochemistry, nanotechnology, plasma technology, advanced materials synthesis, polymer science and engineering, biochemical engineering, biotechnology, biomedical engineering, biomechanics, nanotechnology, sustainable energy development, gas hydrate systems, and environmental engineering. Most professors are members of one or more research groups.

Biotechnology research in the department includes the development of new processes/products, the environmental impact of biotransformation, the biodegradation of pharmaceuticals and biomedical applications. Strong collaborations in these research areas exist with other engineering departments, the Faculty of Medicine and the Montreal Heart Institute. Research in biomedical engineering also includes development and characterization of devices and biomaterials for human implants and biosensors, and the study of biofilm formation on biomaterials.

Research in Plasma Technology includes fundamental studies in transport phenomena, reaction kinetics, optical emission and laser-absorption spectroscopy, and reactor design, as well as applied studies in plasma processing for environmental and biomedical engineering applications, advanced materials synthesis, and coating generation. Close collaboration is maintained with other Quebec universities through Plasma-Québec, a FQRNT *Regroupement Stratégique*.

Research related to the Environment is pursued on many fronts; for example, the plasma treatment of lithium batteries for recycling, the biodegradation of pesticides, and a number of

projects considering the fate of plasticizers, chlorinated hydrocarbons and polymers in the environment. Other projects involve electrochemical treatment of wastewater, the transport and fate of microbial pathogens and other contaminants in the environment, development of environmentally-friendly corrosion inhibitors, degradation of pharmaceuticals in wastewater, etc.

Research in Computational Materials Science is a science-based program that seeks to design and control materials, products, and processes using molecular, mesoscopic, and macroscopic computational modeling. This work is in close collaboration with the National Science Foundation Center for Advanced Engineering Fibers and Films at Clemson University. The research in Computational Biomaterials Science seeks to understand the fundamental natural principles that lead to advanced materials such as super strong spider silk fibers, natural foams, and biolubricants.

Research in colloids and interface science brings together a variety of theoretical, computational and experimental 'tools'. Current efforts are focused on the development of a novel optical-tweezer/micro-electrophoresis apparatus for probing the dynamics of "fuzzy" colloidal particles, and development of experiments and theory for studying the organization and dynamics of synthetic polymers grafted to lipid-bilayer membranes. The broader objectives are to understand in detail how macromolecules forming "soft" interfaces influence colloidal dynamics and equilibria.

13.3 Admissions Requirements

Admission to graduate study requires a minimum CGPA of 3.0/4.0 (or equivalent) for the complete Bachelor's program or a minimum GPA of 3.2/4.0 (or equivalent) in the last two years of full-time studies. Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must achieve a minimum TOEFL score of 90 on the Internet-based test with each component score not less than 20 (577 on the paper-based test or 233 on the computer-based test) prior to admission.

M.Eng. (Thesis), M.Eng. (Project)

Admission requires a Bachelor's degree (or equivalent) in engineering or science disciplines.

Ph.D.

Admission requires a Master's degree (or equivalent) from a recognized university. Students in the Department's M.Eng. (Thesis) program may transfer to the Ph.D. program after one year without submitting the Master's thesis following a formal "fast track" procedure.

13.4 Application Procedures

The application procedure is outlined on the Web at www.mcgill.ca/chemeng/grad/application. Full applications will be considered when the Graduate Admissions Committee has received:

1. application form of the Graduate and Postdoctoral Studies Office (www.mcgill.ca/applying/graduate);
2. two official transcripts;
3. two letters of reference;
4. application fee of \$80 Canadian;
5. TOEFL test results (if required).

Application deadlines differ for International (and Permanent Resident) students, to allow time to obtain a visa.

Deadlines for Canadian (and Permanent Resident) applicants:
 June 1 for September (Fall term) admission,
 October 1 for January (Winter term) admission,
 March 1 for May (Summer term) admission.

Deadlines for International applicants:
 March 1 for September (Fall term) admission,

August 1 for January (Winter term) admission,
 December 15 for May (Summer term) admission.

13.5 Program Requirements

M.Eng.

The Master's degrees require the completion of 45 credits and three terms of residence at McGill.

M.Eng. (Thesis)

Complementary Courses: 12 credits of graduate courses (500- or 600-level). A minimum of 2 courses in Chemical Engineering (3 or 4 credits each), one of which is from the Chemical Engineering Fundamentals; the remainder in chemical engineering, other engineering or science disciplines.

Research: 33 credits which include completion of a thesis proposal, presentation of a research seminar and submission of a thesis.

Chemical Engineering Fundamentals Courses

CHEE 611	(4)	Heat and Mass Transfer
CHEE 621	(4)	Thermodynamics
CHEE 631	(4)	Foundations of Fluid Mechanics
CHEE 641	(4)	Chemical Reaction Engineering
CHEE 662	(4)	Computational Methods
CHEE 672	(4)	Process Dynamics and Control

Research Courses (33 credits)

CHEE 697	(6)	Thesis Proposal
CHEE 698	(12)	Thesis Research 1
CHEE 699	(15)	Thesis Research 2

M.Eng. (Non-Thesis or Project)

Courses: 33-39 credits (a minimum of 18 credits in Chemical Engineering).

Project: (design or research): 6-12 credits.

The M.Eng. (Project) follows the above distribution between courses and project.

The requirements for the specialization in Environmental Engineering are provided below.

M.Eng. in Chemical Engineering (Non-Thesis) Environmental Engineering (45 credits)

Required Core Courses (6 credits)

CIVE 615	(3)	Environmental Engineering Seminar
CHEE 591	(3)	Environmental Bioremediation

Complementary Courses (minimum 22 credits)

Data analysis course:

AEMA 611 or	(3)	Experimental Designs
CIVE 555 or	(3)	Environmental Data Analysis
PSYC 650	(3)	Advanced Statistics 1

Toxicology:

OCCH 612 or	(3)	Principles of Toxicology
OCCH 616	(3)	Occupational Hygiene

Water pollution engineering:

CIVE 651 or	(4)	Theory: Water / Wastewater Treatment
CIVE 652 or	(4)	Biological Treatment: Wastewaters
CIVE 660	(4)	Chemical and Physical Treatment of Waters

Air pollution engineering:

CHEE 592 or	(3)	Industrial Air Pollution Control
MECH 534	(3)	Air Pollution Engineering

Soil and water quality management:

BREE 533	(3)	Water Quality Management
CIVE 686	(4)	Site Remediation

Environmental impact course:

GEOG 501	(3)	Modelling Environmental Systems
GEOG 551	(3)	Environmental Decisions

or approved graduate-level alternative

Environmental policy course:

URBP 506 (3) Environmental Policy and Planning
or approved graduate-level alternative

Elective courses (minimum 11 credits)

Another project course and/or engineering or non-engineering
graduate courses subject to approval.

The relevant Project course in Chemical Engineering is:

CHEE 696 (6) Extended Project

Required Project Course (6 credits)

CHEE 695 (6) Project in Chemical Engineering

Ph.D.

The Ph.D. requires three years of residence at McGill.

Thesis: A thesis examined according to procedures of the
Graduate and Postdoctoral Studies Office.

Proficiency in English: A student not fluent in English must take
appropriate English courses until his/her research supervisor is
satisfied with the student's level of English.

Seminars: Presentation of two seminars to the Department; the
first as required by CHEE 797 (see Research Courses below),
the second nearing the completion of the thesis.

Coursework: Completion of the courses listed below.

Research Courses

CHEE 795 (0) Ph.D. Thesis Proposal

CHEE 796 (0) Ph.D. Proposal Defence

CHEE 797 (0) Ph.D. Seminar

Lecture courses: Two graduate Chemical Engineering courses
(500- and 600- level, 3 or 4 credits each).

Three courses from the List of Chemical Engineering Fundamentals
Courses must be taken during the Master's and Ph.D. pro-
grams combined. Two of these courses, if taken during the
Ph.D. program, can be used to meet the coursework require-
ment for the Ph.D.

List of Chemical Engineering Fundamentals Courses

CHEE 611 (4) Heat and Mass Transfer

CHEE 621 (4) Thermodynamics

CHEE 631 (4) Foundations of Fluid Mechanics

CHEE 641 (4) Chemical Reaction Engineering

CHEE 662 (4) Computational Methods

CHEE 672 (4) Process Dynamics and Control

13.6 Courses

Students preparing to register should consult the Web at
www.mcgill.ca/minerva (click **Class Schedule**) for the most up-
to-date list of courses available; courses may have been
added, rescheduled or cancelled after this Calendar went to
press. **Class Schedule lists courses by term and includes
days, times, locations, and names of instructors.**

The course credit weight is given in parentheses after the title.

☐ Denotes limited enrolment

CHEE 541 ELECTROCHEMICAL ENGINEERING. (3) (3-0-6) (Prerequi-
site: CHEE 310 or permission of instructor.) (Restriction: Not open
to students who have taken CHEE 489.) Electrochemical systems:
electrodes, reactors. Electrochemical stoichiometry, thermody-
namics and kinetics. Mass and charge transport. Current and
potential distribution in an electrochemical reactor. Electrocataly-
sis. Fuel cells technology. Batteries. Industrial electrochemical
processes. Electrochemical sensors. Biomedical electrochemis-
try. Passivity, corrosion and corrosion prevention. Electrocrystal-
lization. Experimental Methods.

CHEE 543 PLASMA ENGINEERING. (3) (3-1-5) (Prerequisites:
CHEE 220 and CHEE 314 or equivalent.) Description of the
plasma state and parameters, plasma generation methods, and of
the related process control and instrumentation. Electrical break-
down in gases and a series of discharge models are covered.
Plasma processing applications such as PVD, PECVD, plasma

polymerisation and etching, environmental applications, nanopar-
ticle synthesis, spraying and sterilization are treated.

☐ **CHEE 563 BIOFLUIDS AND CARDIOVASCULAR MECHANICS.** (3)
(3-0-6) (Prerequisites: CHEE 314 or MECH 331 or permission of
instructor.) (Restriction: Not open to students who have taken
MECH 563.) Basic principles of circulation including vascular fluid
and solid mechanics, modeling techniques, clinical and experi-
mental methods and the design of cardiovascular devices.

**CHEE 571 SMALL COMPUTER APPLICATIONS: CHEMICAL ENGINEER-
ING.** (3) (3-0-6) (Prerequisite: CHEE 458 or permission of the
instructor.) The use of small computers employing a high level
language for data acquisition and the control of chemical pro-
cesses. Real-time system characteristics and requirements, ana-
log to digital, digital to analog conversions and computer control
loops are examined. Block level simulation.

CHEE 582 POLYMER SCIENCE & ENGINEERING. (3) (3-0-6) (Prereq-
uisite: CHEE 314 or equivalent.) (Restriction: Not open to students
who have taken CHEE 481.) Application of engineering fundamen-
tals to the preparation and processing of polymers emphasizing
the relationship between polymer structure and properties. Topics
include: polymer synthesis techniques, characterization of molec-
ular weight, crystallinity, glass transition, phase behaviour,
mechanical properties, visco-elasticity, rheology, and polymer
processing for use in blends and composite materials.

CHEE 584 POLYMER PROCESSING. (3) (3-0-6) (Corequisite: CHEE
215 or MIME 356 or equivalent.) (Restriction: Not open to students
who have taken CHEE 684.) Survey of polymer processing oper-
ations with emphasis on the application of polymer rheology and
transport phenomena to predict performance, including polymer
rheology and constitutive equations, mixing, extrusion, injection
molding, coating flows, fiber spinning, film blowing, blow molding,
compression molding, thermoforming and composites processing.

CHEE 585 FOUNDATIONS OF SOFT MATTER. (3) (3-0-6) Introduction
to soft condensed matter. Atomic and molecular origins of hydro-
dynamics and elasticity. Microscale order and disorder, phase
transitions and dynamics. Polymer solutions, melts and gels. Sur-
factants, self-assembled structures, and fluid membranes. Colloidal
dispersions, their dynamics, gels and crystals. Liquid crystals.
Integration of the foregoing topics with modern experimental tech-
niques in soft-matter research.

CHEE 591 ENVIRONMENTAL BIOREMEDIATION. (3) (3-0-6) The pres-
ence and role of microorganisms in the environment, the role of
microbes in environmental remediation either through natural or
human-mediated processes, the application of microbes in pollu-
tion control and the monitoring of environmental pollutants.

CHEE 592 INDUSTRIAL AIR POLLUTION CONTROL. (3) (3-0-6) (Pre-
requisite: CHEE 314 or permission of instructor.) (Restriction: Not
open to students who have taken CHEE 472.) Air pollution effects,
control laws and regulations, measurements; emission estimates,
meteorology for air pollution control engineers, dispersion models,
nature of particulate pollutants, control of primary particulates,
control of volatile organic compounds, sulfur oxides and nitrogen
oxides; air pollutants and global climate.

CHEE 593 INDUSTRIAL WATER POLLUTION CONTROL. (3) (3-0-6)
(Prerequisite: CHEE 314 or equivalent.) (Restriction: Not open to
students who have taken CHEE 471.) Wastewater constituents of
concern; legislation pertinent to wastewater treatment; wastewater
sampling and analysis techniques; process analysis and selection;
physical, chemical and biological processes; advanced wastewa-
ter treatment methods; integration of sciences and engineering
principles to design wastewater treatment processes.

CHEE 594 BIOCOLLOIDS IN ENVIRONMENTAL SYSTEMS. (3) (3-0-6)
(Prerequisite: CHEE 315 or equivalent.) Principles of colloid chem-
istry for solid-liquid separations of environmental interest: (i) trans-
port and fate of biocolloids and colloid-associated contaminants in
waters and solids, and (ii) membrane-based water and wastewater
filtration. Topics include: biocolloid-surface interactions, mem-
brane process design, fouling and biofouling, experimental tech-
niques, novel research developments.

CHEE 595 ENERGY RECOVERY, USE, & IMPACT. (3) (3-0-6) (Prerequisite: CHEE 423 or permission of instructor.) Application of chemical engineering fundamentals to energy recovery, conversion, and environmental impact. Topics include thermodynamics of fossil fuel deposits, reaction engineering of fuel upgrading, power generation, operation of power sources, production/use of alternative fuels, environmental impact and pollution mitigation technologies dealing with energy use.

CHEE 611 HEAT AND MASS TRANSFER. (4) Heat and mass transfer in laminar and turbulent flows; scaling; models for interphase transport.

CHEE 621 THERMODYNAMICS. (4) Theory and application of phase and chemical equilibria in multicomponent systems.

CHEE 631 FOUNDATIONS OF FLUID MECHANICS. (4) Rigorous derivation of equations of motion; creeping flow inviscid flow; boundary layer theory; hydrodynamic stability; turbulent flow, separated flows, drag on submerged bodies.

CHEE 641 CHEMICAL REACTION ENGINEERING. (4) Interpretation of chemical reaction data, especially for heterogeneous systems. Residence time, complete segregation, maximum mixedness, other advanced concepts. Reactor design.

CHEE 643 THERMAL PLASMA TECHNOLOGY. (3) (Prerequisite: Permission of the instructor) An introduction to thermal (high temperature) plasmas as applied to chemical and materials engineering. Degree of ionization, velocity distribution function, plasma parameters, collisions and diffusion, energy states, plasma generation, diagnostic techniques for plasma and particles, particle-plasma interaction, mathematical modelling of plasma systems, applications.

CHEE 662 COMPUTATIONAL METHODS. (4) Methods of weighted residuals; solution to non-linear algebraic equations; stability in nonlinear equations; bifurcations; mesh refinement strategies; convection dominated transport; hyperbolic equations, particle simulation methods.

CHEE 672 PROCESS DYNAMICS AND CONTROL. (4) (Prerequisite: CHEE 455) Process representation and identification and simulation; sensor stability; sensitivity of feedback control systems; feedforward control; discrete representation of continuous systems; controller tuning; adaptive control.

CHEE 690 RESEARCH TECHNIQUES. (3) This course introduces techniques and develops skills necessary for commencing a particular thesis research project. A written report is required.

CHEE 694 ORAL PRESENTATION SKILLS. (1) Basic technical presentation skills used during graduate studies and career. Topics include: preparation and delivery of technical seminars, lectures and tutorials, analysis of and positive feedback on seminars, lectures and tutorials and individual and group rehearsals.

CHEE 695 PROJECT IN CHEMICAL ENGINEERING. (6) Independent work under the general direction of a full-time staff member, on a problem of industrially-oriented design or research leading to a comprehensive report.

CHEE 696 EXTENDED PROJECT. (6) Extended independent work on a problem of industrially-oriented design or research, leading to a comprehensive project report.

CHEE 697 THESIS PROPOSAL. (6) Independent work under the supervision of the thesis advisor(s) leading to a thesis proposal.

CHEE 698 THESIS RESEARCH 1. (12) Ongoing research pertaining to thesis.

CHEE 698N1 THESIS RESEARCH 1. (6) (Students must also register for CHEE 698N2) (No credit will be given for this course unless both CHEE 698N1 and CHEE 698N2 are successfully completed in a twelve month period) (CHEE 698N1 and CHEE 698N2 together are equivalent to CHEE 698) Ongoing research pertaining to thesis.

CHEE 698N2 THESIS RESEARCH 1. (6) (Prerequisite: CHEE 698N1) (No credit will be given for this course unless both CHEE 698N1 and CHEE 698N2 are successfully completed in a twelve

month period) (CHEE 698N1 and CHEE 698N2 together are equivalent to CHEE 698) See CHEE 698N1 for course description.

CHEE 699 THESIS RESEARCH 2. (15) (Prerequisite: CHEE 698) Ongoing research pertaining to thesis.

CHEE 795 PH.D. THESIS PROPOSAL. (0) Independent work under the supervision of the thesis advisor(s) leading to a thesis proposal.

CHEE 796 PH.D. PROPOSAL DEFENCE. (0) Presentation and defence of thesis proposal at an oral examination.

CHEE 797 PH.D. SEMINAR. (0) (Prerequisite: CHEE 796) Required for all Ph.D. candidates. Presentation of a seminar on an aspect of their thesis work.

14 Chemistry

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14.1 Staff

Emeritus Professors

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B.C. Eu; B.Sc.(Seoul), Ph.D.(Brown)
J.F. Harrod; B.Sc., Ph.D.(Birm.), F.R.S.C.
A.S. Hay; B.Sc.(Alta.), Ph.D.(Ill.), F.R.S.
R.H. Marchessault; B.Sc.(Montr.), Ph.D.(McG.), F.C.I.C., F.R.S.C.
M. Onyszczuk; B.Sc.(McG.), M.Sc.(W. Ont.), Ph.D.(Cant.),
Ph.D.(McG.), F.C.I.C.
D. Patterson; M.Sc.(McG.)
A.S. Perlin; M.Sc., Ph.D.(McG.), F.C.I.C., F.R.S.C.
W.C. Purdy; B.A.(Amh.), Ph.D.(MIT), F.C.I.C.
L.E. St. Pierre; B.Sc.(Alta.), Ph.D.(Notre Dame), F.C.I.C.
M.A. Whitehead; B.Sc., Ph.D., D.Sc.(Lond.), F.C.I.C.

Professors

D.S. Bohle; B.A.(Reed College), M.Phil., Ph.D.(Auck.)
D.H. Burns; B.Sc.(Puget Sound), Ph.D.(Wash.)
I.S. Butler; B.Sc., Ph.D.(Brist.), F.C.I.C.
M.J. Damha; B.Sc., Ph.D.(McG.), F.C.I.C.
A. Eisenberg; B.S.(Wor. Poly.), M.A., Ph.D.(Princ.), F.C.I.C.
D.G. Gray; B.Sc.(Belf.), M.Sc., Ph.D.(Man.), F.C.I.C.
D.N. Harpp; A.B.(Middlebury), M.A.(Wesleyan), Ph.D. (N. Carolina), F.C.I.C.
G.E. Just; Ing.Chem.(E.T.H. Zürich), Ph.D.(W. Ont.), F.C.I.C.
R.B. Lennox; B.Sc., M.Sc., Ph.D.(Tor.), F.C.I.C.
C.J. Li; B.Sc.(Zhengzhou), M.S.(Chinese Academy of Sciences),
Ph.D.(McG.)
D.M. Ronis; B.Sc.(McG.), Ph.D.(MIT)
E.D. Salin; B.Sc.(Calif.), Ph.D.(Ore.), F.C.I.C.
B.C. Sanctuary; B.Sc., Ph.D.(Br. Col.)
T.G.M. van de Ven; Kand. Doc.(Utrecht), Ph.D.(McG.),

Associate Professors

M.P. Andrews; B.Sc., M.Sc., Ph.D.(Tor.)
P. Ariya; B.Sc., Ph.D.(York)
B.A. Arndtsen; B.A.(Carl.), Ph.D.(Stan.)
C.J. Barrett; B.Sc., M.Sc., Ph.D.(Qu.)
W.C. Galley; B.Sc.(McG.), Ph.D.(Calif.)
J.L. Gleason; B.Sc.(McG.), Ph.D.(Va.)
A. Kakkar; B.Sc., M.Sc.(Chan. U., India), Ph.D.(Wat.)

J.F. Power; B.Sc., Ph.D.(C'dia)
 L. Reven; B.A.(Carl.), Ph.D.(Ill.)
 H. Sleiman; B.Sc.(A.U.B.), Ph.D.(Stan.)

Assistant Professors

K. Auclair; B.Sc.(U.Q.A.C.), Ph.D.(Alta)
 M. Bourqui; B.Sc.(EPF Lausanne), Ph.D.(ETH Zürich)
 P. Kambhampati; B.A. (Carleton College), Ph.D.(Texas)
 U.M. Lindstrom; B.Sc., L.Chem.Eng.(Lund), Ph.D.(Stockholm)
 Anthony Mittermaier; B.Sc.(Guelph), Ph.D.(Tor.)
 N. Moitessier; B.A., Ph.D.(Nancy)
 A. Moores; B.Sc., Ph.D.(Ecole Polytechnique, Paris)
 B. Siwick; B.A.Sc. Eng. Sci., M.Sc., Ph.D.(Tor.)
 P. Wiseman; B.Sc.(St. FX), Ph.D.(W. Ont.)

Lecturers

J. Finkenbine, G. Wilczek

Associate Members

J.A. Finch (*Mining, Metals and Materials Engineering*), O.A.
 Mamer (*University Clinic, RVH*), P. Grütter (*Physics*)

Adjunct Professors

Y. Guindon, R.J. Kazlauskas, R.St. J. Manley, C. Reber, I. Wharf,
 C.T. Yim, R. Zamboni

14.2 Programs Offered

M.Sc., Ph.D. and the M.Sc. (Applied).

The Department offers the Chemical Biology interdisciplinary graduate option, together with the Departments of Biochemistry, and Pharmacology and Therapeutics. Students interested in training in this option must first be accepted for graduate studies by one of the participating departments. Information on this option can be found at www.mcgill.ca/biochemistry/chemicalbiology.

Research in Chemistry

Members of the Department are organized into various research themes. Some of the current research interests are listed below, and are presented in much more detail on the departmental Website at www.chemistry.mcgill.ca.

Analytical – Environmental

Analytical-Environmental research at McGill entails a wide range of exciting fundamental and applied research with focus on state-of-the-art instrumental development in spectroscopy, imaging, chemometric and analytical bio-spectroscopy, artificial intelligence, ultra trace sampling, state-of-the-art atmospheric kinetics and photochemistry, thermochemical, box and cloud modelling, as well as the development and application of state-of-the-art numerical models of the chemistry of the regional and global atmosphere. Our collective research has direct implications in fields such as materials, environmental, and biomedical chemistry.

Chemical Biology

The Chemical Biology Research Activity Group is engaged in a diverse range of research topics which range from structural biology, enzymology, nucleic acid research and signalling pathways to biophysical chemistry of living tissues. Among the themes which unite the research being performed in this group is trying to learn new chemistry and physics from biological systems.

We have projects relating to pharmaceutically relevant enzymes such as those involved in Alzheimer's and antibiotic resistance; development of therapeutic agents in the control of inflammation, cancer and viral infections; the chemical biology of NO; quantification of bioenergetic markers of metabolism; self-assembly mechanisms of the HIV-1 virion capsid; liposome microarray systems to address membrane protein dynamics and recognition; studies on reactive oxygen species translocation across the aqueous/lipid membrane interface; RNAi/antisense technologies; dynamic combinatorial chemistry; protein dynamics and function; mechanistic aspects on involved in cellular adhesion and transport in membrane and zeolite channels; and cutting-edge microscopies used to examine transport, motility, and reactivity in cells.

Chemical Physics

The research interests of the members of the Chemical Physics Thematic group are diverse, with groups focusing on high-end laser and NMR spectroscopies, kinetics and modelling of atmospheric chemical reactions, experimental and theoretical biophysical chemistry, polymers at interfaces and statistical and quantum mechanics. In the field of biophysical chemistry, single molecule spectroscopy is being used to probe enzyme function as well as DNA recombination and repair. Our recent advances in image correlation spectroscopic techniques now allow researchers to precisely follow the macromolecular dynamics in living cells. In a similar vein, breakthrough ultra-fast electron diffraction experiments have opened the window to real time observation of the making and breaking of chemical bonds. State-of-the-art multipulse femtosecond spectroscopy experiments are being applied to interesting and technologically important new materials such as photonic crystals and quantum dot superlattices. A molecular level picture of polymer dynamics and structure at surfaces and interfaces is being developed through theoretical modelling, high field solids NMR spectroscopy, electron microscopy and other surface characterization methods. In the area of atmospheric chemistry, the chemical transformation of the atmosphere is being modelled both experimentally and theoretically to understand how these processes are currently affecting and driving climate change. Finally, we have basic theory projects relating to the experimental work just described, as well as in transport and structure in complex colloidal or zeolite systems, protein dynamics, and fundamental issues in quantum and statistical mechanics.

Materials Chemistry

The Chemistry of Materials is a rapidly evolving domain of research. Materials Chemistry seeks to understand how composition, reactivity, and structure are related to function from a molecular perspective. The functionality of materials is expressed in a variety of areas including photonics, micro- and nano-electronics, biosystems, nanotechnology, drug delivery, catalysis, polymer science, molecular biology, and chemical and biological sensing. Activities of the Materials Chemistry Group are often broadly interdisciplinary. University-wide synergies among members of this group have led to the creation of the McGill Institute for Advanced Materials (MIAM) and the McGill Nanotools Facility. The latter comprises state-of-the-art **micro/nanofabrication**, atomic manipulation and high performance computing facilities. MIAM and members of the Chemistry Department have established research that links the **Centre for Self Assembled Chemical Structures**, the **Centre for Biosensors and Biorecognition**, the **Centre for the Physics of Materials**, and the **Centre for Bone and Periodontal Research**. Synthetic approaches to new materials include research in dendrimers, polynucleic acid architectures, polymers that conduct electrons or light and biopolymers. Polymer and colloid science figure prominently as does research and applications of the chemistry and physical properties of nanostructures. There is significant activity in understanding directed molecular assembly at interfaces and in the application of sophisticated spectroscopic tools to explore them.

Synthesis – Catalysis

The Synthesis/Catalysis Research Activity Group is a collective to develop the state-of-art catalysts, synthetic methodologies, reaction mechanisms, and synthetic routes for organic chemicals, natural products and materials. The following are the major research activities at McGill (1). Development of novel catalysts and catalytic reactions for highly efficient organic synthesis; Green Chemistry. This includes the study and discovery of novel transition-metal catalysts, biological catalysts, nano- and dendrimer-based catalysts for synthetic purposes; new chemical reactivity such as C-H activation, asymmetric catalysis and theory, multi-component reactions and combinatorial chemistry; innovative chemistry in alternative solvents such as water, sub-critical water, ionic liquids, and liquid CO₂; photocatalytic reactions, reaction mechanisms, and physical organic chemistry; and computational chemistry (2). Synthesis of biological compounds, organic materials and natural products: Focus areas are total synthesis of natural products,

synthesis of DNA and RNA analogues; synthesis of antiviral and anticancer nucleoside analogues, synthesis of amino acid and peptides; synthesis and study of carbohydrate derivatives; design, synthesis and study of speciality organic chemical and materials and study of speciality organic chemical and materials.

14.3 Admission Requirements

The minimum academic standard for admission to research thesis M.Sc., Ph.D. and the M.Sc. (Applied) degree programs is a minimum standing equivalent to a Cumulative Grade Point Average (CGPA) of 3.0 out of a possible 4.0 or a CGPA of 3.2/4.0 for the last two full-time academic years. Applicants from other institutions should have an academic background equivalent to that of a McGill graduate in the Chemistry Honours/Major programs. If possible, candidates should specify the field of research in which they are interested.

Admissions Requirements - Chemical Biology Option

As for the regular graduate programs of the participating departments, acceptance into the Chemical Biology Option consists of two steps:

1. Preliminary approval by the Department's Graduate Committee based on the student's transcript, references and other documents submitted with the application. The criteria for assessment at this level are the same as for the regular graduate programs of the participating departments.
2. Acceptance by an individual research director. For students wishing to participate in the Chemical Biology Option, the director must propose a research project for the student that provides training in the methods and philosophy of chemical biology. Project proposals are assessed by the Chemical Biology Program Committee.

14.4 Application Procedures

All inquiries concerning graduate work in the Department should be addressed to the Director of Graduate Studies, Department of Chemistry.

FINANCIAL ASSISTANCE

M.Sc. and Ph.D. Degrees

Financial assistance for accepted graduate students who do not hold fellowships or scholarships is normally available in the form of laboratory demonstrators/assistantships, and occasionally by payment from research funds. Graduate students devote 12 hours per week (contact hours, plus grading of reports, etc.) during the academic session to their teaching duties. Financial assistance during the remainder of the year is provided from research funds. Scholarship holders, such as NSERC or awards of similar value, receive a tuition fee waiver.

M.Sc. (Applied) Degree

Financial assistance for candidates in the M.Sc. (Applied) program is not available during the two academic sessions when courses are taken, unless candidates are recipients of scholarships. During the four month project, candidates are paid at rates established by participating companies.

14.5 Program Requirements

M.Sc.* and Ph.D. Degrees

1. Students must take such examinations as may be required in
 - (a) assigned courses given in the Department of Chemistry,
 - (b) assigned cognate courses given in other departments.
 Courses are assigned after taking into consideration the student's previous training and research interest.
2. Students must successfully complete a research project and submit an acceptable thesis.
3. Students must satisfy the examiners in an oral examination on the thesis and related subjects (required only of candidates for the Ph.D. degree).

4. All the usual requirements of the Graduate and Postdoctoral Studies Office must be satisfied.

* This program requires 45 credits.

A minimum of 6 credits of course work is required; the balance of credits will be made up from either a combination of course work and thesis credits, or from thesis research credits only. There will be a minimum of 24 credits in the thesis research component.

Examinations in Chemistry

1. Examinations in assigned courses are normally taken by the candidates in December and May. In special circumstances, and with the permission of the Department and the Graduate and Postdoctoral Studies Office, they may be taken in September.
2. A candidate for the Ph.D. degree shall pass all such examinations, other than those in certain special courses, before the final year, except in special circumstances and then only with the approval of the Department.

M.Sc. (Applied) Degree

This program requires a minimum of 45 credits, 30 credits of course work (500 level and higher) plus a 15-credit project in some aspect of chemical industry, normally completed during a four month project.

In addition, students may be required to take advanced undergraduate courses if their background is deficient.

M.Sc. (Applied) in Chemistry (45 credits)

Complementary Courses (30 credits)

15 credits, five 3-credit CHEM courses at the 500 or 600 level.

15 credits, five 3-credit courses (500 level and higher) selected in consultation with the advisor.

Project (15 credits)

CHEM 699 (15) Project

M.Sc. in Chemistry (Thesis) (45 credits)

Required Courses (5 credits)

CHEM 650 (1) Seminars in Chemistry 1
 CHEM 651 (1) Seminars in Chemistry 2
 CHEM 688 (3) Assessment

Complementary Courses (40 credits)

9 - 16 credits

Students will normally take 9 - 16 credits of CHEM (or approved) courses at the 500 or 600 level.

Thesis (24 - 31 credits)

at least 24 credits, selected from:

CHEM 691 (3) M.Sc. Thesis Research 1
 CHEM 692 (6) M.Sc. Thesis Research 2
 CHEM 693 (9) M.Sc. Thesis Research 3
 CHEM 694 (12) M.Sc. Thesis Research 4
 CHEM 695 (15) M.Sc. Thesis Research 5
 CHEM 696 (6) M.Sc. Thesis Research 6
 CHEM 697 (9) M.Sc. Thesis Research 7
 CHEM 698 (12) M.Sc. Thesis Research 8

Program Requirements - Chemical Biology Option

The curriculum of the Chemical Biology Option is structured so that in completing the option, students also complete the course requirements for the regular graduate programs in their home departments. For this reason, program requirements are listed separately for each department, even though the 'core' content in Chemical Biology (9 lecture credits plus 2 or 4 seminar credits for each program) is the same for each.

M.Sc. in Chemistry – Chemical Biology Option/Concentration
(45 credits)**Required Courses** (5 credits)

CHEM 650	(1)	Seminars in Chemistry 1
CHEM 651	(1)	Seminars in Chemistry 2
CHEM 688	(3)	Assessment

Complementary Courses (minimum 11 credits)

2 credits, two of the following courses:

BIOC 610	(1)	Seminars in Chemical Biology 1
BIOC 611	(1)	Seminars in Chemical Biology 3
CHEM 689	(1)	Seminars in Chemical Biology 2
CHEM 690	(1)	Seminars in Chemical Biology 4

Students will take at least 3 courses from the following list, including at least 3 credits from the first two courses listed below.

CHEM 502	(3)	Advanced Bio-Organic Chemistry
CHEM 503	(3)	Drug Design and Development 1 or PHAR 503
BIOC 603	(3)	Genomics and Gene Expression
BIOC 604	(3)	Macromolecular Structure
CHEM 504	(3)	Drug Design and Development 2 or PHAR 504
CHEM 514	(3)	Biophysical Chemistry
CHEM 522	(3)	Stereochemistry
CHEM 591	(3)	Bioinorganic Chemistry
CHEM 621	(5)	Reaction Mechanisms in Organic Chemistry
CHEM 629	(5)	Organic Synthesis
CHEM 655	(4)	Advanced NMR Spectroscopy
PHAR 562	(3)	General Pharmacology 1
PHAR 563	(3)	General Pharmacology 2
PHAR 707	(3)	Molecular Pharmacology

The remaining credits may be graduate-level courses approved by the Department.

Thesis (minimum 24 credits)

at least 24 credits, selected from:

CHEM 691	(3)	M.Sc. Thesis Research 1
CHEM 692	(6)	M.Sc. Thesis Research 2
CHEM 693	(9)	M.Sc. Thesis Research 3
CHEM 694	(12)	M.Sc. Thesis Research 4
CHEM 695	(15)	M.Sc. Thesis Research 5
CHEM 696	(6)	M.Sc. Thesis Research 6
CHEM 697	(9)	M.Sc. Thesis Research 7
CHEM 698	(12)	M.Sc. Thesis Research 8

Ph.D. in Chemistry**Required Courses** (5 credits)

CHEM 650	(1)	Seminars in Chemistry 1
CHEM 651	(1)	Seminars in Chemistry 2
CHEM 688	(3)	Assessment

Comprehensive

CHEM 701	(0)	Comprehensive Examination 1
CHEM 702	(0)	Comprehensive Examination 2

Complementary Courses

Students entering the program with a M.Sc. degree will normally take three (3) graduate-level courses. Students entering without a M.Sc. degree will normally take five (5) graduate-level courses.

Thesis

Students may be required to take advanced undergraduate courses if background deficient.

Ph.D. in Chemistry – Chemical Biology Option/Concentration**Required Courses** (9 credits)

CHEM 650	(1)	Seminars in Chemistry 1
CHEM 651	(1)	Seminars in Chemistry 2
CHEM 688	(3)	Assessment
BIOC 610	(1)	Seminars in Chemical Biology 1

BIOC 611	(1)	Seminars in Chemical Biology 3
CHEM 689	(1)	Seminars in Chemical Biology 2
CHEM 690	(1)	Seminars in Chemical Biology 4

Comprehensive

CHEM 701	(0)	Comprehensive Examination 1
CHEM 702	(0)	Comprehensive Examination 2

Complementary Courses (minimum 9 credits)

Students entering the program with a M.Sc. degree will normally take three (3) graduate-level courses. Students entering without a M.Sc. degree will normally take five (5) graduate-level courses.

At least 3 courses must be from the following list, including at least 3 credits from the first two courses listed below.

CHEM 502	(3)	Advanced Bio-Organic Chemistry
CHEM 503	(3)	Drug Design and Development 1 or PHAR 503
BIOC 603	(3)	Genomics and Gene Expression
BIOC 604	(3)	Macromolecular Structure
CHEM 504	(3)	Drug Design and Development 2 or PHAR 504
CHEM 514	(3)	Biophysical Chemistry
CHEM 522	(3)	Stereochemistry
CHEM 591	(3)	Bioinorganic Chemistry
CHEM 621	(5)	Reaction Mechanisms in Organic Chemistry
CHEM 629	(5)	Organic Synthesis
CHEM 655	(4)	Advanced NMR Spectroscopy
PHAR 562	(3)	General Pharmacology 1
PHAR 563	(3)	General Pharmacology 2
PHAR 707	(3)	Molecular Pharmacology

The remaining credits may be graduate-level courses approved by the Department.

Thesis

Students may be required to take advanced undergraduate courses if background deficient.

14.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Term(s) offered (Fall, Winter, Summer) may appear after the credit weight to indicate when a course would normally be taught. Please check Class Schedule to confirm this information.

Note: All undergraduate courses administered by the Faculty of Science (courses at the 100- to 500-level) have limited enrolment.

The course credit weight is given in parentheses after the title.

Advanced Undergraduate Courses

Undergraduate courses may be required of a student who is admitted to a graduate program if deficiencies are perceived in the student's previous training. Descriptions of undergraduate courses may be found in the Faculty of Science section of the *Undergraduate Programs Calendar*.

CHEM 502 ADVANCED BIO-ORGANIC CHEMISTRY. (3) (Winter) (3 lectures) (Prerequisite: CHEM 302) (Restriction: Not open to students who have taken CHEM 402.) This course will cover biologically relevant molecules, particularly nucleic acids, proteins, and their building blocks. In each case, synthesis and biological functions will be discussed. The topics include synthesis of oligonucleotides and peptides; chemistry of phosphates; enzyme structure and function; coenzymes, and enzyme catalysis; polyketides; antiviral and anticancer agents.

CHEM 503 DRUG DESIGN AND DEVELOPMENT 1. (3) (Fall) (Prerequisites: CHEM 302, BIOL 200, BIOL 201 or BIOC 212, PHAR 300 or PHAR 301 or PHAR 303 or permission of instructor) (Restriction: U3 and graduate students. Students can register only with

permission of coordinators. Priority: students registered in the Minor in Pharmacology) (Restriction: Not open to students who are taking or have taken PHAR 503) Interdisciplinary course in drug design and development covering chemistry, mechanisms of action and steps in drug development, principles and problems in drug design.

CHEM 504 DRUG DESIGN AND DEVELOPMENT 2. (3) (Winter) (Prerequisite: CHEM 503 and permission of instructor) (Restriction: U3 and graduate students. Students can register only with permission of coordinators) (Restriction: Not open to students who are taking or have taken PHAR 504) Groups of 2-4 students with different backgrounds will form a team. Each team will select a lead compound, design the analogues, propose the preclinical and clinical studies, present possible untoward effects, and reasons for drug (dis)approval.

CHEM 514 BIOPHYSICAL CHEMISTRY. (3) (Winter) (Prerequisite: CHEM 203 or CHEM 204 or CHEM 223 and CHEM 243, or permission of instructor.) (Restriction: Not open to students who have taken CHEM 404) Physical chemistry concepts needed to understand the function of biological systems at the molecular level, including the structure, stability, transport, and interactions of biological macromolecules.

CHEM 531 CHEMISTRY OF INORGANIC MATERIALS. (3) (Winter) (3 lectures) (Prerequisite: CHEM 381) Structure, bonding, synthesis, properties and applications of covalent, ionic, metallic crystals, and amorphous solids. Defect structures and their use in synthesis of specialty materials such as electronic conductors, semiconductors, and superconductors, and solid electrolytes. Basic principles of composite materials and applications of chemistry to materials processing.

CHEM 533 SMALL MOLECULE CRYSTALLOGRAPHY. (3) (Fall) (Prerequisite: CHEM 355 or permission of instructor) Fundamentals of x-ray diffraction related to small molecule structure resolution, space groups, diffraction theory, strategies for structure solution, and refinement will be covered.

CHEM 534 NANOSCIENCE AND NANOTECHNOLOGY. (3) (Fall) (Prerequisites: CHEM 334 or PHYS 334 or permission of instructor) (Corequisites: one of CHEM 345, PHYS 357, or PHYS 446 or permission of instructor) (Restriction: Not open to students who have taken or are taking PHYS 534) Topics discussed include scanning probe microscopy, chemical self-assembly, computer modelling, and microfabrication/micromachining.

CHEM 543 CHEMISTRY OF PULP AND PAPER. (3) (Fall) (2 lectures plus a reading/research project.) (Prerequisite: CHEM 302 or permission of instructor) The industrial processes for converting wood to paper are described with emphasis on the relevant organic, physical, surface chemistry and colloid chemistry. The structure and organization of the polymeric constituents of wood are related to the mechanical, optical and other requisite properties of paper.

CHEM 547 LABORATORY AUTOMATION. (3) (Winter) (Two 1.5 hour lectures, lab) (Prerequisite: CHEM 377, equivalent or permission of instructor) Automation and data handling with respect to modern chemical laboratory instrumentation. Basic electronics, data acquisition, evaluation of laboratory needs, data processing methodologies.

CHEM 552 PHYSICAL ORGANIC CHEMISTRY. (3) (Fall) (Prerequisite: CHEM 302) The correlation of theory with physical measurements on organic systems; an introduction to photochemistry; solvent and substituent effects on organic reaction rates, etc.; reaction mechanisms.

CHEM 555 NMR SPECTROSCOPY. (3) (Fall) (3 lectures) (Prerequisite: CHEM 355 or equivalent) Interpretation of proton and carbon-13 nuclear magnetic resonance spectroscopy in one dimension for structural identification.

CHEM 556 ADVANCED QUANTUM MECHANICS. (3) (Fall) (3 lectures) (Prerequisites: CHEM 345 and PHYS 242) Quantum mechanical treatment of species of chemical interest. Introduction to perturbation theory, both time-dependent and time-independent. Treatment of the variational principle. Introduction to atomic spectra. Chemical bonding in terms of both the valence bond and

molecular orbital theory. Elementary collision theory. Interaction of radiation with molecules.

CHEM 567 CHEMOMETRICS: DATA ANALYSIS. (3) (Winter) (2 lectures and 3 hours of laboratory) (Prerequisite: Linear Algebra and experience in some computer programming language) Topics covered include; factorial analysis of chemical spectra, pattern recognition from multisensor data, linear and nonlinear optimization for the determination of optimal reaction conditions molecular modeling, multisensor calibration, etc.

CHEM 571 POLYMER SYNTHESIS. (3) (Winter) (3 lectures) (Prerequisite: CHEM 302 or equivalent, or permission of instructor.) A survey of polymer preparation and characterization; mechanisms of chain growth, including free radical, cationic, anionic, condensation and transition metal-mediated polymerization, and the effects of these mechanisms on polymer architecture; preparation of alternating, block, graft and stereoblock copolymers; novel macromolecular structures including dendrimers and other nanostructures.

CHEM 572 SYNTHETIC ORGANIC CHEMISTRY. (3) (Winter) (3 lectures) (Prerequisite: CHEM 382) Synthetic methods in organic chemistry and their application to the synthesis of complex molecules.

CHEM 575 CHEMICAL KINETICS. (3) (Winter) (3 lectures) (Prerequisites: CHEM 273 and CHEM 223/CHEM 243 (formerly CHEM 213).) Kinetic laws, measurement of reaction rates, transition state and collision theory. Elementary reactions in gas, solution and solid phases and on surfaces. Reaction mechanisms, laser techniques, molecular beams, chemiluminescence, explosions. Extensive use of computers to simulate the kinetic behaviour of chemical systems.

CHEM 581 INORGANIC TOPICS 1. (3) (Winter) (Prerequisite: CHEM 381) An introduction to some areas of current interest in inorganic chemistry. Each year a selection of several particularly active areas will be chosen.

CHEM 582 SUPRAMOLECULAR CHEMISTRY. (3) (Winter) (3 lectures) (Prerequisites: CHEM 222, CHEM 381) Introduction to supramolecular organization will be followed by discussions on the nature of interactions and methodologies to create ordered aggregates of high complexity. Potential of supramolecular chemistry in fabricating smart materials will be explored using specific topics including inclusion chemistry, dendrimers, molecular self-assembly and crystal engineering.

CHEM 585 COLLOID CHEMISTRY. (3) (Winter) (Prerequisites: CHEM 345, MATH 233 and MATH 315, PHYS 241 and PHYS 242. Students who haven't taken CHEM 223 and CHEM 243 must have taken CHEM 273 or permission of instructor.) Principles of the physical chemistry of phase boundaries. Electrical double layer theory; van der Waals forces; Brownian motion; kinetics of coagulation; electrokinetics; light scattering; solid/liquid interactions; adsorption; surfactants; hydrodynamic interactions; rheology of dispersions.

CHEM 587 TOPICS IN MODERN ANALYTICAL CHEMISTRY. (3) (Fall) (Prerequisites: CHEM 367 and CHEM 377) Current theories of aqueous and nonaqueous solutions, with application to analytical chemistry; recent advances in analytical techniques. Topics may include: chromatography; applications of kinetics, solvent extraction and thermal analysis, with emphasis on their theoretical basis.

CHEM 591 BIOINORGANIC CHEMISTRY. (3) (Winter) (3 hours) (Prerequisite: CHEM 381) (Restriction: For Honours and Major Chemistry students or with permission) The roles of transition and main group elements in biology and medicine will be examined with an emphasis on using tools for structure and genome searching as well as becoming acquainted with experimental spectroscopic methods useful for bioinorganic chemistry such as macromolecular X-ray diffraction, EPR and EXAFS.

CHEM 593 STATISTICAL MECHANICS. (3) (Winter) (3 lectures) (Research project) (Prerequisite: CHEM 345. Recommended: CHEM 365) Basic hypotheses of statistical thermodynamics; ideal monatomic, diatomic and polyatomic gases; Einstein and Debye models of solids; statistical theory of black-body radiation;

Debye-Hückel theory of electrolyte solutions; absolute reaction rate theory of rate processes; theories of solutions.

CHEM 597 ANALYTICAL SPECTROSCOPY. (3) (Fall) (2 lectures; 3 hours lab) (Prerequisites: CHEM 367 and CHEM 377) The design and analytical use of spectroscopic instrumentation with respect to fundamental and practical limitations. Classical emission, fluorescence, absorption and chemical luminescence. Topics may include photo-acoustic spectroscopy, multielement analysis, X-ray fluorescence and modern multiwavelength detector systems.

CHEM 611 INORGANIC TOPICS 2. (4) This advanced level course surveys recent trends in inorganic chemistry. Students select a topic from the current literature, research the topic, present periodic oral reports and a final summary paper. The instructor participates as a tutor and gives occasional oral presentations on topics of his choice.

CHEM 612 ORGANOMETALLIC CHEMISTRY. (5) A first course at the graduate level in organometallic chemistry. The theory and practice of the field is treated starting from basic principles of inorganic and organic chemistry.

CHEM 619 ADVANCED ATMOSPHERIC CHEMISTRY. (4)

CHEM 621 REACTION MECHANISMS IN ORGANIC CHEMISTRY. (5) A systematic survey of the mechanisms of the most common organic reactions from studies of reactions in the current literature.

CHEM 522 STEREOCHEMISTRY. (3) (Prerequisite: CHEM 302) (Restriction: Not open to students who have taken CHEM 623) Stereoisomers, their nomenclature and configuration. Conformational analysis, separation of stereoisomers, and stereocontrol in organic synthesis.

CHEM 629 ORGANIC SYNTHESIS. (5) An advanced course in the synthesis of organic molecules with an emphasis on stereoselective transformations. Topics will include multiple bond formation, functional group interconversions, carbon-carbon bond formation and stereoselective oxidations and reductions.

CHEM 631D1 (2), CHEM 631D2 (2) SELECTED TOPICS IN ANALYTICAL CHEMISTRY. (Students must register for both CHEM 631D1 and CHEM 631D2) (No credit will be given for this course unless both CHEM 631D1 and CHEM 631D2 are successfully completed in consecutive terms) A directed reading course with individual student-professor conferences, and intended mainly for students specializing in analytical chemistry. Topics are chosen to meet the individual needs of each student.

CHEM 634 SEMINAR IN ADVANCED MATERIALS. (3) A series of research-level seminars about topics of current interest in advanced materials. Topics include molecular and nanoelectronics, computational approaches to materials design and property predictions, new techniques in molecular and atomic imaging, advances in materials preparation, quantum devices and quantum computing.

CHEM 636 LABORATORY AUTOMATION 2. (5) (Prerequisite: CHEM 547) Students will undertake a chemical laboratory automation project. Design and implementation problems will be discussed by the students in seminars and advanced topics in automated chemical instrumentation will be presented. Several experiments will be required.

CHEM 646 ADVANCED STATISTICAL MECHANICS. (4) Intermediate and advanced topics in statistical mechanics. Material to be covered will include: graphical methods, modern theories of dense gases and liquids, static and dynamic critical phenomena, time-correlation functions, light-scattering and nonequilibrium phenomena.

CHEM 647 PHYSICAL CHEMISTRY: SPECIAL TOPIC 1. (4)

CHEM 648 PHYSICAL CHEMISTRY: SPECIAL TOPIC 2. (4)

CHEM 650 SEMINARS IN CHEMISTRY 1. (1) (1 seminar) (Required of first year graduate students in Chemistry.) A seminar course designed for graduate students in chemistry which in conjunction with McGill Chemical Society will provide exposure to a broad range of special topics within the discipline.

CHEM 651 SEMINARS IN CHEMISTRY 2. (1) (1 seminar) (Required of first year graduate students in Chemistry.) A seminar course designed for graduate students in chemistry which in conjunction with McGill Chemical Society will provide exposure to a broad range of special topics within the discipline.

CHEM 655 ADVANCED NMR SPECTROSCOPY. (4) (1 lecture) (Prerequisite: CHEM 555 or equivalent.) Advanced techniques of nuclear magnetic resonance spectroscopy, Fourier transform methods, multiple pulsing, two-dimensional pulse sequencing.

CHEM 661 LITERATURE REVIEW AND PROPOSAL. (3) (Restriction: graduate students in Chemistry.) Students will review the relevant literature concerning their particular area of research and describe plans for future work.

CHEM 662 RESEARCH REPORT 1. (3) (Restriction: graduate students in Chemistry.) Students will prepare a research proposal, and give a seminar.

CHEM 666D1 (3), CHEM 666D2 (3) SPECIAL TOPICS 2. (Students must register for both CHEM 666D1 and CHEM 666D2) (No credit will be given for this course unless both CHEM 666D1 and CHEM 666D2 are successfully completed in consecutive terms) Critical and original essays are required on various subjects of current interest in chemistry.

CHEM 667 SPECIAL TOPICS 3. (4) Critical and original essays are required on various subjects of current interest in chemistry.

CHEM 673 POLYMERS IN SOLUTIONS. (4) Thermodynamics of regular and of polymer solutions; osmotic pressure; phase separations; polymer configurations; light scattering; ultracentrifugation; viscometry; gel permeation chromatography; polyelectrolytes.

CHEM 674 INTRODUCTORY PHYSICAL CHEMISTRY - POLYMERS. (4) A survey course on the structure of polymers; kinetics and mechanisms of polymer synthesis; molecular weight distributions; polymer configurations and the thermodynamics of polymer solutions; rubber, elasticity, osmometry and viscosity.

CHEM 686 WET-END PAPERMAKING CHEMISTRY. (3) (Restriction: graduate students in Chemistry or Chemical Engineering or permission of instructor) (Prerequisites: CHEM 543 and CHEM 585) Review of the chemistry of various additives used in papermaking, such as wet and dry strength agents, sizing agents, fillers, filler retention aids, antifoam agents, biocides, dyes, dewatering agents, drainage and formation aids. The course also addresses the chemistry of deinking of waste papers and the treatment of effluents.

CHEM 688 ASSESSMENT. (3) (Restriction: Restricted to graduate students in Chemistry.) An evaluation that is completed before the end of the second year of registration.

CHEM 689 SEMINARS IN CHEMICAL BIOLOGY 2. (1) (Restrictions: Open only to students registered for the M.Sc. or Ph.D. Graduate Option in Chemical Biology.) Second multidisciplinary seminar in chemical biology.

CHEM 690 SEMINARS IN CHEMICAL BIOLOGY 4. (1) (Restrictions: Open only to students registered for the M.Sc. or Ph.D. Graduate Option in Chemical Biology.) Fourth multidisciplinary seminar in chemical biology.

CHEM 691 M.Sc. THESIS RESEARCH 1. (3) Independent research work leading to writing of M.Sc. thesis for final submission to the Graduate and Postdoctoral Studies Office.

CHEM 692 M.Sc. THESIS RESEARCH 2. (6) Independent research work leading to writing of M.Sc. thesis for final submission to the Graduate and Postdoctoral Studies Office.

CHEM 693 M.Sc. THESIS RESEARCH 3. (9) Independent research work leading to writing of M.Sc. thesis for final submission to the Graduate and Postdoctoral Studies Office.

CHEM 694 M.Sc. THESIS RESEARCH 4. (12) Independent research work leading to writing of M.Sc. thesis for final submission to the Graduate and Postdoctoral Studies Office.

CHEM 695 M.Sc. THESIS RESEARCH 5. (15) Independent research work leading to writing of M.Sc. thesis for final submission to the Graduate and Postdoctoral Studies Office.

CHEM 696 M.Sc. THESIS RESEARCH 6. (6) Independent research work leading to writing of M.Sc. thesis for final submission to the Graduate and Postdoctoral Studies Office.

CHEM 697 M.Sc. THESIS RESEARCH 7. (9) Independent research work leading to writing of M.Sc. thesis for final submission to the Graduate and Postdoctoral Studies Office.

CHEM 698 M.Sc. THESIS RESEARCH 8. (12) Independent research work leading to writing of M.Sc. thesis for final submission to the Graduate and Postdoctoral Studies Office.

CHEM 701 COMPREHENSIVE EXAMINATION 1. (0) (Restriction: Ph.D. students in Chemistry.) An evaluation that is completed before the end of the third year of registration.

CHEM 702 COMPREHENSIVE EXAMINATION 2. (0) (Restriction: Ph.D. students in Chemistry.) An evaluation that is completed before the end of the fourth year of registration.

CHEM 721 ORGANIC CHEMISTRY RESEARCH SEMINAR. (3) Upon completion of the organic cumulative examinations, students will present a seminar on their research work (including background and future plans).

CHEM 763 RESEARCH REPORT 2. (3) (Restriction: graduate students in Chemistry.) Students will present a seminar on a complete or nearly complete research project and discuss these results.

15 Civil Engineering and Applied Mechanics

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Chair — D. Mitchell

Chair of Graduate Program — S. Gaskin

15.1 Staff

Emeritus Professors

P.J. Harris; B.Sc.(Man.), M.Eng., Ph.D.(McG.), F.E.I.C.,
F.C.S.C.E., Eng.
R.G. Redwood; B.Sc.(Brist.), M.A.Sc.(Tor.), Ph.D.(Brist.),
F.C.S.C.E., FI Struct. Eng., Eng.
S.B. Savage; B.Eng.(McG.), M.S.Eng.(Cal. Tech.), Ph.D.(McG.),
F.R.S.C.

Professors

V.H. Chu; B.S.Eng.(Taiwan), M.A.Sc.(Tor.), Ph.D.(MIT), Eng.
M.S. Mirza; M.S., B.Eng.(Karachi), M.Eng., Ph.D.(McG.), F.E.I.C.,
F.C.S.C.E., F.A.C.I., Hon.F.I.E.P., Eng.
D. Mitchell; B.A.Sc., M.A.Sc., Ph.D.(Tor.), F.A.C.I., Eng.
V.T.V. Nguyen; B.M.E.(Vietnam), M.C.E.(A.I.T.), D.A.Sc.(Montr.),
Eng.
J. Nicell; B.A.Sc., M.A.Sc., Ph.D.(Windsor), P.Eng.
A.P.S. Selvadurai; M.S.(Stan.), Ph.D., D.Sc.(Nott.), F.E.I.C.,
F.I.M.A., F.C.S.C.E., P.Eng.
S.C. Shrivastava; B.Sc.(Eng.)(Vikram), M.C.E.(Del.), Sc.D.(Col.)

Associate Professors

L. Chouinard; B.Eng., M.Eng.(Montr.), B.C.L.(McG.), Sc.D.(MIT),
Eng.
S.J. Gaskin; B.Sc.(Eng.) (Qu.), Ph.D.(Cant.), Eng.
R. Gehr; B.Sc.(Eng.) (Witw.), M.A.Sc., Ph.D.(Tor.), P.Eng.
S. Ghoshal; B.C.E.(India), M.S.(Missouri), Ph.D.(Carn. Mell.),
P.Eng.
G. McClure; B.Eng.(Montr.), S.M.C.E.(MIT), Ph.D.(Montr.), Eng.
C. Rogers; B.A.Sc., M.A.Sc.(Wat.), Ph.D.(Sydney), P.Eng.
Y. Shao; B.Sc., M.S.(Tongji), Ph.D.(N'western), P.Eng.

Assistant Professors

A. Boyd; B.Sc. Eng. (UNB), M.A.Sc.(Tor.), Ph.D.(Br. Col.)
D. Frigon; B.Sc.(McG.), M.Sc.(McG.), Ph.D.(Ill.-Urbana-
Champaign)
M.A. Meguid; B.Sc.(Cairo), M.Sc., Ph.D.(W. Ont.), P.Eng.

Adjunct Professors

S. Babarutsi, R. Edwards, J. Hadjinicolaou, J. Hawari, K. Jones,
A. Keane, C. Ky, Z. Lounis, P. Lundahl, P. Maillard, C. Manatakos,
T.S. Nguyen, P. Rodrigue, S. Scola, W. Taylor, M. Villeneuve,
J. Vrana

15.2 Programs Offered

Advanced courses of instruction and laboratory facilities are available for engineering graduate students desiring to proceed to the degrees of **M.Eng., M.Sc. and Ph.D.**

Graduate studies and research are at present being conducted in the fields of structures and structural mechanics, infrastructure rehabilitation, risk engineering, fluid mechanics and hydraulics, materials engineering, soil behaviour, soil mechanics and foundations, water resources engineering, and environmental engineering.

M. Eng. (Environmental Engineering Option)

This program is offered to students with a university undergraduate degree in engineering who desire graduate education in the environmental engineering field. This option is within the context of the existing M.Eng. (Project Option) programs currently offered in the Departments of Bioresource Engineering (Agricultural and Environmental Sciences), Chemical Engineering, Civil Engineering, and Mining, Metals and Materials Engineering. This program emphasizes interdisciplinary fundamental knowledge courses, practical applications in diverse environmental contexts, and functional skills needed for solving environmental problems. Candidates must possess a Bachelor's degree in engineering.

M.Sc.

Candidates with a Bachelor's degree in a discipline other than Engineering, such as Science or Arts, may be accepted into a M.Sc. program in the Department. Such students would typically study in the fluid mechanics, water resources, or environmental engineering areas, and would follow the Thesis Option program, as outlined in **section 15.5, "Program Requirements"**.

15.3 Admission Requirements

The general rules of the Graduate and Postdoctoral Studies Office apply and are detailed in the General Information section. The minimum academic standard for admission is a Cumulative Grade Point Average (CGPA) of 3.0/4.0.

Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must achieve a grade of 580 or better on the paper-based (237 on the computer-based) Test of English as a Foreign Language (TOEFL) for entry to the Ph.D. program, and 550 on the paper-based (213 on the computer-based) TOEFL for other programs. For Candidates who write the iBT TOEFL, the minimum requirement will be an overall or total score of not less than 92 with each component score (i.e. Writing, Reading, Speaking, Listening) not less than 20. The test is administered by the Educational Testing Service and is available throughout the world. The results reach McGill approximately eight weeks after the test is taken. It is the student's responsibility to make the necessary arrangements with the examining board to write the test in the country of residence. Full information about the Test and a registration form may be obtained by writing to: Test of English as a Foreign Language, Box 6191, Princeton, New Jersey 08540-6151, U.S.A. (www.toefl.org).

15.4 Application Procedures

Applications will be considered upon receipt of:

1. Application form
2. Two official transcripts
3. Two confidential letters of reference
4. \$80 application fee
5. Test results (TOEFL)

Applicants are requested to address their completed forms for admission to the Chair of the Graduate Studies Admissions Committee, Department of Civil Engineering and Applied Mechanics.

Applications for September admission should be submitted by February 1. Applications for January admission by August 1 (International) and October 1 (Canadian and Permanent Resident).

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

15.5 Program Requirements

M.Eng. in Civil Engineering

Candidates may satisfy the requirements for the M.Eng. degree in Civil Engineering by following either the Thesis Option or the Project Option.

Both programs require 45 credits and the detailed requirements are given hereafter.

These programs normally require that course work credits be earned at the 500 and 600 levels. However, at least two courses must be taken at the 600 level. The minimum course requirements for both options pertain to well prepared students; others may be required to take additional courses as a condition of acceptance or as determined in consultation with their director of studies or research.

A minimum of three terms of resident study at McGill are required for the degree. This residency requirement can also be satisfied by Project Option students through part-time (evening) studies over a period of three or more years.

M.Eng. in Civil Engineering (Thesis) (45 credits)

Required Course (1 credit)

CIVE 662 (1) Masters Research Seminar

Complementary Courses (minimum 17 credits)

A minimum of five courses at the 500 or 600 level, with at least 8 credits at the 600 level

Thesis (27 credits)

The thesis describing the candidate's research is to be submitted in accordance with the regulations of the Graduate and Postdoctoral Studies Office.

CIVE 630 (3) Thesis Research 1
 CIVE 631 (3) Thesis Research 2
 CIVE 632 (3) Thesis Research 3
 CIVE 633 (6) Thesis Research 4
 CIVE 634 (6) Thesis Research 5
 CIVE 635 (6) Thesis Research 6

M.Eng. in Civil Engineering (Project) (45 credits)

Complementary Courses (30 to 40 credits)

a minimum of 30 credits at the 500 or 600 level, with at least 8 credits at the 600 level

Project (5 to 15 credits)

Credit for the project may vary between 5 to 15, depending on the amount of work involved.

CIVE 691 (1) Research Project 1
 CIVE 692 (2) Research Project 2
 CIVE 693 (3) Research Project 3
 CIVE 694 (4) Research Project 4
 CIVE 695 (5) Research Project 5

CIVE 696 (6) Research Project 6
 CIVE 697 (7) Research Project 7

Master of Engineering (Environmental Engineering Option)

The program consists of a minimum of 45 credits, of which, depending on the student's home department, a minimum of 5 and a maximum of 15 may be allotted to the research project. The balance of 30 to 40 credits is earned by coursework. The Department also allows students to complete the program using a minimum of 45 credits of coursework only.

The Environmental Engineering option is administered by the Faculty of Engineering. Further information may be obtained from the Program Coordinator, Department of Civil Engineering and Applied Mechanics.

M.Eng. in Civil Engineering (Project) – Environmental Engineering Option/Concentration (45 credits)

Required Courses (6 credits)

CIVE 615 (3) Environmental Engineering Seminar
 CHEE 591 (3) Environmental Bioremediation

Complementary Courses (24 to 39 credits)

a minimum of 22 credits from the following:

Data Analysis

AEMA 611 (3) Experimental Design
 or CIVE 555 (3) Environmental Data Analysis
 or PSYC 650 (3) Advanced Statistics 1

Toxicology

OCCH 505 (3) Health Risks of Toxicants
 or OCCH 612 (3) Principles of Toxicology

Water Pollution Engineering

CIVE 651 (4) Theory: Water / Wastewater Treatment
 or CIVE 652 (4) Biological Treatment: Wastewaters
 or CIVE 660 (4) Chemical and Physical Treatment of Waters

Air Pollution Engineering

MECH 534 (3) Air Pollution Engineering
 or approved graduate-level alternative

Soil and Water Quality Management

BREE 533 (3) Water Quality Management
 or CIVE 686 (4) Site Remediation

Environmental Impact

GEOG 501 (3) Modelling Environmental Systems
 or GEOG 551 (3) Environmental Decisions
 or approved graduate-level alternative

Environmental Policy

URBP 506 (3) Environmental Policy and Planning
 or approved graduate-level alternative

Elective Courses

Also, 0 to 15 credits of graduate courses from an approved list of courses from the Faculties of Engineering, Agricultural and Environmental Sciences, Law, Management; Departments of Atmospheric and Oceanic Sciences, Biology, Chemistry, Earth and Planetary Sciences, Economics, Epidemiology and Biostatistics, Geography, Occupational Health, Political Science, Religious Studies, Sociology; and McGill School of Environment.

Project (0 or 5 to 15 credits)

The program may include a project or, with departmental approval, may be completed with courses only.

CIVE 691 (1) Research Project 1
 CIVE 692 (2) Research Project 2
 CIVE 693 (3) Research Project 3
 CIVE 694 (4) Research Project 4
 CIVE 695 (5) Research Project 5
 CIVE 696 (6) Research Project 6
 CIVE 697 (7) Research Project 7

M.Sc.

Candidates with a Bachelor's degree in a discipline other than Engineering, such as Science or Arts, may be accepted into a M.Sc. program in the Department. Such students would typically study in the fluid mechanics, water resources, or environmental engineering areas, and would follow the Thesis Option program requirements.

M.Sc. (Thesis) in Civil Engineering (45 credits)**Required Course** (1 credit)

CIVE 662 (1) Masters Research Seminar

Complementary Courses (minimum 17 credits)

A minimum of five courses at the 500 or 600 level, with at least 8 credits at the 600 level

Thesis (27 credits)

CIVE 630 (3) Thesis Research 1
 CIVE 631 (3) Thesis Research 2
 CIVE 632 (3) Thesis Research 3
 CIVE 633 (6) Thesis Research 4
 CIVE 634 (6) Thesis Research 5
 CIVE 635 (6) Thesis Research 6

Ph.D.

Candidates normally register for the M.Eng. degree (Thesis Option), or M.Sc. degree in the first instance. Those who have a Master's degree acceptable to the Department may, however, be considered for direct registration for the Ph.D. degree (Ph.D.II).

The Ph.D. program consists of a research project and courses as required to develop the candidate's background. Candidates are expected to take a comprehensive preliminary oral examination (course CIVE 701) within the first 15 months of their Ph.D. registration. They must fulfill the requirements outlined in the General Information section of the *Graduate and Postdoctoral Studies Calendar*. There is no foreign language requirement.

Direct transfer into the Ph.D. program (fast-tracking) may be available for master's students who have demonstrated a superior academic performance in their undergraduate and master's studies.

15.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

CIVE 512 ADVANCED CIVIL ENGINEERING MATERIALS. (3) (3-3-3) (Prerequisite: CIVE 202) Production, structure and properties of engineering materials; ferrous alloys, treatments, welding, special steels, cast iron; ceramic materials; polymers; composite materials; concrete, admixtures, structure, creep, shrinkage; asphalt and asphaltic materials; clay materials and bricks; impact of environment on material response, durability, quality assessment and control, industrial specifications; recent advances.

CIVE 519 SUSTAINABLE DEVELOPMENT PLANS. (6) (1-9-8) (Restriction: Must be enrolled in the Barbados Field Study Semester.) Geared for solving real-world environmental problems related to water at the local, regional and international scale in Barbados. Projects to be designed by instructors in consultation with university, government and NGO partners and to be conducted by teams of 2 to 4 students in collaboration with them.

CIVE 527 RENOVATION AND PRESERVATION: INFRASTRUCTURE. (3) (3-2-4) (Prerequisite (Undergraduate): CIVE 202 and CIVE 318) Maintenance, rehabilitation, renovation and preservation of infrastructure; infrastructure degradation mechanisms; mechanical, chemical and biological degradation; corrosion of steel; condition surveys and evaluation of buildings and bridges; repair and preservation materials, techniques and strategies; codes and guidelines; case studies.

CIVE 540 URBAN TRANSPORTATION PLANNING. (3) (3-1-5) (Prerequisite: CIVE 319 or permission of instructor.) Process and techniques of urban transportation engineering and planning, including demand analysis framework, data collection procedures, travel demand modelling and forecasting, and cost-effectiveness framework for evaluation of project and system alternatives.

CIVE 546 SELECTED TOPICS IN CIVIL ENGINEERING 1. (3) (3-0-6) (Prerequisite (Undergraduate): Permission of instructor) Special topics related to Civil Engineering will be presented by staff and visiting lecturers.

CIVE 550 WATER RESOURCES MANAGEMENT. (3) (3-0-6) (Prerequisite (Undergraduate): CIVE 323 or equivalent) State-of-the-art water resources management techniques; case studies of their application to Canadian situations; identification of major issues and problem areas; interprovincial and international river basins; implications of development alternatives; institutional arrangements for planning and development of water resources; and, legal and economic aspects.

CIVE 551 ENVIRONMENTAL TRANSPORT PROCESSES. (3) (3-2-4) (Prerequisite: CIVE 225 or Permission of instructor.) Equilibrium partitioning of pollutants in multiphase systems, sorption isotherms, diffusive mass transport, inter-phase mass transfer kinetics, contaminant transport processes in the subsurface porous media and in natural aquatic systems, mass transport in water and wastewater treatment systems.

CIVE 553 STREAM POLLUTION AND CONTROL. (3) (3-2-4) (Prerequisite (Undergraduate): CIVE 225) Water quality standards. Physical and chemical pollution, and bacterial contamination of surface waters. Effects of specific types of pollution such as thermal, point and non-point sources. Stream self purification. Effects on lake eutrophication. Pollution surveys and methods of control.

CIVE 555 ENVIRONMENTAL DATA ANALYSIS. (3) (3-0-6) (Prerequisite (Undergraduate): CIVE 302 or permission of instructor) Application of statistical principles to design of measurement systems and sampling programs. Introduction to experimental design. Graphical data analysis. Description of uncertainty. Hypothesis tests. Model parameter estimation methods: linear and nonlinear regression methods. Trend analysis. Statistical analysis of censored data. Statistics of extremes.

CIVE 572 COMPUTATIONAL HYDRAULICS. (3) (3-0-6) (Prerequisite: CIVE 327 or equivalent) Computation of unsteady flows in open channels; abrupt waves, flood waves, tidal propagations; method of characteristics; mathematical modelling of river and coastal currents.

CIVE 573 HYDRAULIC STRUCTURES. (3) (3-0-6) (Prerequisites: CIVE 323 and CIVE 327) Hydraulic aspects of the theory and design of hydraulic structures. Storage dams, spillways, outlet works, diversion works, drop structures, stone structures, conveyance and control structures, flow measurement and culverts.

CIVE 574 FLUID MECHANICS OF WATER POLLUTION. (3) (3-0-6) (Prerequisite: CIVE 327 or equivalent.) Mixing, dilution and dispersion of pollutants discharged into lakes, rivers, estuaries and oceans; salinity intrusion in estuaries and its effects on dispersion; biochemical oxygen demand and dissolved oxygen as water quality indicators; thermal pollution; oil pollution.

CIVE 577 RIVER ENGINEERING. (3) (3-0-6) (Prerequisite (Undergraduate): CIVE 428 or permission of the instructor.) (Corequisite (Graduate): CIVE 428) Fluvial geomorphology; sediment properties; river turbulence; mechanics of the entrainment, transportation and deposition of solids by fluids; threshold of movement; bed forms; suspended load, bed load and total load equations; stable channel design and regime rivers; river modeling; river engineering and river management.

CIVE 585 GROUNDWATER HYDROLOGY. (3) (3-0-6) (Prerequisite: Permission of instructor) Groundwater geology; steady-state and transient-state regional groundwater; infiltration and recharge; hydrological cycle; chemical constituents; adsorption/desorption processes; Groundwater exploration techniques; pumping tests; groundwater pollution; diffusion and dispersion; thermal processes; groundwater resource management.

CIVE 601 STRUCTURAL MECHANICS. (4) Stress, strain, and equations of elasticity. General and particular solutions of plane and axisymmetric problems. Stress concentration and failure criteria. Unsymmetrical bending of beams; shear centres; torsion of thin-walled structural members. Analysis of plates and shells. Elements of linear fracture mechanics.

CIVE 602 FINITE ELEMENT ANALYSIS. (4) (3-0-9) Development of displacement based simple and high order, one, two and three dimensional elements for linear elastic stress analysis. Variational and other methods for element formulation. Plate bending and shell elements. Finite element programming. Use of package programs in static analysis of structures.

CIVE 603 STRUCTURAL DYNAMICS. (4) Dynamic loads on structures; equations of motion of linear single- and multiple-degree-of-freedom systems and of continuous systems; free and forced vibrations; damping in structures; modal superposition and time-history analysis; earthquake effects; provisions of the National Building Code of Canada for seismic analysis.

CIVE 604 THEORY OF PLATES AND SHELLS. (4) Analysis of stresses and deformations in plates bent by transverse loads. Circular and rectangular plates. Membrane theory of shells. Axially symmetric bending of cylindrical, conical and spherical shells. Shells of revolution; theory of shallow shells. Use of package programs in the analysis of plate and shell structures.

CIVE 605 STABILITY OF STRUCTURES. (4) Buckling of elastic columns by equilibrium analysis. Buckling of inelastic columns. Energy analysis and approximate methods. Stability of frames. Torsional buckling of columns and flexural-torsional buckling of beams. Buckling of plates and axially compressed circular cylindrical shells. Stability analysis using the finite element method.

CIVE 607 ADVANCED DESIGN IN STEEL. (4) Design and behaviour of cold formed and hot rolled structural steel members and systems. Lateral load resistance design of steel roof diaphragms, flexural design of composite slabs, bracing requirements and design procedures for steel structures, floor vibration, member torsion, slender members and design procedures for low rise steel frame buildings.

CIVE 609 RISK ENGINEERING. (4) Quantitative analysis of uncertainty in planning, design, construction, operation and rehabilitation of engineered facilities. Interprets fundamentals of probabilities, random processes, statistics, and decision analysis in the context of engineering applications, in particular description of variability of loads and environmental conditions, material properties performance prediction, system reliability analysis, and risk-based decision analysis.

CIVE 610 SPECIAL TOPICS IN STRUCTURAL MECHANICS. (4) Special topics in structural mechanics.

CIVE 612 EARTHQUAKE-RESISTANT DESIGN. (4) Static and dynamic analyses, design codes, effects of local ground conditions, ductility demands on structural components. Inelastic behaviour of beams, columns, joints, shear walls and bracing under cyclic loading of steel concrete and masonry structures. Design applications.

CIVE 614 COMPOSITES FOR CONSTRUCTION. (4) Fibre reinforced plastics (FRP), civil engineering applications; fibre, matrix, processing; plymechanics, strength, rigidity, stability, durability; FRP rebars and tendons for concrete, laminates for strengthening, pultruded beams and columns, FRP stay-in-place formwork for concrete, FRP - glulam beams; design criteria, design project.

CIVE 615 ENVIRONMENTAL ENGINEERING SEMINAR. (3) The course will expose the students to various environmental engineering issues. Lectures will be given by faculty and invited speakers from industry. Each student is required to prepare a written technical paper and make oral presentation.

CIVE 617 DESIGN AND RATING OF HIGHWAY AND RAILWAY BRIDGES. (4) Criteria for bridge design, evaluation and rehabilitation; analysis of super-structures; design and construction of steel and concrete bridges; introduction to cable-stayed and suspension

bridges; deck joints and bearings; rating, repair and rehabilitation of bridges.

CIVE 618 DESIGN IN CONCRETE 1. (4) Concrete physical properties, creep, shrinkage; review of ultimate strength design; combined loadings; design of frames and flat plates; limit design, yield line theory; prestressed concrete, partial prestressing and load balancing. The course will include group projects.

CIVE 623 DURABILITY OF MATERIALS. (4) Safety, serviceability, durability and service life; quality assurance and quality control; material structures, properties and degradation; concrete materials, as-built properties; steel corrosion and protection; steel, timber and masonry properties; deterioration mechanisms; condition survey; maintenance and repair strategies, materials and processes; economic appraisal, recent development; case studies.

CIVE 624 DURABILITY OF STRUCTURES. (4) Basic concepts, safety, durability, repair and strengthening; reliability analysis; deterioration mechanisms, preventive and corrective measures; design for durability; parking structures; bridges; steel, timber and masonry structures; municipal infrastructure; strengthening and retrofitting; management systems; case studies. This course will involve field trips and group design exercises.

CIVE 628 DESIGN OF WOOD STRUCTURES. (4) Review of wood material properties, grades, and design of sawn lumber and timber tension, bending and compression members. Design of connections. Glulam, engineered wood products and systems, shear walls and diaphragms. Combined loading design, vibration design, moisture and humidity effects, deterioration and protection, fire performance, prescriptive design versus engineering design.

CIVE 630 THESIS RESEARCH 1. (3)

CIVE 631 THESIS RESEARCH 2. (3)

CIVE 632 THESIS RESEARCH 3. (3)

CIVE 633 THESIS RESEARCH 4. (6)

CIVE 634 THESIS RESEARCH 5. (6)

CIVE 635 THESIS RESEARCH 6. (6)

CIVE 648 SPECIAL TOPICS IN CIVIL ENGINEERING. (4) Special topics of an advanced nature relating to Civil Engineering will be presented by staff and visiting lecturers.

CIVE 651 THEORY: WATER / WASTEWATER TREATMENT. (4) Theoretical aspects of the chemistry of water and wastewater treatment. This will include acid-base and solubility equilibria; redox reactions; reaction kinetics; reactor design; surface and colloid chemistry; gas transfer; mass transfer; stabilization and softening; disinfection; corrosion.

CIVE 652 BIOLOGICAL TREATMENT: WASTEWATERS. (4) Process kinetics and reactors. Population kinetics of microorganisms and their role in the various waste treatment processes. Unit processes for wastewater treatment, such as suspended-growth, attached-growth processes, sludge treatment, and nutrient removal. Biological treatment techniques for groundwater decontamination. Laboratory pilot plant exercises.

CIVE 660 CHEMICAL AND PHYSICAL TREATMENT OF WATERS. (4) Theory and design of specific processes used for the physical and/or chemical purification of waters and wastewaters, including mixing, flocculation, sedimentation, flotation, filtration, disinfection, adsorption, ion exchange, aeration, membrane processes, distillation, removal of specific inorganics and organics, taste and odour control, process control, sludge treatment. Laboratory exercises will complement theoretical aspects.

CIVE 662 MASTERS RESEARCH SEMINAR. (1) (Restriction: For civil engineering students in the final semester of the thesis masters program.) Oral presentation of research topics.

CIVE 678 GRAVITY CURRENTS. (4) Internal hydraulics of one-layer and two-layers systems. Boussinesq's approximation, concepts of specific energy and specific force, upstream and downstream influences. Waves, instabilities and turbulence in continuous stratified flows; the flux, gradient and local Richardson numbers. Turbulent mixing and entrainment across gravity and turbulent

interfaces. Turbulent thermals, turbulent plumes and related mixing phenomena.

CIVE 683 ADVANCED FOUNDATION DESIGN. (4) Earth retaining structures, retaining walls, braced excavations, tie-back anchors. Buried structures, earth loading, arching, embankment loading. Soft ground tunneling, ground response to tunneling, surface settlement prediction. Design of shallow foundations, bearing capacity and settlement. Design of deep foundations, single pile, pile groups, laterally loaded piles.

CIVE 684 FLOW AND TRANSPORT IN POROUS MEDIA. (4) Flow in porous geomaterials. Fundamental equations, methods of solution. Advective transport on porous geomaterials. Solutions based on integral transforms. Uniqueness theorems. Transient processes governed by diffusive phenomena. The advection-diffusion equation. Uniqueness theorems for flow and transport processes. Introduction to numerical methods. Applications to geo-environmental problems.

CIVE 686 SITE REMEDIATION. (4) Field investigations; geotechnical and geophysical techniques; hydrogeological conditions; risk assessment; contaminant transport; remedial action plan; containment systems (gas, surface water, and ground water); on-site and off-site treatment techniques (solidification, stabilization, landfilling, and soil washing); In-situtreatment techniques (physical, biological, and chemical).

CIVE 691 RESEARCH PROJECT 1. (1)

CIVE 692 RESEARCH PROJECT 2. (2)

CIVE 693 RESEARCH PROJECT 3. (3)

CIVE 694 RESEARCH PROJECT 4. (4)

CIVE 695 RESEARCH PROJECT 5. (5)

CIVE 696 RESEARCH PROJECT 6. (6)

CIVE 697 RESEARCH PROJECT 7. (7)

CIVE 701 Ph.D. COMPREHENSIVE PRELIMINARY ORAL EXAM. (0)

16 Classics

Graduate Program in Classics
Department of History
Stephen Leacock Building, Room 608
855 Sherbrooke Street West
Montreal, QC H3A 2T7
Canada

Telephone: (514) 398-3977

Fax: (514) 398-8365

E-mail: graduate.history@mcgill.ca

Website: www.arts.mcgill.ca/programs/history

16.1 Staff

Professors

Hans Beck; Ph.D.(Eriangen) (*John MacNaughton Professor of Classics*)

T. Wade Richardson; B.A.(McG.), A.M., Ph.D.(Harv.)

Assistant Professor

Michael Fronda; B.A.(C'nell), M.A., Ph.D.(Ohio St.)

Renaud Gagné; B.A., M.A.(Montr.), Ph.D.(Harv.)

Faculty Lecturer

Donald W. Baronowski; B.A.(McG.), M.A.(Br. Col.), Ph.D.(Tor.)

16.2 Programs Offered

M.A. with Thesis (48 credits over 4 terms, in 18 or 24 months)

M.A. Non-Thesis option (48 credits over 3 or 4 terms, in 18 months)

Ph.D.

16.3 Admission Requirements

M.A. Program

Candidates are required to have a B.A. Honours in Classics or equivalent.

Ph.D. Program

Candidates are required to have a McGill M.A. in Classics or equivalent.

16.4 Application Procedures

No applications will be accepted for 2008-09 as the program has been temporarily suspended. Further information may be obtained from the Department of History.

16.5 Program Requirements

Please consult the Department for detailed regulations.

M.A. with thesis

- 1) Course work: 18 credits
- 2) Special subjects: 6 credits (CLAS 695D1/CLAS 695D2)
- 3) Thesis: 24 credits:
 - CLAS 696 – Methods (3)
 - CLAS 697 – Proposal (3)
 - CLAS 698 – Preparation (6)
 - CLAS 699 – Completion (12)

M.A. Non-Thesis option

- 1) Course work: 24 credits.
- 2) Special subjects: 12 credits (CLAS 685D1/CLAS 685D2, CLAS 686D1/CLAS 686D2).
- 3) Research papers: 12 credits
 - CLAS 681 – Research Paper 1 (3)
 - CLAS 682 – Research Paper 2 (3)
 - CLAS 683 – Research Paper 3 (3)
 - CLAS 684 – Research Paper 4 (3)

Ph.D.

- 1) Course work: 24 credits;
- 2) Reading list;
- 3) Thesis and Oral Defence.

16.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

The course credit weight is given in parentheses after the title.

CLAS 515D1 (3), CLAS 515D2 (3) LATIN AUTHORS AND TEXTS. (Prerequisite (Undergraduate): 9 credits in Intermediate Latin or equivalent) (Restriction: Honours and Graduate students) (Students must register for both CLAS 515D1 and CLAS 515D2.) (No credit will be given for this course unless both CLAS 515D1 and CLAS 515D2 are successfully completed in consecutive terms) Completion of a Reading List in Latin, with Faculty supervision, to be tested by written examination.

CLAS 525D1 (3), CLAS 525D2 (3) ANCIENT GREEK AUTHORS & TEXTS. (Prerequisite (Undergraduate): 9 credits in Intermediate Greek or equivalent) (Restriction: Honours and Graduate students) (Students must register for both CLAS 525D1 and CLAS

525D2.) (No credit will be given for this course unless both CLAS 525D1 and CLAS 525D2 are successfully completed in consecutive terms) Completion of a Reading List in Greek, with Faculty supervision, to be tested by written examination.

17 Communication Sciences and Disorders

School of Communication Sciences and Disorders
Beatty Hall
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Montreal, QC H3G 1A8
Canada

Telephone: (514) 398-4137
Fax: (514) 398-8123
E-mail: scsd@mcgill.ca
Website: www.mcgill.ca/scsd

Director — Shari Baum

Research Director — Marc Pell

17.1 Staff

Emeritus Professor

Donald Doehring; B.A.(Buff.), M.A.(N.M.), Ph.D.(Ind.)

Professors

Shari Baum; B.A.(C'nell), M.S.(Vt.), M.A., Ph.D.(Brown)
Athanasios Katsarkas; M.D.(Thess.), M.Sc.(McG.), F.R.C.P.(C)

Associate Professors

Vincent Gracco; B.A., M.A.(San Diego), Ph.D.(Wis.-Madison)
Marc Pell; B.A.(Ott.), M.Sc., Ph.D.(McG.)
Linda Polka; B.A.(Slippery Rock), M.A.(Minn.), Ph.D.(S.Flor.)
Susan Rvachew; B.Sc.(Alta.), M.Sc., Ph.D.(Calg.)
Elin Thordardottir; B.A., M.Sc., Ph.D.(Wis.-Madison)

Assistant Professor

Laura Gonnerman; B.A.(Boston), M.A.(Middlebury), Ph.D.(USC)
Aparna Nadig; B.A.(Reed), M.S, Ph.D.(Brown)
Karsten Steinhauer; M.Sc., Ph.D.(Dr.rer.nat) (Free Univ., Berlin)

Assistant Professors (Part-Time)

Gabriel Leonard; B.A.(Dublin), D.A.P., M.Sc., Ph.D.(McG.)
Rosalee Shenker; B.Sc.(Syr.), M.A.(Calif. St.), Ph.D.(McG.)

Faculty Lecturer

Jeanne Claessen; M.A.(Reading), Dip. Clinical Communication
Studies(City University, London)

Faculty Lecturers (Part-Time)

Abdulsalam Al-Haidary; B.Sc.(King Saud U.) M.Sc.A.(McG.)
Françoise Brosseau-Lapre; B.A., M.Sc.A.(McG.)
Liliane Brunetti; B.Sc.(C'dia), M.Sc.(W. Ont.)
Pi-Yu Chiang; B.A., M.A.(Taiwan)
Catherine Dench; B.Sc.(Lond.), M.Sc.(W. Ont.)
Ruth Gesser; B.A.(C'dia), M.Sc.A.(McG.)
James Lapointe; B.A., M.Sc.A.(McG.)
Mahchid Namazi; B.Sc., M.Sc.(Br. Col.)
Darla Orchard; B.A., M.Sc.(McG.)
Judith Robillard-Shultz; B.A., M.Sc.A.(McG.)
Colleen Timm; B.A.(C'dia), M.Sc.A.(McG.)
Patricia Viens; ASLTA Certificate(Rochester I.T.), ASL Workshop
Certificate(Vista U.)
Anne Vogt; B.Ed., B.A.(Tel Aviv)
Joanne Wilding; B.A., M.Sc.A.(McG.)

Associate Members

Eva Kehayia (*Physical and Occupational Therapy*),
Yuriko Oshima-Takane (*Psychology*)

Adjunct Members

Howard Chertkow (*Jewish Gen.*), Rachel Mayberry (*U.C.S.D.*),
David McFarland (*Montr.*), Martha Crago (*Montr.*)

17.2 Programs Offered

The School offers a professional degree in Communication Sciences and Disorders at the M.Sc. (Applied) level with specialization in Speech Language Pathology and two research degrees, an M.Sc. (Research) and a Ph.D. in Communication Sciences and Disorders.

M.Sc. (Applied) Degree in Communication Sciences and Disorders

The professional degree leads to a Master of Science (Applied) with a specialization in Speech Language Pathology. The program involves two academic years of full-time study and related practical work followed by a Summer internship. To prepare students as creative professionals, the program emphasizes the understanding of principles and theories, and their present or potential clinical applications, in addition to the teaching of specific techniques for assessment and intervention. Active participation in the learning process is encouraged.

The profession of Speech-Language Pathology concerns assessment and intervention in speech and language disorders. In particular, the Speech-Language Pathologist is concerned with two major parameters of communication sciences and disorders: language and speech. At present, most speech-language pathologists in Canada work in hospitals, public school systems, rehabilitation centres, and in special education facilities.

Requirements for Licensure – The majority of provinces in Canada and certain states in the U.S.A. require that those intending to practice as Speech-Language Pathologists within their borders comply with special provincial or state licensing regulations. Graduates wishing to practice in the province of Quebec must be members of l'Ordre des Orthophonistes et Audiologistes du Québec (OOAQ) in order to call themselves Speech-Language Pathologists. Further information is available from the OOAQ, 235, boulevard René Lévesque est, bureau 601, Montréal (Québec) H2X 1N8. Telephone: (514) 282-9123. Website: www.ooaq.qc.ca.

Quebec law requires that candidates seeking licensure in provincially recognized professions demonstrate a verbal and written working knowledge of the French language. See the Language Requirements for Professions in the General Information and Regulations section of the *Health Sciences Calendar*.

Research Degrees – M.Sc. and Ph.D.

Selected candidates may be accepted for the M.Sc. and Ph.D. research degrees. Each student's Thesis supervisor and Thesis Committee design an individualized program of study in collaboration with the student. The program can include graduate courses offered by the School and by other departments at McGill.

Ph.D. Option in Language Acquisition (LAP)

Information about this option is available from the School and on the Web at: ego.psych.mcgill.ca/lap.html.

Funding

The IODE Provincial Chapter of Quebec funds two \$1,000. "Silence to Sound" awards for studies in hearing impairment. These in-course awards are based on academic merit, financial need, and potential for excellence are awarded by the School. Montreal League for the Hard of Hearing Award. Candidates must be enrolled at the graduate level in the School and working in the area of hearing impairment. Awarded by the School. Value – up to \$1,000.

17.3 Admissions Requirements

M.Sc. (Applied)

An applicant must hold an undergraduate degree with a minimum B average (3.0 on a 4.0 point scale) or better in areas relevant to the selected field of specialization. Specific requirements are six credits in statistics, a total of 18 credits across the disciplines of

psychology and linguistics (with a minimum of six credits in each discipline). Knowledge of physiology is also desirable.

M.Sc. in Communication Sciences and Disorders

The M.Sc. provides research training for:

1. students who are also taking courses for professional qualification;
2. students who have a non-thesis professional degree in Communication Sciences and Disorders; and
3. students with degrees in related fields who wish to do research but not obtain professional qualification in Communication Sciences and Disorders.

Ph.D. in Communication Sciences and Disorders

Applicants should normally have a Master's degree with thesis or its equivalent in Communication Sciences and Disorders or a related field (e.g., psychology, linguistics).

Students who possess an appropriate Bachelor's degree or Master's degree without thesis will also be considered for the Ph.D. program, but, if admitted, must first complete a qualifying year of coursework and a research project in the School ('fast-track' option).

17.4 Application Procedures

Please see the School of Communication Sciences and Disorders Website at www.mcgill.ca/scsd/application for required application materials.

School of Communication Sciences and Disorders will only consider applications upon receipt of the following documentation prior to the February 1st deadline.

- Online application
- Information Form
- Prerequisite Form
- Personal Statement
- Two letters of Recommendation
- Two official copies of Transcripts from all Universities attended

Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English **prior to admission**: the Test of English as a Foreign Language (TOEFL) with a minimum score of 587 (paper-based) or 240 (computer-based), or 95 on the Internet-based test with minimum component scores of 24 in both Speaking and Writing and 21 in both Reading and Listening, or the International English Language Testing System (IELTS) with a minimum overall band score of 7.0.

M.Sc. (Thesis) and Ph.D. programs

Application for Fall admission are processed shortly after the deadline of February 22. All applications received by that date are automatically considered for any internal funding or awards made available to the department for recruitment purposes. Applications for Winter or Summer admission are processed when they are received, but must be received no later than August 1 (Winter admission) or December 15 (Summer admission). Students who apply for Fall admission generally have the most options with respect to applying for external funding as well as for being considered for internal support.

Applications will be considered upon receipt of supporting documents as outlined above. All applicants are strongly encouraged to submit reports of their performance on the Graduate Record Examination (GRE).

17.5 Program Requirements

M.Sc. (Applied) in Communication Sciences and Disorders – Speech-Language Pathology Option/Concentration (68 credits)

The professional degree program involves two academic years of full-time study and related practical work followed by a Summer internship.

Year 1 Required Courses (31 credits)

Fall

SCSD 616	(3)	Audiology
SCSD 617	(3)	Anatomy and Physiology of Speech and Hearing
SCSD 619	(3)	Phonological Development
SCSD 624	(3)	Language Processes
SCSD 633	(3)	Language Development
SCSD 681	(1)	Practicum and Seminar 1

Winter

SCSD 631	(3)	Speech Science
SCSD 632	(3)	Phonological Disorders: Children
SCSD 637	(3)	Developmental Language Disorders 1
SCSD 638	(3)	Neurolinguistics
SCSD 682	(1)	Practicum and Seminar 2

Summer

SCSD 646	(2)	Introductory Clinical Practicum
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Year 1 Complementary Course (3 credits)

One three-credit seminar option must be taken.

Year 2 Required Courses (31 credits)

Fall

SCSD 618	(3)	Research and Measurement Methodologies
SCSD 636	(3)	Fluency Disorders
SCSD 639	(3)	Voice Disorders
SCSD 643	(3)	Developmental Language Disorders 2
SCSD 644	(3)	Applied Neurolinguistics
SCSD 683	(1)	Practicum and Seminar 3

Winter

SCSD 609	(3)	Neuromotor Disorders
SCSD 642	(3)	Aural Rehabilitation
SCSD 669	(3)	Special Developmental Speech/Language Problems
SCSD 680	(3)	Deglutition and Dysphagia
SCSD 684	(1)	Practicum and Seminar 4

Summer

SCSD 679	(2)	Advanced Clinical Practicum
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Year 2 Complementary Course (3 credits)

One three-credit seminar option must be taken.

M.Sc. (Applied) Complementary Course List

SCSD 634	(3)	Research and Measurement Methodologies 2
SCSD 664	(3)	Communication Sciences and Disorders 1
SCSD 666	(3)	Communication Sciences and Disorders 3
SCSD 667	(3)	Communication Sciences and Disorders 4
SCSD 670	(3)	Communication Sciences and Disorders 2
SCSD 678	(3)	Special Topics 4

A seminar may also be taken outside of the School upon approval of a faculty advisor.

M.Sc. in Communication Sciences and Disorders (45 credits)

M.Sc. candidates must complete at least 45 credits, including a minimum of 24 and a maximum of 39 credits for thesis research, and a minimum of 6 credits in other courses. The non-thesis credits can be special topic courses in the School and/or courses in other departments, as arranged with the student's thesis supervisor.

Complementary Courses (21 credits)

6 - 21 credits chosen from:

SCSD 675 (12) Special Topics 1

SCSD 676 (9) Special Topics 2

SCSD 677 (6) Special Topics 3

SCSD 678 (3) Special Topics 4

or courses in other departments, as arranged with the student's thesis supervisor

0 - 15 credits chosen from:

SCSD 673 (12) M.Sc. Thesis 3

SCSD 674 (3) M.Sc. Thesis 4

Thesis Component – Required (24 credits)

SCSD 671 (12) M.Sc. Thesis 1

SCSD 672 (12) M.Sc. Thesis 2

Ph.D. in Communication Sciences and Disorders

Ph.D. students must complete a full graduate course in statistics and both advanced research seminars as well as the other course requirements in their individual program of study, and pass a comprehensive examination. Students entering the Ph.D. program through the fast-track option must additionally demonstrate the ability to complete a research project (SCSD 685 and SCSD 686) and related coursework during the initial year. An examination in a foreign language is not required.

Required Courses (6 credits)

SCSD 652 (3) Advanced Research Seminar 1

SCSD 653 (3) Advanced Research Seminar 2

SCSD 685 (3) Research Project 1

SCSD 686 (3) Research Project 2

SCSD 701 (0) Doctoral Comprehensive

Complementary Courses (minimum 6 credits)

6 credits of graduate-level statistics from courses such as: EDPE 676, EDPE 682, EDPE 684, EPIB 621, EPIB 622, PSYC 650, PSYC 651.

Any other course requirements specified for the student's individual program of study.

Ph.D. in Communication Sciences and Disorders – Language Acquisition Option/Concentration

Students must satisfy all program requirements for the Ph.D. in their home department. The Ph.D. thesis must be on a topic relating to language acquisition, approved by the LAP committee.

Required Courses (14 credits)

EDSL 711 (2) Language Acquisition Issues 3

LING 710 (2) Language Acquisition Issues 2

PSYC 709 (2) Language Acquisition Issues 1

SCSD 652 (3) Advanced Research Seminar 1

SCSD 653 (3) Advanced Research Seminar 2

SCSD 712 (2) Language Acquisition Issues 4

SCSD 701 (0) Doctoral Comprehensive

Complementary Courses (9 credits)

3 credits of graduate-level statistics from courses such as: EDPE 676, EDPE 682, PSYC 650, PSYC 651; students who have taken an equivalent course in statistics, or are currently taking an equivalent course as part of their Ph.D. program requirements, will be deemed to have satisfied this requirement for the Language Acquisition Option.

At least 6 credits, two courses, selected from the following list. One of these two courses must be from outside Communication Sciences and Disorders.

EDSL 620 (3) Critical Issues in Second Language Education

EDSL 623 (3) Second Language Learning

EDSL 624 (3) Educational Sociolinguistics

EDSL 627 (3) Classroom-Centred Second Language Research

EDSL 629 (3) Second Language Assessment

EDSL 632 (3) Second Language Literacy Development

EDSL 664 (3) Second Language Research Methods

LING 555 (3) Language Acquisition 2

LING 590 (3) Language Acquisition and Breakdown

LING 651 (3) Topics in Acquisition of Phonology

LING 655 (3) Theory of L2 Acquisition

LING 755 (3) Advanced Seminar: Language Acquisition

PSYC 561 (3) Methods: Developmental Psycholinguistics

PSYC 734 (3) Developmental Psychology and Language

PSYC 735 (3) Developmental Psychology and Language

PSYC 736 (3) Developmental Psychology and Language

PSYC 737 (3) Developmental Psychology and Language

SCSD 619 (3) Phonological Development

SCSD 632 (3) Phonological Disorders: Children

SCSD 633 (3) Language Development

SCSD 637 (3) Developmental Language Disorders 1

SCSD 643 (3) Developmental Language Disorders 2

17.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

The course credit weight is given in parentheses after the title.

SCSD 609 NEUROMOTOR DISORDERS. (3) The focus of this course will be on the assessment and management of motor speech disorders, associated with both acquired and developmental neuromotor disorders, and swallowing disorders (of both neuromotor and structural origin).

SCSD 616 AUDIOLOGY. (3) Basic diagnostic and rehabilitative procedures, goals and procedures used in clinical audiology, and the psychoacoustic theories on which they are based will be presented.

SCSD 617 ANATOMY AND PHYSIOLOGY: SPEECH AND HEARING. (3) The anatomy and physiology of speech and hearing mechanisms will be covered. Topics will include neuroanatomy, the anatomy and physiology of the head, neck and upper torso, and the external, middle, and inner ear.

SCSD 618 RESEARCH AND MEASUREMENT METHODOLOGIES 1. (3) Methodologies used in research and measurement in the field of communication sciences and disorders will be introduced. Topics covered include: the nature and interpretation of test norms; validity; interpretation of test score differences; and questionnaire development (scaling). Tests currently used in speech-language pathology and audiology are examined.

SCSD 619 PHONOLOGICAL DEVELOPMENT. (3) Theories and research related to normal and abnormal phonological development in children will be studied.

SCSD 624 LANGUAGE PROCESSES. (3) The structure and nature of on-line processing of the language code, and the interaction of structure and function of language will be studied. Theories about the nature of representation and research concerning its processing, and the role of sociocultural factors in linguistic performance also will be covered.

SCSD 631 SPEECH SCIENCE. (3) The acoustic analysis and perception of speech and related pathologies will be presented. Theories and models of speech production, speech motor control, and speech perception will be considered.

SCSD 632 PHONOLOGICAL DISORDERS: CHILDREN. (3) The nature of phonological disorders and clinical approaches for their remediation in children will be presented.

SCSD 633 LANGUAGE DEVELOPMENT. (3) Theories of language acquisition, prerequisites to language development, and current issues in research will be studied. Topics include the role of input, individual differences in acquisition, and language socialization.

SCSD 634 RESEARCH AND MEASUREMENT METHODS 2. (3) This course addresses the strengths and weaknesses of various research designs. Issues concerning the analysis and interpretation of research results also will be discussed.

SCSD 636 FLUENCY DISORDERS. (3) The nature of stuttering, various causal theories, and techniques for evaluation and treatment of children and adults will be presented.

SCSD 637 DEVELOPMENTAL LANGUAGE DISORDERS 1. (3) The nature of developmental language disorders and the assessment of language competence and performance in both speaking and non-speaking children will be studied.

SCSD 638 NEUROLINGUISTICS. (3) Current theories of language-brain relationships and speech and language deficits subsequent to brain damage will be studied. A review of current research on phonetic, lexical, and syntactic processing in brain-damaged individuals is included.

SCSD 639 VOICE DISORDERS. (3) Information about the vocal mechanism, its pathologies, and methods of evaluation and treatment will be studied.

SCSD 642 AURAL REHABILITATION. (3) This course addresses the effects of hearing impairment in adults as well as in the developing child with attention to problems in speech, language, and cognitive function as well as social-emotional adjustment. Various intervention approaches are examined.

SCSD 643 DEVELOPMENTAL LANGUAGE DISORDERS 2. (3) Major theories of language disorders are translated into intervention principles used in language treatment programs. Adaptations of intervention techniques to suit specific disorders (including augmentative communication) will be explored.

SCSD 644 APPLIED NEUROLINGUISTICS. (3) Various classificatory systems and appropriate assessment and remediation principles for brain-damaged individuals will be covered. Theoretical and clinical issues relevant to treatment of aphasic, neuromotor, and memory disorders will be considered.

SCSD 646 INTRODUCTORY CLINICAL PRACTICUM. (2) This course provides an introduction to professional practice through intensive exposure to a variety of clinical populations.

SCSD 652 ADVANCED RESEARCH SEMINAR 1. (3) (This course may be taken as an advanced course for M.Sc. students.) Pro seminar in which current research topics in communication disorders will be discussed.

SCSD 653 ADVANCED RESEARCH SEMINAR 2. (3) (This course may be taken as an advanced course for M.Sc. students.) Pro seminar in which current research topics in communication disorders will be discussed.

SCSD 664 COMMUNICATION SCIENCES AND DISORDERS 1. (3) Current research and professional issues in communication sciences and disorders will be discussed. Specific topics to be selected yearly.

SCSD 666 COMMUNICATION SCIENCES AND DISORDERS 3. (3) Current research and professional issues in communication sciences and disorders will be discussed. Specific topics to be selected yearly.

SCSD 667 COMMUNICATION SCIENCES AND DISORDERS 4. (3) Current research and professional issues in communication sciences and disorders will be discussed. Specific topics to be selected yearly.

SCSD 669 SPECIAL DEVELOPMENTAL SPEECH/LANGUAGE PROBLEMS. (3) Information pertinent to cerebral palsy, cleft palate, autism, mental retardation, multiple handicaps and syndromes involving speech and language disorders will be presented. General descriptions of the disorders and specific assessment and remedial procedures will be addressed.

SCSD 670 COMMUNICATION SCIENCES AND DISORDERS 2. (3) Current research and professional issues in communication sciences and disorders will be discussed. Specific topics to be selected yearly.

SCSD 671 M.Sc. THESIS 1. (12)

SCSD 671D1 (6), SCSD 671D2 (6) M.Sc. THESIS 1. (Students must register for both SCSD 671D1 and SCSD 671D2) (No credit will be given for this course unless both SCSD 671D1 and SCSD 671D2 are successfully completed in consecutive terms) (SCSD 671D1 and SCSD 671D2 together are equivalent to SCSD 671)

SCSD 671N1 M.Sc. THESIS 1. (6) (Students must also register for SCSD 671N2) (No credit will be given for this course unless both SCSD 671N1 and SCSD 671N2 are successfully completed in a twelve month period) (SCSD 671N1 and SCSD 671N2 together are equivalent to SCSD 671)

SCSD 671N2 M.Sc. THESIS 1. (6) (Prerequisite: SCSD 671N1) (No credit will be given for this course unless both SCSD 671N1 and SCSD 671N2 are successfully completed in a twelve month period) (SCSD 671N1 and SCSD 671N2 together are equivalent to SCSD 671) See SCSD 671N1 for course description.

SCSD 672 M.Sc. THESIS 2. (12)

SCSD 672D1 (6), SCSD 672D2 (6) M.Sc. THESIS 2. (Students must register for both SCSD 672D1 and SCSD 672D2) (No credit will be given for this course unless both SCSD 672D1 and SCSD 672D2 are successfully completed in consecutive terms) (SCSD 672D1 and SCSD 672D2 together are equivalent to SCSD 672)

SCSD 672N1 M.Sc. THESIS 2. (6) (Students must also register for SCSD 672N2) (No credit will be given for this course unless both SCSD 672N1 and SCSD 672N2 are successfully completed in a twelve month period) (SCSD 672N1 and SCSD 672N2 together are equivalent to SCSD 672)

SCSD 672N2 M.Sc. THESIS 2. (6) (Prerequisite: SCSD 672N1) (No credit will be given for this course unless both SCSD 672N1 and SCSD 672N2 are successfully completed in a twelve month period) (SCSD 672N1 and SCSD 672N2 together are equivalent to SCSD 672) See SCSD 672N1 for course description.

SCSD 673 M.Sc. THESIS 3. (12)

SCSD 678 SPECIAL TOPICS 4. (3)

SCSD 679 ADVANCED CLINICAL PRACTICUM. (2) This course enhances professional practice independence through intensive exposure to a variety of clinical populations.

SCSD 680 DEGLUTITION AND DYSPHAGIA. (3) Advanced physiology and neurophysiology of mastication and deglutition, including normal function and diagnosis and treatment of swallowing disorders.

SCSD 681 PRACTICUM AND SEMINAR 1. (1) Course provides initial practicum experiences including a combination of the following: speech/language and hearing screenings, facility tours, short term placements and laboratory assignments.

SCSD 682 PRACTICUM AND SEMINAR 2. (1) This course provides clinical experience through short-term placements and screenings, as well as discussions of current practicum issues.

SCSD 683 PRACTICUM AND SEMINAR 3. (1) Professional practice experiences focusing on a variety of clinical populations are provided. Discussion of advanced issues in clinical practice is included.

SCSD 684 PRACTICUM AND SEMINAR 4. (1) This course provides clinical practicum experiences in a range of settings. Professional practice issues are considered.

SCSD 685 RESEARCH PROJECT 1. (3) Supervised research project.

SCSD 686 RESEARCH PROJECT 2. (3) Supervised research project.

SCSD 701 DOCTORAL COMPREHENSIVE. (0)

SCSD 701D1 (0), SCSD 701D2 (0) DOCTORAL COMPREHENSIVE. (Students must register for both SCSD 701D1 and SCSD 701D2) (No credit will be given for this course unless both SCSD 701D1 and SCSD 701D2 are successfully completed in consecutive terms) (SCSD 701D1 and SCSD 701D2 together are equivalent to SCSD 701)

SCSD 712 LANGUAGE ACQUISITION ISSUES 4. (2)

18 Communication Studies

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Chair — Jonathan Sterne

Director, Graduate Programs in Communication Studies — David Crowley

Director, Graduate Programs in Art History — Angela Vanhaelen

Director of Undergraduate Programs in Art History — Richard Taws

Director of Undergraduate Programs in Communication Studies — Carrie Rentschler

18.1 Staff

Emeritus Professors

John M. Fossey; B.A.(Birm.), D.U.(Lyon II), F.S.A., R.P.A.
George Szanto; B.A.(Dart.), Ph.D.(Harv.)

Professors

Marc Raboy; B.Sc, M.A., Ph.D.(McG.)
Christine Ross; M.A.(C' dia.), Ph.D.(Paris I)
Will Straw; B.A.(Car.), M.A., Ph.D.(McG.)

Associate Professors

Darin Barney; B.A., M.A.(S. Fraser), Ph.D.(Tor.)
David Crowley; B.A.(Johns Hop.), M.Sc.(Penn.), Ph.D.(McG.)
Jonathan Sterne; B.A.(Minn.), A.M., Ph.D.(Ill.-Urbana-Champaign)
Angela Vanhaelen; B.A.(W. Ont.), M.A., Ph.D.(Br. Col.)

Assistant Professors

Jenny Burman; B.A.(C' dia), M.A., Ph.D.(York)
Mary Hunter; B.A. (Qu.), M.A., Ph.D. (Lond.)
Roberta G. Lentz; B.A.(Arkansas), M.A.(Ill.-Chic.), Ph.D.(Texas-Austin)
Hajime Nakatani; B.L.A.(Tokyo), M.A.(Lond.), Ph.D.(Chic.)
Charmaine Nelson; B.F.A., M.A.(C' dia), Ph.D.(Man.)
Carrie Rentschler; B.A.(Minn.), M.A., Ph.D.(Ill.-Urbana-Champaign)
Richard Taws; B.A., M.A., Ph.D.(Lond.)

Adjunct Professors

David W. Booth, Louis De Moura Sobral, Johanne Lamoureux,
Constance Naubert-Riser

18.2 Programs Offered

The Communication Studies Program offers courses and directs project research in preparation for the M.A. (Thesis and Non-thesis options) and Ph.D. in Communication Studies.

The Program is concerned with the study of communications phenomena through interdisciplinary activity that includes both theoretical and practical considerations of the various modes and media of communication. The Program does not provide the purely technical training which can be more appropriately carried out by institutions of technology and communication arts, rather the focus is on broadening the understanding of the interplay between practical needs and theoretical perspectives. The special theoretical interest of the Program centres on the nature and scope of human communications as they emphasize the relationship of cognitive, social and aesthetic problems.

For more information on the Program, please visit our Website www.arts.mcgill.ca/programs/AHCS.

To obtain funding information please consult the Graduate and Postdoctoral Studies Office, McGill University, James Administration Building, Room 400, 845 Sherbrooke Street W., Montreal, Quebec, H3A 2T5. Telephone: (514) 398-3990. Website: www.mcgill.ca/gps.

For programs in Art History and Communication Studies refer to [section 6 "Art History"](#).

18.3 Admission Requirements

M.A.

An Honours Bachelor's degree or equivalent is required of applicants for the M.A. program with a minimum CGPA of 3.3 out of 4.0 or the equivalent, i.e., B+ (75%), is required. In any case, the transcript must show breadth or depth in related areas of study.

Ph.D.

Applicants for the Ph.D. program are expected to have completed the equivalent of an M.A. degree. Admission will be based on academic achievement and evidence of talent and strong motivation in communication studies.

18.4 Application Procedures

Applications will be considered upon receipt of:

1. Completed and signed application form.
2. A non-refundable application fee of \$80 Canadian must accompany each application (including McGill students), otherwise it cannot be considered. This sum must be remitted using one of the following methods:
 - a. Credit card (by completing the appropriate section of the application form).
 - b. Certified cheque in Cdn. currency drawn on a Canadian bank.
 - c. Certified cheque in U.S. currency drawn on a U.S. bank.
 - d. Canadian Money Order in Cdn. currency.
 - e. U.S. Money Order in U.S. currency.
 - f. An international draft in Canadian funds drawn on a Canadian bank requested from the applicant's bank in his/her own country.
3. Two official copies of all transcripts are required for admission. Transcripts written in a language other than English or French must be accompanied by a certified translation. An explanation of the grading system used by the applicant's university is essential. It is the applicant's responsibility to arrange for transcripts to be sent. Documents submitted will not be returned. It is desirable to submit a list of the titles of courses taken in the major subject, since transcripts often give code numbers only.
4. Two letters of recommendation on letterhead or bearing the university seal and with original signatures from two instructors familiar with the applicant's work, preferable in the applicant's area of specialization, are required. It is the applicant's responsibility to arrange for these letters to be sent.
5. Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English, by completing the TOEFL exams (minimum score 550 on the paper-based test, 213 on the computer-based test, or 86 on the Internet-based test, with each component score not less than 20). Results must be submitted as part of the application.
6. Statement of interest of at least 500 words addressing the student's interest in Communication and the proposed area of research.
7. Two examples of written work.
8. Proof of Citizenship (certified photocopy of passport, birth certificate or equivalent).

Deadline for applications is January 9 for Ph.D. applicants and February 6 for M.A. applicants.

Inquiries regarding the Program should be addressed to the Graduate Administrative Coordinator, Department of Art History and Communication Studies.

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

18.5 Program Requirements

The Master's Program consists of a three-term program of courses outlined below and the fulfillment of a French language requirement.

M.A. in Communication Studies (Thesis) (45 credits)

The M.A. in Communication Studies offers advanced training in the critical, historical and theoretical analysis of communication in culture, communication technology and communication policy. M.A. students pursue coursework and write an M.A. thesis that reflects sustained analysis of a topic in Communication Studies. The M.A. degree is academic in character, and does not include professional training in media production.

Required Courses (27 credits)

COMS 616 (3) Staff-Student Colloquium
COMS 692 (6) M.A. Thesis Preparation 1
COMS 693 (6) M.A. Thesis Preparation 2
COMS 694 (6) M.A. Thesis Preparation 3
COMS 695 (6) M.A. Thesis Preparation 4

Complementary Courses (18 credits)

18 credits of 500-level or higher COMS courses; courses outside COMS require approval of the graduate program director.

Language Requirement

Reading competency in French as a second language as per the [Language Requirements – Master's Degrees](#), see [section 4.1.4](#) found under the heading [Program Requirements](#), [section 4](#) in the "General Information, Regulations and Research Guidelines" of the Graduate Calendar.

M.A. in Communication Studies (Thesis); Gender and Women's Studies Option/Concentration (45 credits)

The Graduate Option in Gender and Women's Studies is an interdisciplinary program for students who meet the degree requirements in Communication Studies who wish to earn 6 credits of approved coursework focusing on gender and women's studies, and issues in feminist research and methods. The thesis must be on a topic centrally related to gender and/or women's studies.

Required Courses (30 credits)

COMS 616 (3) Staff-Student Colloquium
COMS 692 (6) M.A. Thesis Preparation 1
COMS 693 (6) M.A. Thesis Preparation 2
COMS 694 (6) M.A. Thesis Preparation 3
COMS 695 (6) M.A. Thesis Preparation 4
WMST 601 (3) Feminist Theories and Methods

Complementary Courses (15 credits)

All complementary courses must be at the 500-level or higher.

6 credits of complementary coursework must be in Gender and Women's Studies.

An additional 3-credits of coursework must be either:

WMST 602 (3) Feminist Research Symposium
OR, one 3-credit course on gender/women's issues at the 500 level or higher (may be in the department or outside).

Language Requirement

Reading competency in French as a second language as per the [Language Requirements – Master's Degrees](#), see [section 4.1.4](#) found under the heading [Program Requirements](#), [section 4](#) in the "General Information, Regulations and Research Guidelines" of the Graduate Calendar.

M.A. in Communication Studies (Non-Thesis) (48 credits)

Required Courses (15 credits)

COMS 611 (3) History/Theory/Technology
COMS 613 (3) Gender and Technology
COMS 616 (3) Staff-Student Colloquium
COMS 617 (3) Staff-Student Colloquium
COMS 619 (3) Material Culture & Communications

Complementary Courses (21 credits)

6 credits, two history of communication courses chosen from:

COMS 521 (3) Communications in History
COMS 623 (3) Information Design
COMS 625 (3) Media Policy
COMS 629 (3) Canadian Cultural Communications Policy

6 credits, two community and gender in communication courses chosen from:

COMS 631 (3) Discourse Analysis
COMS 633 (3) Feminist Media Studies
COMS 637 (3) Historiography of Communications
COMS 639 (3) Interpretive Methods in Media

6 credits, two media studies and technology courses chosen from:

COMS 541 (3) Cultural Industries
COMS 643 (3) Cultural Studies of News
COMS 646 (3) Popular Media
COMS 649 (3) Audience Analysis

3 credits, one additional graduate-level COMS course or, with the permission of the Director, a graduate-level course in Anthropology, Architecture, Art History, English, Philosophy, Political Science or Sociology.

Project Component – Required (12 credits)

COMS 696 (6) Research Project 1
COMS 697 (6) Research Project 2

Ph.D. Degree in Communication Studies

Candidates with an M.A. degree will be admitted at the Ph.D. 2 level, thereby gaining credit for one year of resident study. When admitted at Ph.D.2 level, two years of residence are required for the Doctoral degree.

The Ph.D. in Communication Studies offers in-depth training in the critical, historical and theoretical analysis of communication in culture, communication technology and communication policy. Doctoral students pursue coursework, submit a comprehensive exam and thesis proposal, with the goal of writing a dissertation that makes an original contribution to knowledge in Communication Studies. The Ph.D. degree is academic in character, and does not include professional training in media production.

Required Courses (3 credits)

COMS 616 (3) Staff-Student Colloquium
COMS 702 (0) Comprehensive Exam
COMS 703 (0) Dissertation Proposal

Complementary Courses (15 credits)

15 credits of 500-level or higher COMS courses; courses outside COMS require approval of the graduate program director.

Language Requirement

Competence in French as a second language as per the [Language Requirements – Doctoral](#), see [section 4.2.3](#) found under the heading [Program Requirements](#), [section 4](#) in the "General Information, Regulations and Research Guidelines" of the Graduate Calendar.

Ph.D. Degree in Communication Studies; Gender and Women's Studies Option/Concentration

Candidates with an M.A. degree will be admitted at the Ph.D. 2 level, thereby gaining credit for one year of resident study. When admitted at Ph.D.2 level, two years of residence are required for the Doctoral degree.

The Graduate option in Gender and Women's Studies is an interdisciplinary program for students who meet the degree requirements in Communication Studies who wish to earn 9 credits of approved coursework focusing on gender and women's studies, and issues in feminist research and methods. The student's doctoral thesis must be on a topic centrally relating to issues of gender and/or women's studies.

Required Courses (9 credits)

COMS 616	(3)	Staff-Student Colloquium
COMS 702	(0)	Comprehensive Exam
COMS 703	(0)	Dissertation Proposal
WMST 601	(3)	Feminist Theories and Methods
WMST 602	(3)	Feminist Research Symposium

Complementary Courses (9 credits)

9 credits of 500-level or higher courses which must include one 3-credit course on gender/women's issues at the graduate level (may be in the department or outside).

Language Requirement

Competence in French as a second language as per the [Language Requirements – Doctoral](#), see section 4.2.3 found under the heading [Program Requirements](#), section 4 in the "General Information, Regulations and Research Guidelines" of the Graduate Calendar.

18.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva-students (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Students may also consult the Department Website (www.arts.mcgill.ca/programs/AHCS) for information.

For course inquiries, please contact the Department.

Note: All undergraduate courses administered by the Faculty of Arts (courses at the 100- to 500-level) have limited enrolment.

The course credit weight is given in parentheses after the title.

COMS 510 (3) (Course intended for senior undergraduates and graduate students with a specialized interest in Canadian broadcasting policy.) (Prerequisites: 3 credits of COMS coursework at the 200-level, 3 credits of COMS coursework at the 300 or 400-level, or permission of instructor.) Key issues in the history and evolution of radio, television and new media in Canada. The legislative and regulatory framework of Canadian broadcasting, the relationship between public and privately-owned media, the emergence of new media, and the efforts of interest groups to influence the direction of the Canadian media system.

COMS 521 COMMUNICATIONS IN HISTORY. (3) North American communication studies have undergone five discernible changes in the definition and focus of the field. The major "schools" of thought to be covered are the Chicago and Lazarsfeld heritages, the institutionalization of communication science in the academy, and the post-modern period.

COMS 541 CULTURAL INDUSTRIES. (3) The convergence of computerized technologies and cultural industries and how these have produced entire new forms of cultural expression in film, TV, and the Internet.

COMS 560 COMMUNICATIONS AND DEVELOPMENT. (3)

COMS 611 HISTORY/THEORY/TECHNOLOGY. (3) A critical appraisal of current issues in the field of communications notably through an examination of how new theorists have dealt with the effects and consequences of developments in the technologies of communication. The contributions of Canadian media theorists figure significantly in the seminar's concerns.

COMS 613 GENDER AND TECHNOLOGY. (3) Contemporary culture and media in Canada and Quebec since 1945, with special emphasis on the '70s.

COMS 616 STAFF-STUDENT COLLOQUIUM 1. (3) Pro-Seminar in Communications. A required course for all new M.A. and Ph.D. students. The Pro-Seminar is designed to explore theoretical and methodological issues in Communications through a series of presentations by the faculty and other McGill associates.

COMS 617 STAFF-STUDENT COLLOQUIUM 2. (3) A required course for all new M.A. and Ph.D. students. The Pro-Seminar is designed to explore theoretical and methodological issues in Communications through a series of presentations by the faculty and other McGill associates.

COMS 619 MATERIAL CULTURE & COMMUNICATIONS. (3) Approaches to the analysis of material artefacts of "things" and their place within communications. Anthropological, economic and aesthetic analysis of objects, with particular emphasis on the capacity of artefacts to carry and store meaning.

COMS 623 INFORMATION DESIGN. (3) Examination of the basic concepts and methodologies in the design of information.

COMS 625 MEDIA POLICY. (3) The political, economic, social and cultural processes that shape national media systems.

COMS 629 CANADIAN CULTURAL COMMUNICATIONS POLICY. (3) An advanced seminar in history and theory of Canadian cultural and communications policy in the context of rapidly changing technological environments.

COMS 630 READINGS IN COMMUNICATIONS RESEARCH 1. (3)

COMS 631 TEXTUAL ANALYSIS OF MEDIA. (3) An examination of tools and methods for the analysis of media texts, including methodological traditions of semiology, structuralism, classical film theory and discourse analysis, as well as with critiques directed at these traditions.

COMS 633 FEMINIST MEDIA STUDIES. (3) Examination of cross-disciplinary approaches to critical media study undertaken by feminist, gender and queer studies scholars.

COMS 637 HISTORIOGRAPHY OF COMMUNICATIONS. (3) Surveys recent writings in the history of media and communication; explores theoretical and methodological problems of writing media history.

COMS 639 INTERPRETIVE METHODS IN MEDIA. (3) A study of the various modes of interpreting and understanding the products of the mass media and of other human communication events.

COMS 641 PROPAGANDA. (3)

COMS 643 CULTURAL STUDIES OF NEWS. (3) Examines how cultural studies scholars approach news, including news as a popular textual system, news as the ritual construction of national identity and its role in nation-building projects, the urban circulation of news, journalism as an interpretive culture, alternative press cultures, and the commoditization of news spectacles.

COMS 646 POPULAR MEDIA. (3) An assessment of popular culture and the research strategies employed; an examination of semiotics, critical theory, literary criticism, psychoanalysis, and cultural studies. Case studies from several of the following areas will be critiqued: fashion, music, advertising sub-cultural codes and behavior, soap operas, visual art and cult films.

COMS 649 AUDIENCE ANALYSIS. (3) Advanced theoretical and empirical work on audience analysis from the perspective of recent research in mass communications.

COMS 655 MEDIA AND THE SENSES. (3) Media as interfaces between human senses and the surrounding world, including the relationship of media and sensory experience from cultural, technological, political and philosophical perspectives.

COMS 670D1 (1.5), COMS 670D2 (1.5) FILM STUDIES SEMINAR. (Students must register for both ENGC 670D1 and ENGC 670D2) (No credit will be given for this course unless both ENGC 670D1 and ENGC 670D2 are successfully completed in consecutive terms)

COMS 692 M.A. THESIS PREPARATION 1. (6)

COMS 693 M.A. THESIS PREPARATION 2. (6)

COMS 694 M.A. THESIS PREPARATION 3. (6)

- COMS 695 M.A. THESIS PREPARATION 4.** (6)
COMS 696 RESEARCH PROJECT 1. (6)
COMS 697 RESEARCH PROJECT 2. (6)
COMS 702 COMPREHENSIVE EXAMINATION. (0) Comprehensive examination as per departmental procedure.
COMS 703 DISSERTATION PROPOSAL. (0) Preparation of a dissertation research proposal.
COMS 704 COMPREHENSIVE EXAMINATION PART 3. (6)
COMS 705 COMPREHENSIVE EXAMINATION PART 4. (6)
COMS 730 READINGS IN COMMUNICATIONS RESEARCH 2. (3)

19 Computer Science

School of Computer Science
 McConnell Engineering, Room 318
 3480 University Street
 Montreal, QC H3A 2A7
 Canada

Telephone: (514) 398-7071 ext. 00074
 Fax: (514) 398-3883
 E-mail: grad.cs@mcgill.ca
 Website: www.cs.mcgill.ca

Director — Sue Whitesides

Graduate Program Directors:
 M.Sc. — M. Blanchette
 Ph.D. — X.-W. Chang

19.1 Staff

Emeritus Professor

C. Paige; B.Sc., B.Eng.(Syd.), Ph.D.(Lond.)
 G.T. Toussaint; B.Sc.(Tulsa), Ph.D.(Br. Col.)

Post-Retirement

T.H. Merrett; B.Sc.(Qu.), D.Phil.(Oxf.)
 M.M. Newborn; B.E.E.(R.P.I.), Ph.D.(Ohio St.), F.A.C.M.
 G.F.G. Ratzer; B.Sc.(Glas.), M.Sc.(McG.)

Professors

D. Avis; B.Sc.(Wat.), Ph.D.(Stan.)
 L. Devroye; M.S.(Louvain), Ph.D.(Texas) (*James McGill Professor*)
 G. Dudek; B.Sc.(Qu.), M.Sc., Ph.D.(Tor.) (*James McGill Professor*)
 L. Hendren; B.Sc., M.Sc.(Qu.), Ph.D.(C'nell)
 P. Panangaden; M.Sc.(I.I.T. Kanpur), M.S.(Chic.), Ph.D.(Wisc.)
 B. Reed; B.Sc, Ph.D.(McG.) (*Canada Research Chair*) (*on leave 2008-2009*)
 K. Siddiqi; B.Sc.(Lafayette), M.Sc., Ph.D.(Brown) (*William Dawson Chair*)
 D. Thérien; B.Sc.(Montr.), M.Sc., Ph.D.(Wat.) (*James McGill Professor*)
 S. Whitesides; M.S.E.E.(Stan.), Ph.D.(Wisc.) (*on leave 2008-2009*)

Associate Professors

X.W. Chang; B.Sc., M.Sc.(Nanjing), Ph.D.(McG.)
 C. Crépeau; B.Sc., M.Sc.(Montr.), Ph.D.(MIT)
 N. Friedman; B.A.(W. Ont.), Ph.D.(Tor.)
 M.T. Hallett; B.Sc.(Qu.), Ph.D.(Vic., BC)
 B. Kemme; B.Sc., M.Sc.(U. of Erlangen-Nuremberg, Germany), Ph.D.(ETH, Zurich)
 M. Langer; B.Sc.(McG.), M.Sc.(Tor.), Ph.D.(McG.)
 D. Precup; B.Sc.(Tech. U. of Cluj-Napoca), M.Sc., Ph.D.(Mass.) (*on leave 2008-2009*)
 C. Tropper; B.Sc.(McG.), Ph.D.(Brooklyn Poly.) (*on leave 2008-2009*)
 H. Vangheluwe; B.Sc., M.Sc., D.Sc.(Ghent, Belgium)
 C. Verbrugge; B.A.(Qu.), Ph.D.(McG.) (*on leave 2008-2009*)

Assistant Professors

M. Blanchette; B.Sc., M.Sc.(Montr.), Ph.D.(Wash.)
 P. Hayden; B.Sc.(McG.), Ph.D.(Oxf.)
 J. Kienzle; Eng.Dip., Ph.D.(Swiss Fed. IT) (*on leave 2008-2009*)
 P. Kry; B.Sc.(Wat.), M.Sc., Ph.D.(Br. Col.)
 X. Liu; B.Sc., M.Sc.(Tsinghua), Ph.D.(Ill.)
 M. Maheswaran; B.Sc.(U. Peradeniya), M.Sc., Ph.D.(Purdue)
 T.J. Perkins; B.A.(Car.), M.Sc.(Wisc.), Ph.D.(Mass.)
 B. Pientka; B.Sc., M.Sc.(Tech.U.of Darmstadt, Germany), Ph.D.(Carn. Mell.)
 J. Pineau; B.Sc.(Wat.), M.Sc., Ph.D.(Carn. Mell.)
 M. Robillard; B.Eng.(École Poly., Montr.), M.Sc., Ph.D.(Br. Col.)
 A. Vetta; B.Sc., M.Sc.(LSE), Ph.D.(MIT)

Faculty Lecturer

J. Vybihal; B.Sc., M.Sc.(McG.)

Associate Members

D.J. Levitin (*Psychology*), T.R. Shultz (*Psychology*),
 B.F. Shepherd (*Mathematics & Statistics*)

Adjunct Professors

S. Brands, R. De Mori, V. Ferretti, I. Rekleitis, P. Tesson.

19.2 Programs Offered

Master's in Computer Science (Thesis Option), including the Computational Science and Engineering (CSE) option and the Bioinformatics option.

Master's in Computer Science (Project Option)

Ph.D. in Computer Science, including a Bioinformatics option.

19.3 Admission Requirements

Master's (M.Sc.)

The minimum requirement for admission is a bachelor's degree (CGPA 3.2 or better, or equivalent) with the course work in Computer Science indicated in the brochure "Information for Applicants to Graduate Programs".

The brochure supplements information in this Calendar and should be consulted by all graduate students.

Ph.D.

In order to apply to the Ph.D. program, normally applicants should hold an M.Sc. degree in Computer Science or a closely related area, from a well-recognized university. Students who hold a B.Sc. degree in Computer Science but have an exceptionally strong academic record may be admitted directly to the Ph.D. program, but they must initially apply to the M.Sc. Program. Students who are in the M.Sc. program have the option to be fast-tracked into the Ph.D. program at the end of their first academic year contingent on excellent performance as judged by the Ph.D. committee.

19.4 Application Procedures

Applications will be considered upon receipt of:

1. application form
2. original or certified copies of transcripts
3. two letters of reference
4. \$80 application fee
5. test results (GRE, TOEFL)

All information is to be submitted directly to the Graduate Secretary.

Deadline(s): January 1st (if applicant wishes to be considered for scholarship awards); March 1st. Application documents are also available at our Website, www.cs.mcgill.ca/academic/prospectivestudents/applying/applying.

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

19.5 Program Requirements

MASTER'S

The M.Sc. program is offered with either a thesis or a project. The M.Sc. Thesis (49 credits, 50 credits if the multidisciplinary Computational Science and Engineering option is selected) requires six 500, 600 or 700 level courses and a thesis; the M.Sc. Thesis (Bioinformatics option) (49 credits) requires courses in Bioinformatics as well as courses in Computer Science at the 500, 600, or 700 level and a thesis; the M.Sc. Project (Non-Thesis) is 46 credits, requiring nine 500, 600 or 700 level courses and a project. Courses will be chosen with guidance from an academic adviser, subject to approval by the School.

M.Sc. in Computer Science (Thesis) (49 credits)

Required Course (4 credits)

COMP 601 (4) Special Topics in Computer Science

Complementary Courses (minimum 21 credits)

six 500, 600, or 700 level COMP courses

Thesis Component – Required (24 credits)

COMP 698 (9) Thesis Research 1

COMP 699 (15) Thesis Research 2

M.Sc. in Computer Science (Thesis) – Computational Science and Engineering Option/Concentration (50 credits)

Required Courses (5 credits)

COMP 601 (4) Special Topics in Computer Science

COMP 669D1/D2(1) CSE Seminar

Complementary Courses (minimum 21 credits)

Two courses from List A, two courses from List B, and the remaining credits to be chosen from graduate (500, 600 or 700-level) courses in the School of Computer Science. Two complementary courses must be taken outside the School of Computer Science.

List A - Scientific Computing Courses:

CIVE 602 (4) Finite Element Analysis
 COMP 522 (4) Modelling and Simulation
 COMP 540 (3) Matrix Computations
 COMP 566 (3) Discrete Optimization 1
 MATH 578 (4) Numerical Analysis 1
 MATH 579 (4) Numerical Differential Equations

List B - Applications and Specialized Methods Courses:

ATOC 512 (3) Atmospheric and Oceanic Dynamics
 ATOC 513 (3) Waves and Stability
 ATOC 515 (3) Turbulence in Atmosphere and Oceans
 CIVE 514 (3) Structural Mechanics
 CIVE 572 (3) Computational Hydraulics
 CIVE 603 (4) Structural Dynamics
 CIVE 613 (4) Numerical Methods: Structural Engineering
 COMP 505 (3) Advanced Computer Architecture
 COMP 557 (3) Fundamentals of Computer Graphics
 COMP 558 (3) Fundamentals of Computer Vision
 COMP 567 (3) Discrete Optimization 2
 COMP 621 (4) Optimizing Compilers
 COMP 642 (4) Numerical Estimation Methods
 COMP 767 (3) Advanced Topics: Applications 2
 ECSE 507 (3) Optimization and Optimal Control
 ECSE 532 (3) Computer Graphics
 ECSE 547 (3) Finite Elements in Electrical Engineering
 ECSE 549 (3) Expert Systems in Electrical Design
 MATH 555 (4) Fluid Dynamics
 MATH 560 (4) Optimization
 MATH 651 (4) Asymptotic Expansion and Perturbation Methods
 MATH 761 (4) Topics in Applied Math 1
 MECH 533 (3) Subsonic Aerodynamics
 MECH 537 (3) High-Speed Aerodynamics
 MECH 538 (3) Unsteady Aerodynamics

MECH 539 (3) Computational Aerodynamics
 MECH 541 (3) Kinematic Synthesis
 MECH 545 (3) Advanced Stress Analysis
 MECH 572 (3) Introduction to Robotics
 MECH 573 (3) Mechanics of Robotic Systems
 MECH 576 (3) Computer Graphics and Geometrical Modelling
 MECH 577 (3) Optimum Design
 MECH 610 (4) Fundamentals of Fluid Dynamics
 MECH 620 (4) Advanced Computational Aerodynamics
 MECH 632 (4) Theory of Elasticity
 MECH 642 (4) Advanced Dynamics
 MECH 650 (4) Heat Transfer
 MECH 654 (4) Compt. Fluid Flow and Heat Transfer

Thesis Component – Required (24 credits)

COMP 698 (9) Thesis Research 1

COMP 699 (15) Thesis Research 2

M.Sc. in Computer Science – Bioinformatics

Option/Concentration (49 credits)

Required Courses (7 credits)

COMP 601 (4) Special Topics in Computer Science

COMP 616 (3) Bioinformatics Seminar

Complementary Courses (18 credits)

6 credits from the following courses:

BINF 621 (3) Bioinformatics: Molecular Biology
 BMDE 652 (3) Bioinformatics: Proteomics
 BTEC 555 (3) Structural Bioinformatics
 COMP 618 (3) Bioinformatics: Functional Genomics
 PHGY 603 (3) Systems Biology and Biophysics

Three 4-credit courses chosen from 500, 600, or 700 level Computer Science courses in consultation with the candidate's supervisor.

Thesis Component - Required (24 credits)

COMP 698 (9) Thesis Research 1

COMP 699 (15) Thesis Research 2

M.Sc. in Computer Science (Project/Non-Thesis) (46 credits)

Required Course (4 credits)

COMP 601 (4) Special Topics in Computer Science

Complementary Courses (minimum 30 credits)

nine 500, 600 or 700 level COMP courses

Project Component – Required (12 credits)

COMP 694 (6) Research Project 1

COMP 695 (6) Research Project 2

Ph.D.

All students must consult the graduate program Website www.cs.mcgill.ca, where up-to-date information about the graduate program is posted. Any questions concerning the program should be addressed to the Graduate Secretary.

In accordance with the University regulations, the successful completion of the Ph.D. program includes the following:

1. Six terms of residence as a full-time student. Four terms of residence as a full-time student if admitted with a completed M.Sc. in Computer Science.
2. Required coursework: a minimum course requirement of two courses in computer science at the 500 level or above but normally students should take four courses. All these courses must be passed with a grade of B- or higher. These courses should be chosen by the student in consultation with the supervisor and the Progress Committee. In some cases the student's Progress Committee may require the student to take additional courses, e.g., in cases where the student's background in computer science and related areas is not considered to be sufficiently strong. In exceptional circumstances the Progress Committee may request the Ph.D. committee to lower the course requirement to two courses. Such requests must be

submitted in writing to the chair of the Ph.D. committee, along with a rationale for the request. The chair will then forward the request to the other members, discuss the case, and arrive at a decision by majority vote.

3. A comprehensive examination, COMP 700, taken by the beginning of the second year. This examination is described in further detail below.
4. Annual Progress Reports to be reviewed by the student's progress committee. See further detail below.
5. A written research proposal and an oral examination, COMP 701, by the thesis proposal examination committee. This is termed the Ph.D. proposal and area examination and is described in further detail below.
6. A written thesis displaying original scholarship and written in good literary style. The thesis must be a distinct contribution to knowledge in the chosen field.
7. A thesis oral defense.

Progress Committee and Progress Report

Upon arrival at McGill a new Ph.D. student must, in consultation with his or her supervisor or supervisors, form a Progress Committee. This Committee will consist of three professors who will monitor the student's progress in the course of the Ph.D. program. At least two of these professors must be from the School of Computer Science, one of which will be the student's thesis supervisor.

At the beginning of September starting in the third year (or the second year if a student was admitted in January), the student is expected to complete a Progress Report Form and submit it to the Progress Committee. At that time, an evaluation meeting between the student and the Progress Committee takes place. The meeting discusses the progress report in a round table question/answer format. Following the evaluation the Progress Committee will assign a grade of either satisfactory or unsatisfactory with comments. If the mark is unsatisfactory, the Progress Committee offers specific comments to guide the student towards improving his or her performance. Note that earning an unsatisfactory mark twice may be cited as grounds for requiring that a student withdraw from the Ph.D. program.

If the proposal and area examination was taken during the last 12 months, the Progress Report Form should be submitted to the graduate secretary and the evaluation meeting is waived.

Ph.D. Comprehensive Examination - COMP 700 (0 credits)

The student must register for this course the semester in which the exam will take place. The Ph.D. comprehensive examination must be taken by the end of the Ph.D. 2 year. The exam has course number COMP 700. The syllabus for this examination will consist of material considered as core computer science background, which graduate students should demonstrate expertise in. The syllabus will be made available in writing at least four months prior to the examination. The format of the examination will be that of a written test, which will be offered twice every academic year, once in September and once in January. Following the examination a mark of either pass or fail will be assigned. If a student fails the examination, he or she will be allowed to take it one more time. If the comprehensive examination is failed a second time, the student will be required to withdraw from the program, as required by University regulations.

Ph.D. Thesis Proposal and Area Examination - COMP 701 (3 credits)

Before the end of Ph.D. 3, students must take and pass the Ph.D. Proposal and Area Exam. This exam has course number COMP 701. The student must register for this course the term in which the exam will take place. This exam is a public, oral exam designed to test the research ability of the student in the area of the thesis as well as depth of knowledge in those areas of computer science closely related to the thesis topic. The exam consists of a 20-page (maximum) written report, single-spaced in 12 point font, to be submitted to the Graduate Secretary at least two weeks before the exam, and an oral presentation by the

candidate lasting no more than 20 minutes. The outcome of this exam is either a Pass or a Fail. In the event of a Fail, the student may be given a single chance to retake the examination. If it is a second fail in the program, the student will be asked to withdraw. COMP 701 may not be treated like COMP 700, which falls under the Comprehensive Policy.

Ph.D. in Computer Science – Bioinformatics Option/Concentration

Required Courses (6 credits)

COMP 616 (3) Bioinformatics Seminar
COMP 700 (0) Ph.D. Comprehensive Examination
COMP 701 (3) Thesis Proposal and Area Examination

In addition: a yearly progress report and a Ph.D. and Oral defense

Complementary Courses (6 credits)

6 credits from the following courses:

BINF 621 (3) Bioinformatics: Molecular Biology
BMDE 652 (3) Bioinformatics: Proteomics
BTEC 555 (3) Structural Bioinformatics
COMP 618 (3) Bioinformatics: Functional Genomics
PHGY 603 (3) Systems Biology and Biophysics

Additional courses at the 500, 600, or 700 level may be required at the discretion of the candidate's supervisory committee.

Students who have completed the M.Sc. level option in Bioinformatics must complete 6 credits of complementary courses not taken in the Master's program.

19.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Term(s) offered (Fall, Winter, Summer) may appear after the credit weight to indicate when a course would normally be taught. Please check Class Schedule to confirm this information.

Note: All undergraduate courses administered by the Faculty of Science (courses at the 100- to 500-level) have limited enrolment.

The course credit weight is given in parentheses after the title.

COMP 506 ADVANCED ANALYSIS OF ALGORITHMS. (3) (3 hours) (Prerequisite: COMP 330 or COMP 360 or COMP 431.) The study of computational complexity and intractability: Cook's Theorem, NP-completeness, oracles, the polynomial hierarchy, lower bounds, heuristics, approximation problems.

COMP 507 COMPUTATIONAL GEOMETRY. (3) (3 hours) (Prerequisite: COMP 360 or COMP 362 or permission of instructor or corequisite COMP 506.) Problems in computational geometry; worst-case complexity of geometric algorithms; expected complexity of geometric algorithms and geometric probability; geometric intersection problems; nearest neighbour searching; point inclusion problems; distance between sets; diameter and convex hull of a set; polygon decomposition; the Voronoi diagram and other planar graphs; updating and deleting from geometric structures.

COMP 512 DISTRIBUTED SYSTEMS. (4) (Prerequisites: COMP 310, COMP 251 or equivalent.) Models and Architectures. Application-oriented communication paradigms (e.g. remote method invocation, group communication). Naming services. Synchronization (e.g. mutual exclusion, concurrency control). Fault-tolerance (e.g. process and replication, agreement protocols). Distributed file systems. Security. Examples of distributed systems (e.g. Web, CORBA). Advanced Topics.

COMP 520 COMPILER DESIGN. (4) (3 hours, 1 hour consultation) (Prerequisites: COMP 273 and COMP 302) The structure of a compiler. Lexical analysis. Parsing techniques. Syntax directed translation. Run-time implementation of various programming

language constructs. Introduction to code generation for an idealized machine. Students will implement parts of a compiler.

COMP 521 MODERN COMPUTER GAMES. (4) (Prerequisite: COMP 303 or COMP 361.) (Corequisite: COMP 557.) Genre and history of games, basic game design, storytelling and narrative analysis, game engines, design of virtual worlds, real-time 2D graphics, game physics and physical simulation, pathfinding and game AI, content generation, 3D game concerns, multiplayer and distributed games, social issues.

COMP 522 MODELLING AND SIMULATION. (4) (3 hours) (Prerequisites: COMP 251, COMP 302, COMP 350) Simulation and modeling processes, state automata, Petri Nets, state charts, discrete event systems, continuous-time models, hybrid models, system dynamics and object-oriented modeling.

COMP 523 LANGUAGE-BASED SECURITY. (3) (Prerequisites: COMP 302, COMP 330.) State-of-the-art language-based techniques for enforcing security policies in distributed computing environments. Static techniques (such as type- and proof-checking technology), verification of security policies and applications such as proof-carrying code, certifying compilers, and proof-carrying authentication.

COMP 524 THEORETICAL FOUNDATIONS OF PROGRAMMING LANGUAGES. (3) (3 hours) (Prerequisites: COMP 302 and COMP 330.) Operational and denotational semantics of programming languages. Equivalence theorems for first-order languages. Lambda calculus. Type-inference, typed lambda calculus. Polymorphism. Elements of domain theory and fixed-point induction.

COMP 525 FORMAL VERIFICATION. (3) (3 hours) (Prerequisites: COMP 251 and COMP 330.) Propositional logic - syntax and semantics, temporal logic, other modal logics, model checking, symbolic model checking, binary decision diagrams, other approaches to formal verification.

COMP 526 PROBABILISTIC REASONING AND AI. (3) (3 hours) (Prerequisites: COMP 206, COMP 360, COMP 424 and MATH 323) Belief networks, Utility theory, Markov Decision Processes and Learning Algorithms.

COMP 529 SOFTWARE ARCHITECTURE. (4) (Prerequisite: COMP 303 or COMP 304.) Development, analysis, and maintenance of software architectures, with special focus on modular decomposition and reverse engineering.

COMP 531 THEORY OF COMPUTATION. (3) (3 hours) (Prerequisite: COMP 330) Models for sequential and parallel computations: Turing machines, boolean circuits. The equivalence of various models and the Church-Turing thesis. Unsolvable problems. Model dependent measures of computational complexity. Abstract complexity theory. Exponentially and super-exponentially difficult problems. Complete problems.

COMP 533 OBJECT-ORIENTED SOFTWARE DEVELOPMENT. (3) (Prerequisites: COMP 335 or ECSE 321) Object-oriented, UML-based software development; requirements engineering based on use cases; using OCL and a coherent subset of UML to establish complete and precise analysis and design documents for a software system; Java-specific mapping strategies for implementation.

COMP 535 COMPUTER NETWORKS 1. (3) (3 hours) (Prerequisite: COMP 310) (Restriction: Students may not take both COMP 435 and COMP 535 for credit) Exposition of the first four layers of the ISO model for computer network protocols, i.e., the physical, data, network, and transport layers. Basic hardware and software issues with examples drawn from existing networks, notably SNA, DECnet, and ARPAnet.

COMP 537 INTERNET PROGRAMMING. (3) (3 hours) (Prerequisites: COMP 251 and COMP 302, and any one of COMP 310, COMP 420, COMP 424, or COMP 433) Sockets, User Datagram Protocol (UDP), Transmission utility protocols; Remote Terminal Protocol (Telnet), Simple Mail Transfer Protocol (SMTP), File Transfer Protocol (FTP), Hypertext Transfer Protocol (HTTP), Internet resource database and search engines. Remote File Systems. Distributed objects, Common Object Request Broker Architecture (CORBA).

COMP 540 MATRIX COMPUTATIONS. (3) (3 hours) (Prerequisite: MATH 327 or COMP 350) Designing and programming reliable numerical algorithms. Stability of algorithms and condition of problems. Reliable and efficient algorithms for solution of equations, linear least squares problems, the singular value decomposition, the eigenproblem and related problems. Perturbation analysis of problems. Algorithms for structured matrices.

COMP 547 CRYPTOGRAPHY AND DATA SECURITY. (4) (3 hours) (Prerequisites: COMP 360 or COMP 362, MATH 323.) This course presents an in-depth study of modern cryptography and data security. The basic information theoretic and computational properties of classical and modern cryptographic systems are presented, followed by a cryptanalytic examination of several important systems. We will study the applications of cryptography to the security of systems.

COMP 552 COMBINATORIAL OPTIMIZATION. (4) (Prerequisite: Math 350 or COMP 362 (or equivalent).) (Restriction: This course is reserved for undergraduate honours students and graduate students. Not open to students who have taken or are taking MATH 552.) Algorithmic and structural approaches in combinatorial optimization with a focus upon theory and applications. Topics include: polyhedral methods, network optimization, the ellipsoid method, graph algorithms, matroid theory and submodular functions.

COMP 557 FUNDAMENTALS OF COMPUTER GRAPHICS. (3) (3 hours) (Prerequisite: MATH 223, COMP 251, COMP 206) The study of fundamental mathematical, algorithmic and representational issues in computer graphics. The topics to be covered are: overview of graphics process, projective geometry, homogeneous coordinates, projective transformations, quadrics and tensors, line-drawing, surface modeling and object modeling reflectance models and rendering, texture mapping, polyhedral representations, procedural modeling, and animation.

COMP 558 FUNDAMENTALS OF COMPUTER VISION. (3) (3 hours) (Prerequisites: COMP 206, COMP 360, MATH 222, MATH 223) (Restriction: not open to students who have taken 308-766 before January 2001) Biological vision, edge detection, projective geometry and camera modeling, shape from shading and texture, stereo vision, optical flow, motion analysis, object representation, object recognition, graph theoretic methods, high level vision, applications.

COMP 560 GRAPH ALGORITHMS AND APPLICATIONS. (3) (3 hours) (Prerequisite: COMP 360 or COMP 431 or MATH 343) Algorithms for connectivity, partitioning, clustering, colouring and matching. Isomorphism testing. Algorithms for special classes of graphs. Layout and embedding algorithms for graphs and networks.

COMP 563 MOLECULAR EVOLUTION THEORY. (3) (Prerequisites: COMP 251 or COMP 252, MATH 323 or equivalent; or by permission of instructor.) Population genetics; statistical inference from sequence data; phylogenetics, coalescent theory; models of mutation and selection.

COMP 564 COMPUTATIONAL GENE REGULATION. (3) (Prerequisite: COMP 462.) This course examines computational problems related to gene regulation at the mRNA and protein levels. With respect to mRNA expression, topics include microarray analysis, SNP detection, and the inference of genetic networks. With respect to protein expression, topics include peptide sequencing, peptide identification, and the interpretation of interaction maps.

COMP 566 DISCRETE OPTIMIZATION 1. (3) (3 hours) (Prerequisites: COMP 360 and MATH 223) Use of computer in solving problems in discrete optimization. Linear programming and extensions. Network simplex method. Applications of linear programming. Vertex enumeration. Geometry of linear programming. Implementation issues and robustness. Students will do a project on an application of their choice.

COMP 567 DISCRETE OPTIMIZATION 2. (3) (3 hours) (Prerequisites: COMP 566 or MATH 417) Formulation, solution and applications of integer programs. Branch and bound, cutting plane, and column generation algorithms. Combinatorial optimization. Polyhedral methods. A large emphasis will be placed on modeling. Students

will select and present a case study of an application of integer programming in an area of their choice.

COMP 575 FUNDAMENTALS OF DISTRIBUTED ALGORITHMS. (3) (3 hours) (Prerequisite: COMP 310) Study of a collection of algorithms that are basic to the world of concurrent programming. Discussion of algorithms from the following areas: termination detection, deadlock detection, global snapshots, clock synchronization, fault tolerance (byzantine and self-stabilizing systems). Students will implement algorithms on the BBN butterfly and will present papers on topics in these areas.

COMP 577 DISTRIBUTED DATABASE SYSTEMS. (3) (3 hours) (Prerequisites: COMP 421 and COMP 310) High-level communication paradigms (e.g. client/server, publish/subscribe). Architecture of distributed information systems. Distributed transactions: concurrency control, recovery, distributed agreement. Data Replication. Data Distribution. Distributed queries. Advanced topics.

COMP 598 TOPICS IN COMPUTER SCIENCE 1. (3) (Prerequisite: Permission of instructor.) Topics in computer science.

COMP 599 TOPICS IN COMPUTER SCIENCE 2. (3) (Prerequisite: Permission of instructor.) Topics in computer science.

COMP 601 SPECIAL TOPICS IN COMPUTER SCIENCE. (4)

COMP 601D1 (2), COMP 601D2 (2) SPECIAL TOPICS IN COMPUTER SCIENCE. (2 per term) (Restriction: Computer Science students) (Students must register for both COMP 601D1 and COMP 601D2) (No credit will be given for this course unless both COMP 601D1 and COMP 601D2 are successfully completed in consecutive terms) (COMP 601D1 and COMP 601D2 together are equal to COMP 601.)

COMP 601N1 SPECIAL TOPICS IN COMPUTER SCIENCE. (2) (Students must also register for COMP 601N2) (No credit will be given for this course unless both COMP 601N1 and COMP 601N2 are successfully completed in a twelve month period) (COMP 601N1 and COMP 601N2 together are equal to COMP 601.)

COMP 601N2 SPECIAL TOPICS IN COMPUTER SCIENCE. (2) (Prerequisite: COMP 601N1) (No credit will be given for this course unless both COMP 601N1 and COMP 601N2 are successfully completed in a twelve month period) (COMP 601N1 and COMP 601N2 together are equal to COMP 601.) See COMP 601N1 for course description.

COMP 610 INFORMATION STRUCTURES 1. (4) (3 hours) Study of elementary data structures: lists, stacks, queues, trees, hash tables, binary search trees, red-black trees, heaps. Augmenting data structures. Sorting and selection, Recursive algorithms. Advanced data structures including binomial heaps, Fibonacci heaps, disjoint set structures, and splay trees. Amortizing. String algorithms. Huffman trees and suffix trees. Graph algorithms.

COMP 612 DATABASE PROGRAMMING PRINCIPLES. (4) (3 hours) Database programming using the relational algebra. Integrates the relational model of databases with principles of high-level programming languages. Includes functional and object-oriented paradigms, logic programming, recursive data structures, scoping, and procedural and data abstraction. Applications to knowledge bases, data mining, semistructured data, Internet DB.

COMP 614 DISTRIBUTED DATA MANAGEMENT. (4) (Prerequisites: COMP 421 and one of COMP 435 or COMP 535 or COMP 512, or equivalent.) Architecture and examples of distributed information systems (e.g., federated databases, component systems, web databases). Data consistency (consistency models, advanced transaction models, advanced concurrency control, distributed recovery). Data replication and caching. Distribution queries, Schema Integration. Advanced Topics.

COMP 616D1 (1.5), COMP 616D2 (1.5) (Restrictions: This seminar is restricted to graduate students in the Bioinformatics Option. Enrollment is limited to 30 students.) (Note: The seminar will meet for 3 hours every second week over fall and winter semesters.) Introduction to current trends in Bioinformatics and closely related fields such as genomics and proteomics.

COMP 616N1 BIOINFORMATICS SEMINAR. (1.5) Introduction to current trends in Bioinformatics and closely related fields such as genomics and proteomics.

COMP 616N2 BIOINFORMATICS SEMINAR. (1.5) See COMP 616N1 for course description.

COMP 617 INFORMATION SYSTEMS. (4) (3 hours) (Prerequisite: COMP 612) Seminar course. A major area of application of the techniques covered in 308-612 is discussed. No prior expertise in the application area is required, since the emphasis of the course is on methods of computation. Storage structures and algorithms for efficient retrieval and processing of data for the application will be discussed.

COMP 618 BIOINFORMATICS: FUNCTIONAL GENOMICS. (3) (Prerequisite: Enrollment in Bioinformatics Option Program or permission of coordinators.) (Restrictions: Enrollment by students in the Bioinformatics Option Program or by permission of course coordinators only. Computer Science graduate students not in the Bioinformatics Option Program need additional permission of the M.Sc. or Ph.D. Committee respectively.)

Techniques related to microarrays (normalization, differential expression, class prediction, class discovery), the analysis of non-coding sequence data (identification of transcription factor binding sites), single nucleotide polymorphisms, the inference of biological networks, and integrative Bioinformatics approaches.

COMP 621 PROGRAM ANALYSIS AND TRANSFORMATIONS. (4) (3 hours) (Prerequisite: COMP 251 or equivalent, COMP 302 or equivalent, COMP 520 is useful but not strictly necessary) Program analysis and transformations are used in optimizing compilers and other automatic tools such as bug-finders, verification tools and software engineering applications. Course topics include the design of intermediate representations, control flow analysis, data flow analysis at both the intra- and inter-procedural level and program transformations for performance improvement.

COMP 623 CONCURRENT PROGRAMMING LANGUAGES. (4) (3 hours) (Prerequisite: COMP 302 or equivalent.) The course will include the following topics: deadlock, fairness, liveness and safety properties, distributed protocols, standard concurrent programming problems, a comparative study of concurrent programming paradigms. Additional topics: dataflow programming, concurrent constraint programming, concurrent logic programming, process algebra, fault tolerant distributed systems, parallel object-oriented languages.

COMP 627 THEORETICAL PROGRAMMING LANGUAGES. (4) (3 hours) (Prerequisites: COMP 524 and COMP 530) Programming language semantics. Lambda calculus, the Church Rosser theorem, typed lambda calculus, the strong normalization theorem, polymorphism, type inference, elements of domain theory, models of the lambda calculus, relating operational and denotational semantics, full abstraction. Reasoning about programs. Soundness and relative completeness of program logics.

COMP 642 NUMERICAL ESTIMATION METHODS. (4) (4 hours) (Prerequisites: MATH 323, MATH 324 and COMP 350) Efficient and reliable numerical algorithms in estimation and their applications. Linear models and least squares estimation. Maximum-likelihood estimation. Kalman filtering. Adaptive estimation, GPS measurements and mathematical models for positioning. Position estimation. Fault detection and exclusion.

COMP 644 PATTERN RECOGNITION. (4) (3 hours) Techniques for smoothing, approximating and enhancing spatial and temporal data. Feature extraction and shape measurement using spatial moments and medial axis transforms. Detecting structure using Hough transforms and proximity graphs. Discriminant functions. Neural networks. Bayesian decision theory. Feature selection. Estimation of misclassification. Nearest neighbour decision rules. Applications.

COMP 646 COMPUTATIONAL PERCEPTION. (4) (3 hours) Seminar course on perception problems from a computer science perspective. Vision problems such as stereo, shading, motion, colour, object recognition. Audition problems such as sonar, source localization, source recognition.

COMP 647 ADVANCED CRYPTOGRAPHY. (4) (3 hours) (Prerequisite: COMP 547) Information theoretic definitions of security, zero-knowledge protocols, secure function evaluation protocols, cryptographic primitives, privacy amplification, error correction, quantum cryptography, quantum cryptanalysis.

COMP 648 MOTION PLANNING AND ROBOTICS. (4) (3 hours) (Given in alternate years.) Topics in motion planning, including: algorithms and complexity results for collision avoidance; the configuration space approach; the algebraic cell decomposition approach; motion planning using Voronoi diagrams; object representation schemes.

COMP 649 QUANTUM CRYPTOGRAPHY. (4) (Prerequisite: COMP 547 and permission of the instructor.) (Restriction: An introduction to notions of Information Theory is required.) Review of the basic notions of cryptography and quantum information theory. Quantum key distribution and its proof of security. Quantum encryption, error-correcting codes and authentication. Quantum bit commitment, zero-knowledge and oblivious transfer. Multiparty quantum computations.

COMP 652 MACHINE LEARNING. (4) (Prerequisites: COMP 424, COMP 526 or ECSE 526, COMP 360, MATH 323 or ECSE 305.) An overview of state-of-the-art algorithms used in machine learning, including theoretical properties and practical applications of these algorithms.

COMP 655 DISTRIBUTED SIMULATION. (4) (Prerequisite: COMP 310 or equivalent.) Conservative and optimistic synchronization involved in executing a discrete event simulation on a distributed platform (e.g. cluster of workstations, shared memory multiprocessor). Focus is on efficiency, strengths and limitations of the different approaches. Applications to large simulations (networks, VLSI, virtual environments).

COMP 656 RUN-TIME LANGUAGE SUPPORT. (4) Hardware and software support for late binding, polymorphic calls and garbage collection in object-oriented languages.

COMP 667 SOFTWARE FAULT TOLERANCE. (4) (Prerequisite: COMP 409 or permission of instructor) Software fault tolerance, concepts and implementation. Failure classification; information and time redundancy; forward and backward error recovery; error confinement; idealized fault-tolerant component; sequential and concurrent systems; exception handling; transactions and atomic actions; voting; design diversity. Case studies.

COMP 669 COMPUTATIONAL SCIENCE ENGINEERING SEMINAR. (1) (Restriction: This seminar course is open only to students who were admitted to the CSE Program Option.) Techniques and applications in computational science and engineering.

COMP 669D1 (0.5), COMP 669D2 (0.5) COMPUTATIONAL SCIENCE ENGINEERING SEMINAR. (Restriction: This seminar course is open only to students who were admitted to the CSE Program Option.) (Students must register for both COMP 669D1 and COMP 669D2.) (No credit will be given for this course unless both COMP 669D1 and COMP 669D2 are successfully completed in consecutive terms.) (COMP 669D1 and COMP 669D2 together are equal to COMP 669.) Techniques and applications in computational science and engineering.

COMP 680 MINING BIOLOGICAL SEQUENCES. (4) (Prerequisite: COMP 462 or with instructor's permission.) Advanced algorithms for the annotation of biological sequences. Algorithms and heuristics for pair-wise and multiple sequence alignment. Gene-finding with hidden Markov models and variants. Motifs discovery techniques: over representation and phylogenetic footprinting approaches. RNA secondary structure prediction. Detection of repetitive elements. Representation and annotation of protein domains.

COMP 690 PROBABILISTIC ANALYSIS OF ALGORITHMS. (4) (3 hours) Probabilistic analysis of algorithms and data structures under random input. Expected behavior of search trees, tries, heaps, bucket structures and multidimensional data structures. Random sampling, divide-and-conquer, grid methods. Applications in computational geometry and in game tree searching. Combinatorial search problems. Algorithms on random graphs.

COMP 692 APPROXIMATION ALGORITHMS. (4) (Prerequisites: COMP 362 or MATH 350 or permission of instructor. Strong background in algorithms and/or mathematics.) The theory and application of approximation algorithms. Topics include: randomized algorithms, network optimization, linear programming and semi-definite programming techniques, the game theoretic method, the primal-dual method, and metric embeddings.

COMP 694 RESEARCH PROJECT 1. (6) (Restriction: Computer Science students) Ongoing research pertaining to project.

COMP 695 RESEARCH PROJECT 2. (6) (Restriction: Computer Science students) Ongoing research pertaining to project.

COMP 698 THESIS RESEARCH 1. (9) (Restriction: Computer Science students) Ongoing research pertaining to thesis.

COMP 699 THESIS RESEARCH 2. (15) (Restriction: Computer Science students) Ongoing research pertaining to thesis.

COMP 700 PH.D. COMPREHENSIVE EXAMINATION. (0)

COMP 701 THESIS PROPOSAL AND AREA EXAMINATION. (3)

COMP 760 ADVANCED TOPICS THEORY 1. (4)

COMP 761 ADVANCED TOPICS THEORY 2. (4)

COMP 762 ADVANCED TOPICS PROGRAMMING 1. (4)

COMP 763 ADVANCED TOPICS PROGRAMMING 2. (4)

COMP 764 ADVANCED TOPICS SYSTEMS 1. (4)

COMP 765 ADVANCED TOPICS SYSTEMS 2. (4)

COMP 766 ADVANCED TOPICS APPLICATIONS 1. (4)

COMP 767 ADVANCED TOPICS: APPLICATIONS 2. (4)

20 Dentistry

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Dean, Faculty of Dentistry — P.J. Allison

Associate Dean, Graduate Studies and Research — M.D. McKee

Director, Graduate Studies — J.S. Feine

Director, Graduate Program in Oral and Maxillofacial Surgery — T.W. Head

20.1 Staff

Professors

G. Bennett; B.A.(Rutgers), M.A., Ph.D.(Va.)
M.C. Bushnell; B.A.(Md), M.A., Ph.D.(Amer.)
F. Cervero; M.B., Ch.B., Ph.D.(Madrid), D.Sc.(Edin.)
J.S. Feine; D.D.S., M.S.(Texas), H.D.R.
J.P. Lund; B.D.S.(Adel.), Ph.D.(W. Ont.)
M.D. McKee; B.Sc., M.Sc., Ph.D.(McG.)

Associate Professors

P.J. Allison; B.D.S., F.D.S.R.C.S., M.Sc.(Lond.), Ph.D.(McG.)
J. E. Barralet; Ph.D., IRC(Lond.)
P.J. Chauvin; B.Sc., D.D.S.(McG.), M.Sc.(W. Ont.), F.A.A.O.P., F.R.C.D.(C)
M. Dagenais; D.M.D.(Montr.), Dip. Oral Radiology(Tor.)
T.W. Head; B.Sc.(Sir G. Wms.), D.D.S., M.Sc.(McG.), F.R.C.D.(C), Dipl. A.B.O.M.S.
S. Schwartz; D.M.D.(Montr.), M.Sc. Cert. Pedo.(Boston), F.I.C.D., F.A.C.D.
M. Tabrizian; D.E.A., Ph.D.(Paris)

Assistant Professors

C. Bedos; D.D.S.(Paris), M.Sc., Ph.D.(Montr.)
J.R. Emery; D.D.S., M.Sc.(McG.), F.R.C.D.(C), Dipl. A.B.O.M.S.

M.T. Kaartinen; M.Sc.(Jyväskylä), Ph.D.(Kuopio, Finland)
 H. LeMoual; D.E.A., M.Sc.(Paris), Ph.D.(Montr.)
 S. Komarova; M.Sc., Ph.D.(Moscow)
 M. Murshed; B.Sc.(Aligarh, India), M.Sc.(Free), Ph.D.(Cologne)
 J.-M. Retrouvey; D.M.D.(Montr.), M.Sc.(Boston)
 D. Reinhardt; Ph.D.(Munich)
 L. Stone; B.Sc.(Calif.), Ph.D.(Minn.)
 M. Tabrizian; D.E.A., Ph.D.(Paris)
 S. Tran; D.M.D.(Montr.), Cert.Perio, Ph.D.(Minn.)
 A. Velly; D.D.S.(Brazil), M.Sc., Ph.D.(Montr.)
 J. Veronneau; D.D.S., M.Sc.(Montr.), Ph.D.(McG.)
 J. Zhang; M.D.(Shanghai Second Medical), M.Sc.(Université Paris XIII), Ph.D.(Laval)

Adjunct Professor
 B. Nicolau

Associate Members
 E.L. Franco, E.G. Gisel, J. Morais, S. Nazhat, H. Vali,
 H. Warshawsky

20.2 Programs Offered

M.Sc. in Dental Sciences

The goal of this program is to train students in research in the dental sciences which comprise a number of disciplines relating to the functioning of the oro-facial complex.

M.Sc. in Dental Sciences, option in Oral and Maxillofacial Surgery

A residency training program in Oral and Maxillofacial Surgery provides a candidate with a comprehensive background for the practice of Oral and Maxillofacial Surgery as a specialty.

During the four years of the program the candidate serves as a resident principally at the Montreal General Hospital. During this time the resident is given increasing responsibility for the care of in-patients and out-patients, as well as being required to fulfill certain basic science courses and other assignments. A research project must be undertaken, followed by a Master's thesis.

The program is open to one candidate per year.

Ph.D (Ad Hoc)

The Faculty of Dentistry also offers the possibility of directly entering a Ph.D. program on an ad hoc basis, or, with the permission of the supervisor and the approval of the Graduate Program Director, exceptional students may transfer from the M.Sc. to the ad hoc Ph.D. program.

20.3 Admission Requirements

M.Sc. in Dental Sciences

Students who have successfully completed a B.A. with a CGPA of 3.0 on a 4.0 scale are eligible to apply for admission to a graduate program in the Faculty of Dentistry leading to the M.Sc. degree in Dental Sciences. TOEFL (or IELTS) tests must be passed in the case of applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone).

The number of candidates accepted each year will depend on the elective courses and research facilities available which are applicable to the candidate's area of expertise.

M.Sc. in Dental Sciences, option in Oral and Maxillofacial Surgery

Candidates for this program must possess a D.D.S. or D.M.D. degree or its equivalent, and be acceptable to l'Ordre des Dentistes du Québec as a training candidate in a hospital.

20.4 Application Procedures

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

M.Sc. in Dental Sciences

All applications must include an up-to-date official transcript of academic performance, two letters of recommendation and a brief resume indicating their particular field of interest for the M.Sc. degree. Bachelor's students who have not obtained eligible qualifications will be required to make up for deficiencies in their academic profile by taking a qualifying year.

Students must be accepted by a research director before the Faculty approves the application, prior to final acceptance by the Graduate and Postdoctoral Studies Office.

Applications may be obtained by writing to the Graduate Program in Dental Sciences, Faculty of Dentistry.

Deadlines

for receipt of the application online are as follows:

Fall Term

Canadian deadline	June 1
International deadline	April 1

Winter Term

Canadian deadline	October 15
International deadline	September 1

Summer Term

Canadian deadline	March 1
International deadline	December 31

M.Sc. in Dental Sciences, option in Oral and Maxillofacial Surgery

Applications must be submitted by September 15.

Information for financial support for this program may be obtained by writing to Dr. T.W. Head, Director of the program. This is a four year M.Sc. thesis program. Applicants applying to the OMFS program must apply to the Dental Residency Program (not Graduate Studies) with an Oral and Maxillofacial Surgery major. Prior to the start of the third year, students must submit an application to the M.Sc. Dental Sciences - OMFS program in order to complete the Program

Further information may be obtained through our Website at www.mcgill.ca/dentistry/admissions/OMFS.

20.5 Program Requirements

All students who are registered in Graduate Clinical Programs in the Faculty of Dentistry, McGill University, and who are not already registered with l'Ordre, must register with l'Ordre des Dentistes du Québec. Further information may be obtained from the Registrar of l'Ordre des Dentistes du Québec, 625 René-Lévesque Boulevard West, 15th Floor, Montreal, QC H3B 1R2.

M.SC. IN DENTAL SCIENCES (Thesis) (45 credits)

The M.Sc. degree should normally be completed within two years of full-time study.

Required Courses (8 credits)

EPIB 607	(4)	Inferential Statistics (or equivalent course)
DENT 671D1/D2	(4)	Advanced Research Seminar

Complementary Courses (8 – 14 credits)

8 to 14 credits chosen from the following:

ANAT 663D1/D2	(9)	Histology
BIOL 524	(3)	Topics in Molecular Biology
DENT 562	(3)	Calcified Tissues
DENT 654	(3)	Mechanisms and Management of Pain
EPIB 621	(3)	Data Analysis Health Sciences 1
EPIB 635	(3)	Clinical Trials
EPIB 655	(3)	Epidemiology in Public Health
EXMD 610	(3)	Biomedical Methods in Medical Research
POTH 630	(3)	Measurement: Rehabilitation 2
PSYC 505	(3)	The Psychology of Pain

Other complementary 500- or 600-level courses in the University may be taken with the approval of the supervisor or research director and GPSO.

Thesis Research Courses (24 – 30 credits)

The required number of Master's thesis credits (minimum 24) will be made up from among the following:

DENT 650	(3)	Thesis Research 1
DENT 651	(6)	Thesis Research 2
DENT 652	(9)	Thesis Research 3
DENT 653	(15)	Thesis Research 4

M.SC. IN DENTAL SCIENCES (Non-Thesis) (45 credits)

The M.Sc. degree should normally be completed within two years of full-time study.

Required Courses (26 credits)

EPIB 606	(3)	Introduction to Epidemiology
EPIB 607	(4)	Inferential Statistics (or equivalent course)
BIOE 682	(3)	Medical Basis of Bioethics
EXMD 610	(3)	Biomedical Methods in Medical Research
DENT 671	(4)	Advanced Research Seminar
DENT 670	(9)	Dental Research Project

Complementary Courses (minimum 19 credits)

19 credits from stream 1 OR stream 2:

Stream 1. Basic science research methods

ANAT 663D1/D2(9)		Histology
ANAT 690D1/D2(6)		Cell and Developmental Biology
BMDE 505	(3)	Cell and Tissue Engineering
DENT 504	(3)	Biomaterials and Bioperformance
DENT 654	(3)	Mechanisms and Management of Pain
EXMD 628	(3)	Qualitative Research Methodology
MIMM 509	(3)	Inflammatory Processes
PHGY 517	(3)	Artificial Internal Organs
PHGY 518	(3)	Artificial Cells
PHGY 550	(3)	Molecular Physiology of Bone
PSYC 505	(3)	The Psychology of Pain

Stream 2. Clinical and populational research methods

EDEM 692	(3)	Qualitative Research Methods
EPIB 623	(3)	Research Design in Health Sciences
EPIB 635	(3)	Clinical Trials
EPIB 641	(1)	Substantive Epidemiology 1
EPIB 646	(3)	Evaluation of Health Services
EPIB 655	(3)	Epidemiology in Public Health
EPIB 660	(3)	Practical Aspects: Protocol Development
EPIB 669	(2)	Special Topics 2
EPIB 671	(2)	Special Topics 4
EPIB 677	(3)	Special Topics 8
EPIB 679	(3)	Special Topics 10
EPIB 695	(3)	Principles of Study Design 2

Other complementary 500- or 600-level courses in the University may be taken with the approval of the supervisor or research director and GPSO.

M.SC. IN DENTAL SCIENCE, OPTION IN ORAL AND MAXILLOFACIAL SURGERY

(46 credits)

Duration: Four calendar years commencing July 1.

Students will register in the four-year graduate-training program, which leads to a McGill Certificate of Residency Training. They will concurrently register with the Graduate and Postdoctoral Studies Office during the Third and Fourth years of the program and complete the requirements for the M.Sc. degree during these two years.

Required Courses (16 credits)

DENT 631	(3)	OMFS 2 Seminar
DENT 632	(3)	Clinical OMFS 2
DENT 641	(3)	OMFS 3 Seminar
DENT 642	(3)	Clinical OMFS 3
EPIB 607	(4)	Inferential Statistics (or equivalent course)

Thesis Component – Required (30 credits)

DENT 651	(6)	Thesis Research 2
DENT 652	(9)	Thesis Research 3
DENT 653	(15)	Thesis Research 4

20.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Courses with numbers ending D1 and D2 are taught in two consecutive terms (most commonly Fall and Winter). Students must register for both the D1 and D2 components. No credit will be given unless both components (D1 and D2) are successfully completed in consecutive terms.

The course credit weight is given in parentheses after the title.

DENT 504 BIOMATERIALS AND BIOPERFORMANCE. (3) (Restrictions: Graduate and final year undergraduates from physical, biological, medical and dental sciences, and engineering.) Biological and synthetic biomaterials, medical devices, and the issues related to their bioperformance. The physicochemical characteristics of biomaterials in relation to their biocompatibility and sterilization.

DENT 631 OMFS 2 SEMINAR. (3)

DENT 632 CLINICAL OMFS 2. (3)

DENT 632D1 (1.5), DENT 632D2 (1.5) CLINICAL OMFS 2. (Students must register for both DENT 632D1 and DENT 632D2) (No credit will be given for this course unless both DENT 632D1 and DENT 632D2 are successfully completed in consecutive terms) (DENT 632D1 and DENT 632D2 together are equivalent to DENT 632)

DENT 641 OMFS 3 SEMINAR. (3) Advanced seminar presented on a weekly basis on topics pertinent to Oral and Maxillofacial surgery.

DENT 642 CLINICAL OMFS 3. (3)

DENT 650 THESIS RESEARCH 1. (3) Independent work under the direction of a supervisor on a research problem in the student's designated area of research: Literature Review and Hypothesis Generation.

DENT 651 THESIS RESEARCH 2. (6) Independent work under the direction of a supervisor on a research problem in the student's designated area of research: Literature Review and Protocol Development.

DENT 652 THESIS RESEARCH 3. (9) Independent work under the direction of a supervisor on a research problem in the student's designated area of research.

DENT 652D1 (4.5), DENT 652D2 (4.5) THESIS RESEARCH 3. (Students must register for both DENT 652D1 and DENT 652D2) (No credit will be given for this course unless both DENT 652D1 and DENT 652D2 are successfully completed in consecutive terms) (DENT 652D1 and DENT 652D2 together are equivalent to DENT 652) Independent work under the direction of a supervisor on a research problem in the student's designated area of research.

DENT 653 THESIS RESEARCH 4. (15) Independent work under the direction of a supervisor on a research problem in the student's designated area of research: Data Analysis & Thesis Preparation.

DENT 653D1 (7.5), DENT 653D2 (7.5) THESIS RESEARCH 4. (Students must register for both DENT 653D1 and DENT 653D2) (No credit will be given for this course unless both DENT 653D1 and DENT 653D2 are successfully completed in consecutive terms) (DENT 653D1 and DENT 653D2 together are equivalent to DENT 653) Independent work under the direction of a supervisor on a research problem in the student's designated area of research: Data Analysis & Thesis Preparation.

DENT 653J1 THESIS RESEARCH 4. (5) (Students must also register for DENT 653J2 and DENT 653J3.) (No credit will be given for this course unless DENT 653J1, DENT 653J2, and DENT 653J3 are all successfully completed in consecutive terms.) (DENT 653J1, DENT 653J2 and DENT 653J3 together are equivalent to DENT 653 or DENT 653D1 and DENT 653D2 together.) Independent work under the direction of a supervisor on a research problem in the student's designated area of research: Data Analysis & Thesis Preparation.

DENT 653J2 THESIS RESEARCH 4. (5) (Prerequisite: DENT 653J1) (Students must also register for DENT 653J3) (No credit will be given for this course unless DENT 653J1, DENT 653J2, and DENT 653J3 are all successfully completed in consecutive terms.) (DENT 653J1, DENT 653J2 and DENT 653J3 together are equivalent to DENT 653 or DENT 653D1 and DENT 653D2 together.) See DENT 653J1 for course description.

DENT 653J3 THESIS RESEARCH 4. (5) (Prerequisite: DENT 653J2) (No credit will be given for this course unless DENT 653J1, DENT 653J2, and DENT 653J3 are all successfully completed in consecutive terms.) (DENT 653J1, DENT 653J2 and DENT 653J3 together are equivalent to DENT 653 or DENT 653D1 and DENT 653D2 together.) See DENT 653J1 for course description.

DENT 654 MECHANISMS AND MANAGEMENT OF PAIN. (3) (Restriction: Open to all health professionals) Presentation of the neurobiology of pain and analgesia, clinical pain conditions, basic and applied research methods in the study of pain, and the theory and practice of pain management. The course is designed for graduate students interested in pain mechanisms and clinical residents interested in pain management.

DENT 669 EXTRACELLULAR MATRIX BIOLOGY. (3) Advanced topics on extracellular matrix biology with emphasis on matrix molecules and their effects on cell communication, tissue structure and integrity.

DENT 670 DENTAL RESEARCH PROJECT. (9) (Restriction: Available only to those students registered in the non-thesis option of the M.Sc. in Dental Sciences.) Research project in dental sciences.

DENT 671 ADVANCED RESEARCH SEMINAR. (4) Topics in current research in Oral Health Sciences.

DENT 671D1 (2), DENT 671D2 (2) ADVANCED RESEARCH SEMINAR. (Students must register for both DENT 671D1 and DENT 671D2) (No credit will be given for this course unless both DENT 671D1 and DENT 671D2 are successfully completed in consecutive terms) (DENT 671D1 and DENT 671D2 together are equivalent to DENT 671) Topics in current research in Oral Health Sciences.

DENT 671N1 ADVANCED RESEARCH SEMINAR. (2) (Students must also register for DENT 671N2) (No credit will be given for this course unless both DENT 671N1 and DENT 671N2 are successfully completed in a twelve month period) (DENT 671N1 and DENT 671N2 together are equivalent to DENT 671) Topics in current research in Oral Health Sciences.

DENT 671N2 ADVANCED RESEARCH SEMINAR. (2) (Prerequisite: DENT 671N1) (No credit will be given for this course unless both DENT 671N1 and DENT 671N2 are successfully completed in consecutive terms.) (DENT 671N1 and DENT 671N2 together are equivalent to DENT 671) See DENT 671N1 for course description.

21 Developing-Area Studies

Centre for Developing-Area Studies (CDAS)
3715 Peel Street
Montreal, QC H3A 1X1
Canada

Telephone: (514) 398-3507
Fax: (514) 398-8432
E-mail: adm.cdass@mcgill.ca
Website: www.mcgill.ca/cdas

Director — Philip Oxhorn

Librarian and Professional Associate — Iain Blair
E-mail: iain.blair@mcgill.ca

Administrative Coordinator — Amanda Lockhart
E-mail: amanda.lockhart@mcgill.ca

CDAS is a multi-disciplinary research centre in the Faculty of Arts with over 30 members from various faculties. It also works with an international community of scholars, development groups and the public. CDAS is currently undergoing a major renewal that will focus future interdisciplinary research around four themes: democracy and democratization, economic development, states and state-building, and social pluralism and civil society. It organizes seminars and conferences on development issues related to these themes.

The CDAS has a specialized library that is open to the public. A new Working Papers Series based on the current research of its members is also being developed.

Graduate students with research interests in international development can apply to become fellows through a competition normally held in the Fall semester. In September 2008, graduate students will be able to pursue for the first time the Development Studies Option, a cross-disciplinary M.A. program in which six departments currently participate: Anthropology, Economics, Geography, History, Political Science and Sociology. Further information about this option can be found in these departmental sections of the calendar and on the CDAS Website at www.mcgill.ca/cdas/studies/option.

22 Dietetics and Human Nutrition

School of Dietetics and Human Nutrition
Room MS2-039, Macdonald-Stewart Building
McGill University, Macdonald Campus
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue, QC H9X 3V9
Canada

Telephone: (514) 398-7762
Fax: (514) 398-7739
E-mail: lise.grant@mcgill.ca
Website: www.mcgill.ca/dietetics

Director — Kristine G. Koski

22.1 Staff

Professors

Luis B. Agellon; B.Sc., Ph.D.(McM.) (*Canada Research Chair*)
Tim A. Johns; B.Sc.(McM.), M.Sc.(Br. Col.), Ph.D.(Mich.) (*joint appt. with Plant Science*)
Harriet V. Kuhnlein; B.S.(Penn. St.), M.S.(Ore. St.), Ph.D.(Calif.), RD (*joint appt. with Faculty of Medicine*)

Associate Professors

Grace Egeland; B.A.(Luther College), Ph.D.(Pitts.) (*Canada Research Chair*)
Katherine Gray-Donald; B.Sc., Ph.D.(McG.), RD (*joint appt. with Epidemiology and Biostatistics, Faculty of Medicine*)
Kristine G. Koski; B.S., M.S.(Wash.), Ph.D.(Calif.), RD (*joint appt. with the Division of Experimental Medicine, Faculty of Medicine*)
Stan Kubow; B.Sc.(McG.), M.Sc.(Tor.), Ph.D.(Guelph)
Grace S. Marquis; B.A.(Ind.), M.Sc.(Mich. St.), Ph.D.(C'nell) (*Canada Research Chair*)
Louise Thibault; B.Sc., M.Sc., Ph.D.(Laval), dt. p.
Hope Weiler; B.A.Sc.(Guelph), Ph.D.(McM.), RD (*Canada Research Chair*)
Linda J. Wykes; B.Sc., M.Sc., Ph.D.(Tor.) (*William Dawson Scholar*)

Faculty Lecturers

Linda Jacobs Starkey; B.Sc.(Mt. St. Vin.), M.Sc., Ph.D.(McG.), RD, FDC (*University Coordinator, Professional Practice (Stage) in Dietetics*)

Mary Hendrickson-Nelson; B.A.(St. Benedict), B.Sc.(Minn.), M.Sc.(Colo.St.), dt. p.

Sandy Phillips; B.Sc., M.Sc.A.(McG.), dt. p. (*Interim - University Coordinator, Professional Practice (Stage) in Dietetics*)

Hughes Plourde; B.Sc.(McG.), M.Sc.(Montr.), dt. p.

Heidi Ritter; B.Sc., M.Sc.(McG.), dt. p.

Maureen Rose; B.Sc., M.Ed., Ph.D.(McG.), dt. p.

Associate Members

Anaesthesia: Franco Carli, Ralph Lattermann

Food Science & Agricultural Chemistry: Selim Kermasha

Parasitology: Marilyn E. Scott

Medicine: Louis Beaumier, Réjeanne Gougeon, L. John Hoffer, Larry Lands, Errol B. Marliiss, Thomas Schrickler, Jean-François Yale, José Morais, Stéphanie Chevalier

Adjunct Professors

Kevin A. Cockell (*Health Canada*), Mary L'Abbé (*Health Canada*), Edward Farnworth (*Agriculture Canada-St. Hyacinthe*), Marcia Cooper (*Health Canada*)

22.2 Programs Offered

M.Sc., M.Sc. Applied and Ph.D. in Human Nutrition.

The M.Sc. and Ph.D. programs are research degrees wherein students conduct research with one of the faculty members. Most areas of research in Human Nutrition are covered including nutritional biochemistry, clinical nutrition, community or international nutrition.

The M.Sc. Applied is intended to provide advanced learning in Nutrition with substantial course work and either a *practicum in the field of Dietetics* or a *project in the area of Human Nutrition*. M.Sc. Applied students need not define their research area prior to enrolment.

Research Facilities: Students may conduct research at the School of Dietetics and Human Nutrition, including the Mary Emily Clinical Nutrition Research Unit, the Centre for Indigenous Peoples' Nutrition and Environment (CINE), or at the McGill University Health Centre.

In addition to their graduate degree, eligible candidates may complete the Graduate Diploma in Registered Dietitian Credentialing, the equivalent of a Dietetic Internship, required for professional registration as Dietitians and Nutritionists in Canada. Completion of the Graduate Diploma in Registered Dietitian Credentialing will increase the duration and cost of the program.

22.3 Admission Requirements**M.Sc.**

Applicants must be graduates of a university of recognized reputation and hold a B.Sc. degree equivalent to a McGill Honours degree in a subject closely related to the one selected for graduate work. Applicants must have at least a cumulative grade point average (CGPA) in McGill University's credit equivalency of 3.2/4.0 (second class-upper division) during their Bachelor's degree program in nutrition or a closely related field. High grades are expected in courses considered by the academic unit to be preparatory to the graduate program.

M.Sc. (Applied)

Applicants to the M.Sc. Applied project or practicum options must have a B.Sc.(Nutritional Sciences) or equivalent with a GPA of 3.2 or higher. All eligible candidates may select the project option. Applicants who have completed a dietetic internship are eligible to apply for the practicum option; it is open to students who do not have a working knowledge of French, however, not all practicum opportunities will be open to them.

Graduate Diploma in R.D. Credentialing

For information on admissions requirements, applicants must contact the School of Dietetics and Human Nutrition.

Ph.D.

Admission for Ph.D. studies normally requires a M.Sc. degree in an area related to the chosen field of specialization.

22.4 Application Procedures

Applicants for graduate studies must forward supporting documents to:

School of Dietetics and Human Nutrition
McGill University, Macdonald Campus
21,111 Lakeshore
Sainte-Anne-de-Bellevue, QC H9X 3V9
Canada
Telephone: (514) 398-7762
Fax: (514) 398-7739
E-mail: lise.grant@mcgill.ca

Applications will be considered upon receipt of a completed application form, \$80 application fee, current resume, statement describing reasons for interest in the program and career goals, and the following supporting documents:

Transcripts - Two official copies of all university level transcripts with proof of degree(s) granted. Transcripts written in a language other than English or French must be accompanied by a certified translation. An explanation of the grading system used by the applicant's university is essential. It is the applicant's responsibility to arrange for transcripts to be sent.

It is desirable to submit a list of the titles of courses taken in the major subject, since transcripts often give code numbers only. Applicants must be graduates of a university of recognized reputation and hold a B.Sc. degree equivalent to a McGill Honours degree in a subject closely related to the one selected for graduate work.

Letters of Recommendation - Two letters of recommendation on letterhead (official paper) of the originating institution or bearing the university seal and with original signatures from two instructors familiar with the applicant's work, preferably in the applicant's area of specialization are minimally required. It is the applicant's responsibility to arrange for these letters to be sent.

Competency in English - Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English, by appropriate exams, e.g., TOEFL (minimum score 560 on the paper-based test, 220 on the computer-based, or 86 on the Internet-based test with each component score not less than 20) or IELTS (minimum overall band 6.5). The MCHE is not considered equivalent. The School reserves the right to request TOEFL results. Please contact the School for details. Results must be submitted as part of the application. The University code is 0935 (McGill University, Montreal); please use Department code 31(Graduate Schools), Biological Sciences - Agriculture, to ensure that your TOEFL reaches this office without delay.

Graduate Record Exam (GRE) - The GRE is required for all applicants to the School of Dietetics and Human Nutrition who are submitting non-Canadian and non-U.S. transcripts.

SUBMITTED DOCUMENTS WILL NOT BE RETURNED.

Application Fee (non-refundable) - A fee of \$80 Canadian must accompany each application (including McGill students), otherwise it cannot be considered. This sum must be remitted using one of the following methods:

1. Credit card (by completing the appropriate section of the application form). NB: online applications must be paid for by credit card.

2. Certified cheque in Cdn\$ drawn on a Canadian bank.
3. Certified cheque in US\$ drawn on a U.S. bank.
4. Canadian Money order in Cdn\$.
5. U.S. Money Order in US\$.
6. An international draft in Canadian funds drawn on a Canadian bank requested from the applicant's bank in his/her own country.

Deadlines – Applications, including all supporting documents must reach the School no later than June 1 (March 1 for International) for the *Fall Term (September)*; October 15 (September 1 for International) for the *Winter Term (January)*; March 1 (December 31 for International) for the *Summer Term (May)*. It may be necessary to delay review of the applicant's file until the following admittance period if application materials including supporting documents are received after these dates. International applicants are advised to apply well in advance of the deadline because immigration procedures may be lengthy. Applicants are encouraged to make use of the online application form available on the Web at www.mcgill.ca/applying/graduate.

Financial aid is very limited and highly competitive. It is suggested that students give serious consideration to their financial planning before submitting an application.

Acceptance to the M.Sc. and Ph.D. programs depends on a staff member agreeing to serve as the student's supervisor. Normally, a student will not be accepted unless adequate financial support can be provided by the student and/or the student's supervisor. While the school cannot guarantee financial support, teaching assistantships and other scholarships may be available.

Qualifying Students - Some applicants whose academic degrees and standing entitle them to serious consideration for admission to graduate studies, but who are considered inadequately prepared in the subject selected may be admitted to a Qualifying Program if they have met the School's minimum CGPA of 3.2 out of 4.0. The course(s) to be taken in a Qualifying Program will be prescribed by the academic unit. Qualifying students are registered in graduate studies, **but not as candidates for a degree**. Only one qualifying year (two terms) is permitted.

Successful completion of a qualifying program does not guarantee admission to a degree program. Students must re-apply for admission to a degree program.

22.5 Program Requirements

M.Sc. in Human Nutrition (45 credits)

Required Courses (33 credits)

- NUTR 695 (1) Human Nutrition Seminar 1
 NUTR 696 (1) Human Nutrition Seminar 2
 NUTR 680 (6) M.Sc. (Thesis) 1
 NUTR 681 (6) M.Sc. (Thesis) 2
 NUTR 682 (9) M.Sc. (Thesis) 3
 NUTR 683 (10) M.Sc. (Thesis) 4

Complementary Courses (12 credits)

- 3 credits in graduate level Statistics
 3 credits in graduate level Research Methods
 3-6 credits in graduate level courses (chosen in consultation with supervisory committee)
 0-3 credits in the following:
 NUTR 611 (3) Graduate Professional Practice 1

M.Sc. (Applied) in Human Nutrition (45 credits)

(This program is currently under review.)

Required Courses (9 credits)

- NUTR 695 (1) Human Nutrition Seminar 1
 NUTR 696 (1) Human Nutrition Seminar 2
 NUTR 606 (3) Research Methods
 NUTR 651 (3) M.Sc. (Applied) Nutrition 1

- NUTR 660 (1) M.Sc. (Applied) Nutrition 2

Complimentary Courses (27 credits)

3 credits in graduate level Statistics
 12 credits from Practicum OR 12 credits from Project courses

Practicum

- NUTR 656 (3) M.Sc. (Applied) Practicum 1
 NUTR 657 (3) M.Sc. (Applied) Practicum 2
 NUTR 658 (3) M.Sc. (Applied) Practicum 3
 NUTR 659 (3) M.Sc. (Applied) Practicum 4

OR

Project

- NUTR 652 (3) M.Sc. (Applied) Project 1
 NUTR 653 (3) M.Sc. (Applied) Project 2
 NUTR 654 (3) M.Sc. (Applied) Project 3
 NUTR 655 (3) M.Sc. (Applied) Project 4

12 credits in graduate level Nutrition related courses chosen from:

- NUTR 501 (3) Nutrition in Developing Countries
 NUTR 511 (3) Nutrition and Behavior
 NUTR 512 (3) Herbs, Foods and Phytochemicals
 *NUTR 600 (3) Advanced Clinical Nutrition 1
 *NUTR 601 (3) Advanced Clinical Nutrition 2
 NUTR 602 (3) Advanced Nutritional Status Assessment
 *NUTR 603 (3) Nutritional Toxicology
 NUTR 604 (3) Integrated Metabolic Research
 NUTR 608 (3) Special Topics 1
 NUTR 610 (3) Maternal and Child Nutrition
 NUTR 611 (3) Graduate Professional Practice 1
 *NUTR 620 (3) Nutrition of Indigenous Peoples
 *NUTR 623 (3) Functional Foods
 ANSC 551 (3) Carbohydrate and Lipid Metabolism
 ANSC 552 (3) Protein Metabolism and Nutrition
 *ANSC 635 (3) Vitamins and Minerals in Nutrition

Note: Courses marked above with an asterisk (*) will not be offered in 2008-09.

Elective courses (9 credits)

9 credits of graduate level courses

Graduate Diploma in Registered Dietitian Credentialing (30 credits)

The Graduate Diploma is open to students who have completed a graduate degree with the School of Dietetics and Human Nutrition including NUTR 611 Graduate Professional Practice 1.

Required courses

- NUTR 612 (8) Graduate Professional Practice 2 Management
 NUTR 613 (14) Graduate Professional Practice 3 Clinical Nutrition
 NUTR 614 (8) Graduate Professional Practice 4 Community Nutrition

Ph.D.

Requirements for the Ph.D. include a course of study recommended by the committee including a comprehensive examination (NUTR 701), a research dissertation, and two credits of required seminars (NUTR 797, NUTR 798). Course work at the Ph.D. level normally comprises a smaller portion than for the M.Sc. degree. The research program must clearly show originality and be a contribution to knowledge. At least three years are required to meet the Ph.D. requirements. Outstanding students may be permitted to transfer to the Ph.D. program following the first year of M.Sc. study.

22.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

The course credit weight is given in parentheses after the title.

★ Denotes courses offered only in alternate years. (Some courses are given every second year.)

Students may also take courses in other faculties such as Medicine or Education.

NUTR 501 NUTRITION IN DEVELOPING COUNTRIES. (3) (Fall) (2 lectures and one seminar) (Prerequisite: For undergraduate students, consent of instructor required) This course will cover the major nutritional problems in developing countries. The focus will be on nutrition and health and emphasize young children and other vulnerable groups. The role of diet and disease for each major nutritional problem will be discussed.

NUTR 503 BIOENERGETICS AND THE LIFESPAN. (3) (Fall) (Prerequisites: Undergraduate Basic Biochemistry (3 credits), Undergraduate Mammalian Physiology (EDKP 331 or PHGY 202 or PHGY 210 or ANSC 323), Undergraduate Introductory Nutrition (EDKP 392 or NUTR 207 or NUTR 307).) Multidisciplinary approach that integrates principles of bioenergetics with nutrition through the lifespan.

NUTR 511 NUTRITION AND BEHAVIOUR. (3) (2 lectures and one seminar) (Prerequisite: NUTR 445 for undergraduate students or consent of instructor) Discussion of knowledge in the area of nutrition and behaviour through lectures and critical review of recent literature; to discuss the theories and controversies associated with relevant topics; to understand the limitations of our knowledge. Topics such as diet and brain biochemistry, stress, feeding behaviour and affective disorders will be included.

NUTR 512 HERBS, FOODS AND PHYTOCHEMICALS. (3) (3 lectures and a project) (Prerequisite (Undergraduate): FDSC 211 or BIOL 201 or BIOC 212) An overview of the use of herbal medicines and food phytochemicals and the benefits and risks of their consumption. The physiological basis for activity and the assessment of toxicity will be presented. Current practices relating to the regulation, commercialization and promotion of herbs and phytochemicals will be considered.

★ **NUTR 602 NUTRITIONAL - STATUS ASSESSMENT.** (3) (1 lecture and 1 lab) (Prerequisites: courses in human nutrition, biochemistry and physiology.) The understanding and evaluation of dietary and anthropometric indices used in the nutritional assessment of individuals and groups.

★ **NUTR 604 INTEGRATED METABOLIC RESEARCH.** (3) (2 seminars and 1 lab visit) (Prerequisites: at least one 500 or 600-level course in nutritional biochemistry, e.g. ANSC 551, ANSC 552, ANSC 634, and permission of instructor.) An in-depth analysis of concepts and investigative approaches to in vivo metabolic nutrition research. Seminars will emphasize stable isotope kinetic studies. Visiting scientists and tours of other laboratories will expose students to different approaches to research.

NUTR 606 HUMAN NUTRITION RESEARCH METHODS. (3) (3 lectures) (Prerequisites: A graduate course in statistics or permission of the instructor.) Basic approaches, philosophy and techniques used in nutrition research with human population groups. The course will include the formation and criticism of designs for research, sampling techniques, measurement and analysis issues and human research ethics.

NUTR 608 SPECIAL TOPICS 1. (3) (Prerequisite: permission of instructor and Director of School.) (Restriction: graduate students in Nutrition.) Prescribed reading, conference, lectures, assignments and/or practical work on selected topics in student's area of specialization. An approved course outline must be on file in the School's office prior to registration.

NUTR 609 SPECIAL TOPICS 2. (3) (Prerequisite: permission of instructor and Director of School.) (Restriction: graduate students in Nutrition.) An individualized course to allow students to undertake projects in library, laboratory, or field study. An approved course outline must be on file in the School's office prior to registration.

★ **NUTR 610 MATERNAL AND CHILD NUTRITION.** (3) Advanced discussion of the scientific basis for nutrient requirements during pregnancy, lactation, and infant nutrition in humans and comparative animal species; milk and formula composition; malnutrition and supplemental feeding programs in developed and developing countries; nutrient requirements and controversial issues in childhood and adolescent nutrition.

NUTR 611 GRADUATE PROFESSIONAL PRACTICE 1. (3) (Restrictions: Limited to McGill M.Sc. and M.Sc.Applied (Human Nutrition) students accepted for the Graduate Diploma in R.D. Credentialing and eligible Ph.D. students with permission.) (Note: Prerequisite for NUTR 612, NUTR 613, and NUTR 614.) Theoretical and practical integration of knowledge and skills required during graduate professional practice. Includes clinical assessment and nutritional monitoring techniques, analysis of interviewing and counseling situations, and application of management information systems and quality assurance procedures.

NUTR 612 GRADUATE PROFESSIONAL PRACTICE 2 MANAGEMENT. (8) (Prerequisite: NUTR 611.) (Restriction: Limited to students registered in the Graduate Diploma in R.D. Credentialing.) Assessment, planning, implementation, communication and evaluation in management of Food and Nutrition Systems. Focus is on application of management theory in dietetic practice.

NUTR 613 GRADUATE PROFESSIONAL PRACTICE 3 CLINICAL NUTRITION. (14) (Prerequisite: NUTR 611.) (Restriction: Limited to students registered in Graduate Diploma in R.D. Credentialing.) Assessment, planning, implementation, communication and evaluation of clinical nutrition care. Focus is on application of medical nutritional therapy for individuals and groups with a variety of disease states.

NUTR 614 GRADUATE PROFESSIONAL PRACTICE 4 COMMUNITY NUTRITION. (8) (Prerequisite: NUTR 611.) (Restriction: Limited to students registered in the Graduate Diploma in R.D. Credentialing.) Assessment, planning, implementation, communication, and evaluation of public health and community nutrition programs for a variety of individuals and population groups. Focus is on intervention strategies and their evaluation.

NUTR 651 M.Sc. (APPLIED) NUTRITION 1. (3) (Corequisites: NUTR 606, NUTR 695) Review of literature and problem definition for both the project option or for placement preparation for practicum option. This course relates to the Human Nutrition M.Sc. (Applied) degree and is required for both project and practicum options.

NUTR 652 M.Sc. (APPLIED) PROJECT 1. (3) (Prerequisite: NUTR 651) Project design and planning.

NUTR 653 M.Sc. (APPLIED) PROJECT 2. (3) (Prerequisite: NUTR 652) Project execution. This project relates to the Human Nutrition M.Sc. (Applied) degree.

NUTR 654 M.Sc. (APPLIED) PROJECT 3. (3) (Prerequisite: NUTR 653) Continuation of project execution and data collection; preliminary analysis. This project relates to the Human Nutrition M.Sc. (Applied) degree.

NUTR 655 M.Sc. (APPLIED) PROJECT 4. (3) (Prerequisite: NUTR 654) Data analysis. Submission of project report. This project relates to the Human Nutrition M.Sc. (Applied) degree.

NUTR 656 M.Sc. (APPLIED) PRACTICUM 1. (3) (Prerequisite: NUTR 651) Clinical or community placement (4 weeks). Submission of placement report. This practicum relates to the Human Nutrition M.Sc. (Applied) degree.

NUTR 657 M.Sc. (APPLIED) PRACTICUM 2. (3) (Prerequisite: NUTR 656) Continuation of placement (4 weeks). Submission of placement report. This practicum relates to the Human Nutrition M.Sc. (Applied) degree.

NUTR 658 M.Sc. (APPLIED) PRACTICUM 3. (3) (Prerequisite: NUTR 657) Continuation of placement (4 weeks). Submission of placement report. This practicum relates to the Human Nutrition M.Sc. (Applied) degree.

NUTR 659 M.Sc. (APPLIED) PRACTICUM 4. (3) (Prerequisite: NUTR 658) Continuation of placement (4 weeks). Submission of placement report. This practicum relates to the Human Nutrition M.Sc. (Applied) degree.

NUTR 660 M.Sc. (APPLIED) NUTRITION 2. (1) (Prerequisites: NUTR 653; NUTR 659 or NUTR 655) Oral presentation. This presentation relates to the Human Nutrition M.Sc. (Applied) degree, project and practicum options.

NUTR 680 HUMAN NUTRITION M.Sc. THESIS 1. (6) Independent research under the direction of a supervisor toward completion of the M.Sc. thesis.

NUTR 681 HUMAN NUTRITION M.Sc. THESIS 2. (6) Independent research under the direction of a supervisor toward completion of the M.Sc. thesis. Presentation of a thesis proposal.

NUTR 682 HUMAN NUTRITION M.Sc. THESIS 3. (9) Independent research under the direction of a supervisor toward completion of the M.Sc. thesis.

NUTR 683 HUMAN NUTRITION M.Sc. THESIS 4. (10) Final submission, thesis defense seminar and approval of the M.Sc. thesis.

NUTR 695 HUMAN NUTRITION SEMINAR 1. (1) Students will present a recent original research article in which the methods and data presentation will be critically analyzed. The article must be approved by the instructor.

NUTR 696 HUMAN NUTRITION SEMINAR 2. (1) Students will present a recent original research article in which the methods and data presentation will be critically analyzed. The article must be approved by the instructor.

NUTR 701 DOCTORAL COMPREHENSIVE EXAMINATION. (0) (See Faculty Regulations)

NUTR 795 HUMAN NUTRITION SEMINAR 5. (0)

NUTR 797 HUMAN NUTRITION SEMINAR 3. (1) Doctoral candidates will present a recent original research article in which the methods and data presentation will be critically analyzed. The article must be approved by the instructor.

NUTR 798 HUMAN NUTRITION SEMINAR 4. (1) Doctoral candidates will present a group of recent research articles in which the methods and data presentation will be critically analyzed. The articles must be approved by the instructor.

23 Earth and Planetary Sciences

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Chair — J. Stix

23.1 Staff

Emeritus Professors

Jafar Arkani-Hamed; B.Eng.(Tehran), Ph.D.(MIT)
Eric W. Mountjoy; B.A.Sc.(Br. Col.), Ph.D.(Tor.)
Wallace H. MacLean; B.Geol.Eng.(Colo. Sch. of Mines), M.Sc.(A),
Ph.D.(McG.)
Colin W. Stearn; B.Sc.(McM.), M.S., Ph.D.(Yale), F.R.S.C.

Professors

Don Baker; B.A.(Chic.), Ph.D.(Penn. St.)
Donald Francis; B.Sc.(McG.), M.Sc.(Br. Col.), Ph.D.(MIT)
Andrew J. Hynes; B.Sc.(Tor.), Ph.D.(Cant.)
Olivia G. Jensen; B.Sc., M.Sc., Ph.D.(Br. Col.)
Alfonso Mucci; B.Sc., M.Sc.(Montr.), Ph.D.(Miami)
John Stix; A.B.(Dart.), M.Sc., Ph.D.(Tor.)
A.E. (Willy) Williams-Jones; B.Sc., M.Sc.(Natal), Ph.D.(Qu.)

Associate Professors

Bruce Hart; B.A.(McM.), M.Sc.(Queb., Rimouski), Ph.D.(W. Ont.)
Jeanne Paquette; B.Sc., M.Sc.(McG.), Ph.D.(Stonybrook)
Michael Riedel; Vordipl.(Cl.-Zell.), Dipl.(Kiel), Ph.D.(Vic. (BC))
(*T.H. Clark Chair in Sedimentary and Petroleum Geology*)
Hojatollah Vali; B.Sc., M.Sc., Ph.D.(Munich) (*Director, Electron
Microscopy Centre*)

Assistant Professors

Jeffrey McKenzie; B.Sc.(McG.), M.Sc., Ph.D.(Syrac.)
Boswell Wing; A.B.(Harv.), M.A., Ph.D.(Johns Hop.)

Faculty Lecturer

W. Minarik; B.A.(St. Olaf), M.Sc.(Wash.), Ph.D.(Rensselaer Poly.)

Adjunct Professors

M. Duchesne, H. Hofmann, H. Short, B. Sundby

Retired Professors

R. Hesse, R.F. Martin

23.2 Programs Offered

Opportunities for advanced study and research in geology, geochemistry, geophysics, planetary sciences and oceanography are available to qualified students. Graduate programs leading to the M.Sc., and Ph.D. degrees are offered.

Financial assistance is available in the form of teaching assistantships, research assistantships and scholarships.

AREAS OF RESEARCH

Economic Geology

Application of geochemistry in understanding the genesis of hydrothermal mineral deposits (Cu, Mo, W, Sn, Au, Ag, and REE), in particular those associated with igneous rocks. Experimental simulations of fluid-rock interaction and investigation of metal solubility and speciation at elevated temperatures and pressures.

Environmental Geology and Low Temperature Geochemistry

Low-temperature geochemistry and chemical oceanography; chemical thermodynamics and kinetics of solid solution reactions in natural environments; early diagenesis of marine, coastal, and estuarine sediments; crystal growth mechanisms in low-temperature aqueous solutions and their influence on element partitioning in minerals.

High-Temperature Geochemistry

Experimental and theoretical studies of melting and crystallization in oxide, silicate and sulphide systems at temperatures and pressures up to 2200°C and 5.5 Gpa. Spectroscopic studies of the structure of silicate melts and their transport properties, diffusion and viscosity. Effects of volatiles on the melting and crystallization of igneous systems.

Igneous Petrology

Orogenic and non-orogenic magmatism, alkali feldspars as indicators of magmatic and post-magmatic processes; high-temperature geochemistry, experimental investigation of petrogenetic processes, structure and properties of silicate melts and glasses, physical and chemical controls on volcanic eruptions.

Mineralogy/Crystal Chemistry

Studies of crystal growth mechanism of minerals, with emphasis on carbonate minerals, natural and synthetic, of sedimentary and hydrothermal origin. X-ray diffraction, electron probe microanalysis, atomic force microscopy and cathodoluminescence are used to study the influence of conditions of growth on the incorporation of trace elements, surface topography and crystal morphology.

Petroleum Geoscience

Integrated studies of hydrocarbon reservoirs using 3-D seismic data, borehole logs, core and outcrop analogues; reservoir compartmentalization by stratigraphic and structural features; attribute-based prediction of physical properties; naturally fractured tight-gas reservoirs.

Planetary Sciences

Geophysical potential fields, dynamics of planetary interiors; global geodynamics and physics of Earth's interior; seismology – tectonophysics, geophysical systems analysis. Origin and evolution of basic magmas in the mantles of the terrestrial planets.

Sedimentary Geology

Sedimentology and stratigraphy of modern and ancient clastic and carbonate systems from outcrop, marine sampling, and subsurface data; sequence stratigraphy; diagenesis.

Tectonics

Tectonics and structural geology, transpression in the Canadian Cordillera, origin of the Hudson Bay Arc, gravity features of sutures in the Canadian Shield, uplift of the Laurentides, paleomagnetism and plate motions.

Volcanology

Physical and chemical approaches to the study of active volcanoes and magmatic-hydrothermal systems; caldera systems, including the chemistry of silicic volcanic rocks, field and experimental studies of collapse mechanisms, and comparisons of recent and ancient caldera systems; magmatic volatiles and volcanic gas studies; arc volcanism, including eruption monitoring; and subaqueous volcanism, including experimental studies of subaqueous pyroclastic flows, and fragmentation of magma.

23.3 Admission Requirements

Applicants should have an academic background equivalent to that of a McGill graduate in the Honours or Majors program in geology, geophysics, chemistry, or physics (3.0 out of 4.0). The admissions committee may modify the requirements in keeping with the field of graduate study proposed. In some cases a qualifying year may be required.

23.4 Application Procedures

Applications and all supporting documents should be received in the Department before March 1st for admission the following September. Applicants who want to be considered for entrance awards, or requiring financial assistance, should apply as early as January 1st. There are no special forms required to apply for financial aid from the Department, as all applicants will be considered for the awards for which they are eligible.

Candidates should indicate their field(s) of interest when making formal application for admission. Specific inquiries concerning the Department should be addressed to Graduate Admissions, Department of Earth and Planetary Sciences.

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

23.5 Program Requirements**M.Sc. in Earth and Planetary Sciences (Thesis) (45 credits)****Complementary Courses (12 credits)**

four 3-credit graduate-level EPSC courses chosen with the approval of the research director and Director of Graduate Studies.

Thesis Component – Required (33 credits)

EPSC 697 (9) Thesis Preparation 1
EPSC 698 (12) Thesis Preparation 2
EPSC 699 (12) Thesis Preparation 3

M.Sc. in Earth and Planetary Sciences (Thesis) – Environment Option/Concentration (48 credits)**Required Courses (9 credits)**

EPSC 666 (3) Current Issues in Geosciences
ENVR 610 (3) Foundations of Environmental Policy
ENVR 650 (1) Environmental Seminar 1
ENVR 651 (1) Environmental Seminar 2
ENVR 652 (1) Environmental Seminar 3

Complementary Courses (6 credits)

one 3-credit course at the 500-level or higher chosen with the approval of the research director and Director of Graduate Studies.

3 credits chosen from :

ENVR 519 (3) Global Environmental Politics
ENVR 544 (3) Environmental Measurement and Modelling
ENVR 580 (3) Topics in Environment 3
ENVR 611 (3) The Economy of Nature
ENVR 620 (3) Environment and Health of Species
ENVR 622 (3) Sustainable Landscapes
ENVR 630 (3) Civilization and Environment 1
ENVR 680 (3) Topics in Environment 4

or another course at the 500-level or higher recommended by the advisory committee and approved by the Environment Option Committee

Thesis Component – Required (33 credits)

EPSC 697 (9) Thesis Preparation 1
EPSC 698 (12) Thesis Preparation 2
EPSC 699 (12) Thesis Preparation 3

Ph.D. Degree

Highly qualified B.Sc. graduates may be admitted directly to the Ph.D.I year. Students with the M.Sc. degree are normally admitted to the Ph.D.II year. Students are required to take 18 credits of graduate course study in the Ph.D.I year, and 6 credits plus a comprehensive oral examination in the Ph.D.II year. There is no language requirement for the Ph.D. degree.

Required Course (0 credits)

EPSC 700 (0) Preliminary Doctoral Examination

Complementary Courses (6 - 24 credits)

an approved program of courses at the 500-level or higher selected in consultation with the student's academic adviser and approved by the Academic Standing Committee.

Thesis

Research leading to a Ph.D. thesis followed by an oral defense.

Ph.D. in Earth and Planetary Sciences; Environment Option/Concentration**Required Courses (9 credits)**

EPSC 666 (3) Current Issues in Geosciences
EPSC 700 (0) Preliminary Doctoral Examination
ENVR 610 (3) Foundations of Environmental Policy
ENVR 650 (1) Environmental Seminar 1
ENVR 651 (1) Environmental Seminar 2
ENVR 652 (1) Environmental Seminar 3

Complementary Courses (3 - 15 credits)

3 credits chosen from :

ENVR 519 (3) Global Environmental Politics
ENVR 544 (3) Environmental Measurement and Modelling
ENVR 580 (3) Topics in Environment 3
ENVR 611 (3) The Economy of Nature
ENVR 620 (3) Environment and Health of Species
ENVR 622 (3) Sustainable Landscapes
ENVR 630 (3) Civilization and Environment 1
ENVR 680 (3) Topics in Environment 4

or another course at the 500-level or higher recommended by the advisory committee and approved by the Environment Option Committee

0 -12 credits of courses at the 500-level or higher selected in consultation with the student's academic adviser and approved by the Academic Standing Committee.

Thesis

Research leading to a Ph.D. thesis followed by an oral defense.

23.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Term(s) offered (Fall, Winter, Summer) may appear after the credit weight to indicate when a course would normally be taught. Please check Class Schedule to confirm this information.

All courses have a weight or equivalent of three (3) credits.

EPSC 501 CRYSTAL CHEMISTRY. (3) (Fall) (2 hours lectures, 1 hour seminar) (Prerequisites: CHEM 203 or CHEM 213.) Discussion of crystal structures and compositions of important mineral groups, especially oxides, sulphides and silicates. Solid solution. Relation of structure to morphology and to chemical and physical properties of the rock-forming minerals.

EPSC 510 GEODYNAMICS AND GEOMAGNETISM. (3) (Fall) (3 hours lectures) (Prerequisites: EPSC 320, MATH 319, or equivalent, or permission of the instructor.) (Corequisite: EPSC 350) The gravity field of the Earth and planets, body and orbital dynamics of the Earth, moon and planets, tidal interactions of the Earth-moon-sun system, deformation of the Earth under static and dynamic loads, the magnetic field of the Earth and planets: the magnetosphere, the external radiation belts, magnetohydrodynamic models of the core dynamo, geochemical convection in the core, fluid dynamic motions of the outer core, dynamics of the inner core.

EPSC 519 ISOTOPE GEOLOGY. (3) (Fall) (3 hours lectures) (Prerequisites: equivalent of the U2 core program.) Geochronology, the fractionation of the stable isotopes, and applications to petrology and mineral deposits.

EPSC 525 SUBSURFACE MAPPING. (3) (Winter) (2 hours lectures, 3 hours laboratory) (Prerequisites: EPSC 455 or equivalent, or permission of instructor.) This course will provide participants the opportunity to learn how different types of data (wireline logs, seismic, etc.) are employed to map geological features in the subsurface. Lectures will teach participants about the physical basis of each of the data types, and the basic mapping and analytical techniques (e.g., geostatistics, gridding) that are employed in subsurface mapping. The principal focus will be on applying these techniques and concepts to real-world data sets.

EPSC 530 VOLCANOLOGY. (3) (Fall) (2 hours lectures, 3 hours laboratory) (Prerequisites: EPSC 212 and EPSC 312, or equivalent, or permission of instructor.) The physical mechanisms which drive volcanoes and volcanic activity are presented. Descriptive, practical and theoretical approaches to the study of volcanoes are discussed.

EPSC 542 CHEMICAL OCEANOGRAPHY. (3) (Fall) (3 hours lectures) (Prerequisites: CHEM 213, CHEM 257 or equivalents, or registration in the Graduate Program in Oceanography.) History of chemical oceanography. Seawater composition and definition of salinity/chlorinity. Minor and trace-element distribution in the ocean. Geochemical mass balance. Dissolved gases in sea water. CO₂ and the carbonate system. Chemical speciation. Physical chemistry of seawater. Organic matter and the carbon cycle in the marine environment. Sediment geochemistry.

EPSC 547 HIGH-TEMPERATURE GEOCHEMISTRY. (3) (Fall) (2 hours lectures, 3 hours laboratory) (Prerequisites: CHEM 203, CHEM

204 or CHEM 213, or equivalents, or permission of instructor.) The application of thermodynamic principles to igneous and metamorphic petrology and economic geology. Topics include but are not restricted to: solid solutions in minerals, behaviour of geological fluids, phase equilibria, flow processes, estimation of thermodynamic data.

EPSC 548 PROCESSES OF IGNEOUS PETROLOGY. (3) (Fall) (2 hours lectures, 1 hour seminar) (Prerequisite: EPSC 423) Investigation of the primary mechanisms causing the diversity of igneous rock compositions on the Earth, other planets, asteroids, and meteorite parent bodies.

EPSC 549 HYDROGEOLOGY. (3) (Winter) (3 hours lectures, 1-2 hours laboratory) (Prerequisite: permission of the instructor) Introduction to groundwater flow through porous media. Notions of fluid potential and hydraulic head. Darcy flux and Darcy's Law. Physical properties of porous media and their measurement. Equation of groundwater flow. Flow systems. Hydraulics of pumping and recharging wells. Notions of hydrology. Groundwater quality and contamination. Physical processes of contaminant transport.

EPSC 550 SELECTED TOPICS 1. (3) (Fall or Winter) (2 hours seminar, permission of department undergraduate advisor) Research seminar and/or lecture with readings in topics concerning aspects of current interests in Earth & Planetary Sciences.

EPSC 551 SELECTED TOPICS 2. (3) (Fall or Winter) (2 hours seminar, permission of department undergraduate advisor) Research seminar and/or lecture with readings in topics concerning aspects of current interest in Earth & Planetary Sciences.

EPSC 552 SELECTED TOPICS 3. (3) (Fall or Winter) (2 hours seminar, permission of department undergraduate advisor) Research seminar and/or lecture with readings in topics concerning aspects of current interest in Earth & Planetary Sciences.

EPSC 561 ORE-FORMING PROCESSES 1. (3) (Fall) (3 hours seminar) (Prerequisite: One course in ore petrology (EPSC 451 or EPSC 452) or equivalent, or permission of the instructor.) Physicochemical controls of hydrothermal mineral deposition. Discussion of fluid inclusion theory and application; stable isotope systematics, wall-rock alteration; ore mineral solubility and speciation; and mechanisms of mineral deposition.

EPSC 562 ORE-FORMING PROCESSES 2. (3) (Winter) (3 hours seminar) (Prerequisite: One course in mineral deposits (EPSC 451 or EPSC 452) or equivalent, or permission of the instructor.) Genesis of hydrothermal mineral deposits. Discussion of geological setting, fluid and metal sources, method of metal transport, and factors controlling metal concentration for a selection of hydrothermal mineral deposit types.

EPSC 570 COSMOCHEMISTRY. (3) (Fall) (3 hours lecture) (Prerequisites: EPSC 220, EPSC 210, or equivalent, or permission of instructor.) Examines the implications of phase equilibria and the compositions of meteorites and the solar system for the formation and internal differentiation of the terrestrial planets and the nature of chemical fractionation processes in both planetary interiors and the solar system as a whole.

EPSC 580 AQUEOUS GEOCHEMISTRY. (3) (Fall) (3 hours lectures) (Prerequisites: EPSC 210, EPSC 212, or equivalent, or permission of instructor.) The use of chemical thermodynamics to study fluid-rock interactions with an emphasis on the aqueous phase. The course will introduce basic concepts and will discuss aqueous complexation, mineral surface adsorption, and other controls on crustal fluid compositions. Applications will range from considering contaminated groundwater systems to metamorphic reactions.

EPSC 590 APPLIED GEOCHEMISTRY SEMINAR. (3) (Winter) (3 hours seminar) (Prerequisite: permission of instructor) Seminar course devoted to field case studies that illustrate the applications of geochemical principles to solving geologic problems. Each student will prepare and lead a class devoted to a geochemical subject of their own choosing.

EPSC 601 FELSIC IGNEOUS PETROLOGY. (3) (3 hours seminar) (Prerequisite: EPSC 423 or equivalent) A review of the mineralogy and phase equilibria relevant to felsic igneous systems. Role of

crust and mantle source-areas. Importance of postmagmatic phenomena. Petrogenetic schemes in the current literature.

EPSC 603 MAFIC IGNEOUS ROCKS. (3) (3 hours seminar) (Prerequisite: EPSC 423 or equivalent) A survey of the petrochemistry of basic magmatic provinces with a focus on processes and the origin of terrestrial magmas in upper-mantle source regions.

EPSC 613 REGIONAL STRUCTURAL ANALYSIS. (3) (2 hours lectures, 2 hours lab) Interpretation of structural measurements in complexly-deformed rocks. Regional geometric, kinematic and tectonic analysis.

EPSC 631 FIELD STUDIES - OROGENIC BELTS. (3) Traverse of a major orogenic belt (usually the Acadian and Taconic of New Brunswick, Nova Scotia and Quebec). The principal tectonic units and the major igneous, depositional, metamorphic and tectonic events and processes. Interpretation of orogenic belts in terms of continental-margin evolution, the opening and closure of ocean basins, collision of island arcs and continents and the arrival of "rafted terrains".

EPSC 631D1 (1.5), EPSC 631D2 (1.5) FIELD STUDIES - OROGENIC BELTS. (2-week field course in May, plus assigned papers) (Students must register for both EPSC 631D1 and EPSC 631D2) (No credit will be given for this course unless both EPSC 631D1 and EPSC 631D2 are successfully completed in consecutive terms) Traverse of a major orogenic belt (usually the Acadian and Taconic of New Brunswick, Nova Scotia and Quebec). The principal tectonic units and the major igneous, depositional, metamorphic and tectonic events and processes. Interpretation of orogenic belts in terms of continental-margin evolution, the opening and closure of ocean basins, collision of island arcs and continents and the arrival of "rafted terrains".

EPSC 644 TOPICS - ADVANCED EARTH SCIENCES 1. (3) (3 hours lectures or seminars) A survey of a research topic of particular current interest.

EPSC 645 TOPICS - ADVANCED EARTH SCIENCES 2. (3) (3 hours lectures or seminars) A survey of a research topic of particular current interest.

EPSC 666 CURRENT ISSUES IN GEOSCIENCES. (3) (Restriction: Open to graduate students enrolled in the EPS department.) Current issues in the range of geoscience disciplines.

EPSC 697 THESIS PREPARATION 1. (9) Independent study, theoretical and/or laboratory work in connection with the development of an M.Sc. thesis. Success in the course is dependent on presentation of an adequate progress report to the supervisory committee.

EPSC 697D1 (4.5), EPSC 697D2 (4.5) THESIS PREPARATION 1. (Students must register for both EPSC 697D1 and EPSC 697D2) (No credit will be given for this course unless both EPSC 697D1 and EPSC 697D2 are successfully completed in consecutive terms) (EPSC 697D1 and EPSC 697D2 together are equivalent to EPSC 697) Independent study, theoretical and/or laboratory work in connection with the development of an M.Sc. thesis. Success in the course is dependent on presentation of an adequate progress report to the supervisory committee.

EPSC 697N1 THESIS PREPARATION 1. (4.5) (Students must also register for EPSC 697N2) (No credit will be given for this course unless both EPSC 697N1 and EPSC 697N2 are successfully completed in the a twelve month period) (EPSC 697N1 and EPSC 697N2 together are equivalent to EPSC 697) Independent study, theoretical and/or laboratory work in connection with the development of an M.Sc. thesis. Success in the course is dependent on presentation of an adequate progress report to the supervisory committee.

EPSC 697N2 THESIS PREPARATION 1. (4.5) (Prerequisite: EPSC 697N1) (No credit will be given for this course unless both EPSC 697N1 and EPSC 697N2 are successfully completed in the a twelve month period) (EPSC 697N1 and EPSC 697N2 together are equivalent to EPSC 697) See EPSC 697D1 for course description.

EPSC 698 THESIS PREPARATION 2. (12) (Summer - Section 001 (01-May-2005/31-Aug-2005)) Independent study, theoretical and/or laboratory work in connection with the development of an M.Sc. thesis. Success in the course is dependent on presentation of an adequate progress report to the supervisory committee.

EPSC 698D1 (6), EPSC 698D2 (6) THESIS PREPARATION 2. (Students must register for both EPSC 698D1 and EPSC 698D2) (No credit will be given for this course unless both EPSC 698D1 and EPSC 698D2 are successfully completed in consecutive terms) (EPSC 698D1 and EPSC 698D2 together are equivalent to EPSC 698) Independent study, theoretical and/or laboratory work in connection with the development of an M.Sc. thesis. Success in the course is dependent on presentation of an adequate progress report to the supervisory committee.

EPSC 698N1 THESIS PREPARATION 2. (6) (Students must also register for EPSC 698N2) (No credit will be given for this course unless both EPSC 698N1 and EPSC 698N2 are successfully completed in a twelve month period) (EPSC 698N1 and EPSC 698N2 together are equivalent to EPSC 698) Independent study, theoretical and/or laboratory work in connection with the development of an M.Sc. thesis. Success in the course is dependent on presentation of an adequate progress report to the supervisory committee.

EPSC 698N2 THESIS PREPARATION 2. (6) (Prerequisite: EPSC 698N1) (No credit will be given for this course unless both EPSC 698N1 and EPSC 698N2 are successfully completed in a twelve month period) (EPSC 698N1 and EPSC 698N2 together are equivalent to EPSC 698) See EPSC 698N1 for course description.

EPSC 699 THESIS PREPARATION 3. (12) Independent study, theoretical and/or laboratory work in connection with the development of an M.Sc. thesis. Success in the course is dependent on presentation of an adequate progress report to the supervisory committee.

EPSC 699D1 (6), EPSC 699D2 (6) THESIS PREPARATION 3. (Students must register for both EPSC 699D1 and EPSC 699D2) (No credit will be given for this course unless both EPSC 699D1 and EPSC 699D2 are successfully completed in consecutive terms) (EPSC 699D1 and EPSC 699D2 together are equivalent to EPSC 699) Independent study, theoretical and/or laboratory work in connection with the development of an M.Sc. thesis. Success in the course is dependent on presentation of an adequate progress report to the supervisory committee.

EPSC 699N1 THESIS PREPARATION 3. (6) (Students must also register for EPSC 699N2) (No credit will be given for this course unless both EPSC 699N1 and EPSC 699N2 are successfully completed in a twelve month period) (EPSC 699N1 and EPSC 699N2 together are equivalent to EPSC 699) Independent study, theoretical and/or laboratory work in connection with the development of an M.Sc. thesis. Success in the course is dependent on presentation of an adequate progress report to the supervisory committee.

EPSC 699N2 THESIS PREPARATION 3. (6) (Prerequisite: EPSC 699N1) (No credit will be given for this course unless both EPSC 699N1 and EPSC 699N2 are successfully completed in a twelve month period) (EPSC 699N1 and EPSC 699N2 together are equivalent to EPSC 699) See EPSC 699N1 for course description.

EPSC 700 PRELIMINARY DOCTORAL EXAMINATION. (0)

EPSC 700D1 (0), EPSC 700D2 (0) PRELIMINARY DOCTORAL EXAMINATION. (Students must register for both EPSC 700D1 and EPSC 700D2) (No credit will be given for this course unless both EPSC 700D1 and EPSC 700D2 are successfully completed in consecutive terms) (EPSC 700D1 and EPSC 700D2 together are equivalent to EPSC 700)

EPSC 706 ADVANCED SEDIMENTOLOGY. (6) (2 hours lectures or seminar and 3 hours laboratory) Classical and recent papers on sedimentary rocks, processes and environments of transport, deposition, diagenesis and lithification, sedimentary mineral deposits. Basin evolution. Sedimentation and tectonics. Methods of study of sedimentary rocks and statistics.

EPSC 706D1 (3), EPSC 706D2 (3) ADVANCED SEDIMENTOLOGY. (Students must register for both EPSC 706D1 and EPSC 706D2)

(No credit will be given for this course unless both EPSC 706D1 and EPSC 706D2 are successfully completed in consecutive terms) (EPSC 706D1 and EPSC 706D2 together are equivalent to EPSC 706) Classical and recent papers on sedimentary rocks, processes and environments of transport, deposition, diagenesis and lithification, sedimentary mineral deposits. Basin evolution. Sedimentation and tectonics. Methods of study of sedimentary rocks and statistics.

EPSC 710 GEOTECTONICS. (3) (2 hours lectures or seminars) Plate tectonics and orogenesis. Plate tectonics in the geologic past. Problems of tectonic evolution in Precambrian time.

EPSC 715 INSTRUMENTAL ANALYSIS. (3) (3 hours lectures, 3 hours laboratory) Application of analytical instrumental techniques to obtaining reliable chemical data from complex (geological and environmental) materials, and evaluation of the data in problem solving. Electron Microprobe Analysis (WDS and EDS), Scanning Electron Microscopy, X-ray Fluorescence Spectrometry, X-ray Diffraction, Atomic Spectroscopy (Atomic Absorption, ICP and ICP-MS). Neutron Activation Analysis.

EPSC 725 INDEPENDENT STUDIES 1. (3) (Restriction: Not available to students who have taken EPSC 720. Ineligible for credit in M.Sc. Thesis program) Research and/or reading project. Independent study under the guidance of qualified staff in areas of special interest to the student.

EPSC 726 INDEPENDENT STUDIES 2. (3) Research and/or reading project. Independent study under the guidance of qualified staff in areas of special interest to the student.

24 East Asian Studies

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24.1 Staff

Professors

K. Dean; B.A.(Brown), M.A., Ph.D.(Stan.)
T. Lamarre; B.A.(G'town), M.A., Ph.D.(Chic.), D.Sc.(Aix-Marseille II)
R.D.S. Yates; B.A., M.A.(Oxf.), M.A.(Calif.), Ph.D.(Harv.)

Associate Professors

G. Fong; B.A., M.A.(Tor.), Ph.D.(Br. Col.)
G. Vankeerberghen; Lic(Louvain), Ph.D.(Princ.)

Assistant Professors

P. Button; B.A.(Col.), M.A., Ph.D.(C'nell)
Y. Furuhashi; B.A.(Int'l. Christian), M.A.(N. Mexico), Ph.D.(Brown)
A. Hurley; B.A.(Col.), M.A.(Mich.), Ph.D.(Calif.)
H. Nakatani; B.A.(Tokyo), M.A.(Lond.), Ph.D.(Chic.)

Faculty Lecturers

J. Chang, S. Hasegawa, M. Kim, M. Uesaka, B. Wang

24.2 Programs Offered

M.A. in East Asian Studies (*Ad Hoc*)
Ph.D. in East Asian Studies (*Ad Hoc*)

24.3 Admission Requirements

General

TOEFL and GRE (if applicable).

Applicants who have not studied at a Canadian institution must submit official copies of their Graduate Record Examination. A minimum TOEFL score of 577 on the paper-based test (or 86 on the Internet-based test), with each component score not less than 20 is required for all applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone).

M.A.

Applicants must hold, or expect to hold by September of the year of entry, a bachelor's degree in East Asian Studies or related fields for entry into the M.A. program. Applicants are expected to have proficiency in the East Asian language(s) most useful for the proposed graduate work (preferably three years or more of course work or equivalent).

Ph.D.

Applicants must hold, or expect to hold by September of the year of entry, a master's degree in East Asian Studies or equivalent for entry into the Ph.D. program.

24.4 Application Procedures

Applications will be considered upon receipt of:

1. application form;
2. two copies of official transcripts sent by the university;
3. two letters of reference;
4. \$80 application fee;
5. current curriculum vitae (resume) and a research statement (approximately 500 words for Master's and 5 pages for Ph.D.) indicating potential supervisor, the field which the applicant wishes to pursue, and the reasons for applying to the program. A description of the proposed research project, with brief bibliography, should be included.

All of the above should be submitted directly to the Graduate Admissions, Department of East Asian Studies.

Deadline: January 7th for September admissions.

We encourage applications via McGill's online application form for graduate program students available at www.mcgill.ca/applying/graduate.

24.5 Program Requirements

Program Requirements for the M.A. Degree (*Ad Hoc*) (45 credits)

The Department only offers a thesis option. The M.A. program with thesis includes:

- a) four 3-credit graduate courses (12 credits),
- b) one graduate 3-credit seminar in theory/methodology (3 credits),
- c) one graduate 6-credit seminar or two graduate 3-credit seminars (6 credits), and
- d) thesis (24 credits).

Language Courses:

1. A maximum of 6 credits of language courses at the 500-level or in a classical Asian language may be counted towards course requirements.

2. Students must have fourth-level language equivalency by the completion of their M.A. program.

Program Requirements for the Ph.D. Degree (*Ad Hoc*)

After successfully completing the M.A. degree or its equivalent (45 credits minimum), a student will be admitted to the second year of the Ph.D. program. The Graduate Studies Committee will assign an advisory committee to advise the student and specify the student's course program.

Exceptional students with appropriate background at the undergraduate level may be admitted directly into the Ph.D. program.

Students must complete at least 24 course credits, with a grade point average of 3.5 or better: this course work must be chosen to identify three distinct fields for the Comprehensive Evaluation. Students may take up to two 3-credit courses or one 6-credit course in another department with the approval of the Graduate Studies Committee.

There are four requirements for obtaining the Doctoral degree:

1. Course work – 24 credits at the 600 or 700 level with a grade point average of 3.5 or better. On the basis of this course work, the student should identify three distinct fields for the Comprehensive Evaluation. Students may take up to 6 credits in another department with the approval of the Graduate Advisory Committee.
2. Language - Candidates will be required to demonstrate reading knowledge of a second Asian language, which may include either modern or literary (classical) language, in addition to the primary Asian language of their research. Candidates will also be expected to demonstrate reading knowledge of both French and English.
3. Ph.D. Comprehensive Evaluation - The student is required to pass the Comprehensive Evaluation within one year later after completing the course work. Exceptions have to be approved by the Graduate Advisory Committee.
4. Doctoral Dissertation - A thesis proposal (not exceeding 5 pages) should be submitted within six months after successful completion of the Ph.D. Comprehensive Evaluation, after consultation with the Graduate Program Director and the thesis supervisor. Before submission of the dissertation, candidates are expected to spend time in Asia researching their project. The Ph.D. thesis should represent original scholarship.

24.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Term(s) offered (Fall, Winter, Summer) may appear after the credit weight to indicate when a course would normally be taught. Please check Class Schedule to confirm this information.

Courses with numbers ending D1 and D2 are taught in two consecutive terms (most commonly Fall and Winter). Students must register for both the D1 and D2 components. No credit will be given unless both components (D1 and D2) are successfully completed in consecutive terms.

Note: All undergraduate courses administered by the Faculty of Arts (courses at the 100- to 500-level) have limited enrolment.

The course credit weight is given in parentheses after the title.

EAST 501 ADVANCED TOPICS IN JAPANESE STUDIES 1. (3) (Fall) (Prerequisite (Undergraduate): permission of instructor) (Restriction: Departmental approval required) Consideration of selected topics and aspects of Japanese culture and society.

EAST 502 ADVANCED TOPICS IN JAPANESE STUDIES 2. (3) (Winter) (Prerequisite (Undergraduate): permission of instructor)

(Restriction: Departmental approval required) Consideration of selected topics and aspects of Japanese culture and society.

EAST 503 ADVANCED TOPICS IN CHINESE STUDIES 1. (3) (Fall) (Prerequisite (Undergraduate): permission of instructor) (Restriction: Departmental approval required) Consideration of selected topics and aspects of Chinese culture and society.

EAST 504 ADVANCED TOPICS IN CHINESE STUDIES 2. (3) (Winter) (Prerequisite (Undergraduate): permission of instructor) (Restriction: Departmental approval required) Consideration of selected topics and aspects of Chinese culture and society.

EAST 515 SEMINAR: BEYOND ORIENTALISM. (3) (Prerequisite (Undergraduate): any EAS course at the 300-level or above or permission of instructor) Examines the cultural stakes and ethical implications of applying Western European models of understanding to East Asian societies. Provides background on interdisciplinary debates around "otherness", "cultural appropriation", and "postcolonialism", focusing on their history within East Asian Studies and their impact on that field's methodological assumptions, self-definition, and institutional practices.

EAST 520 FOURTH LEVEL KOREAN 1. (3) (Prerequisite: EAST 421 or permission of instructor) (Restriction: Not open to students who have taken or are taking EAST 520D1/D2.) Continuation of EAST 421 (Third Level Korean 2) with more emphasis on writing and reading skills.

EAST 521 FOURTH LEVEL KOREAN 2. (3) (Prerequisite: EAST 520 or equivalent or permission of instructor) (Restriction: Not open to student who have taken or are taking EAST 520D1/D2.) Continuation of EAST 520. The main focus and the course organization remain the same with more advanced content.

EAST 530 FOURTH LEVEL CHINESE. (6) (Summer) (Prerequisite (Undergraduate): EAST 430 or equivalent) Development of skills required to conduct academic discussions in oral as well as in written forms. Teaching materials include original texts from Chinese newspapers, Chinese literature and videos.

EAST 530D1 (3), EAST 530D2 (3) FOURTH LEVEL CHINESE. (Prerequisite (Undergraduate): EAST 430 or equivalent) (Students must register for both EAST 530D1 and EAST 530D2.) (No credit will be given for this course unless both EAST 530D1 and EAST 530D2 are successfully completed in consecutive terms) (EAST 530D1 and EAST 530D2 together are equivalent to EAST 530) Development of skills required to conduct academic discussions in oral as well as in written forms. Teaching materials include original texts from Chinese newspapers, Chinese literature and videos.

EAST 533 CLASSICAL CHINESE 1. (3) (Prerequisite: EAST 330 or equivalent) (Restriction: Not open to students who have taken EAST 433.) An introduction to the grammar and syntax of classical Chinese. Readings are selected from well-known Confucian and Taoist classics, and philosophical and historical writings from pre-modern China.

EAST 534 CLASSICAL CHINESE 2. (3) (Prerequisite: EAST 330 or equivalent.) (Restriction: Not open to students who have taken EAST 434.) Continuation of EAST 533 at a more advanced level.

EAST 535 CHINESE FOR BUSINESS 1. (3) (Prerequisite: EAST 330 or equivalent or permission of instructor) This course aims to provide advanced students of Chinese with training in the terminology and syntax necessary for business communications. Topics will include many different aspects of business negotiations, such as price negotiation, methods of payment, etc.

EAST 536 CHINESE FOR BUSINESS 2. (3) (Prerequisite: EAST 535 or equivalent or permission of instructor) This course is a continuation of EAST 535. It is designed to further develop students' linguistic competence for business communication, and to provide students with some knowledge on China's trade policies as well as on different methods of trading with China.

EAST 537D1 (3), EAST 537D2 (3) CHINA TODAY THROUGH TRANSLATION. (Prerequisite (Undergraduate): students with native or near native proficiency may register directly, other students require permission of instructor) (Restriction: Not open to students who have taken EAST 437) (Students must register for both EAST

537D1 and EAST 537D2.) (No credit will be given for this course unless both EAST 537D1 and EAST 537D2 are successfully completed in consecutive terms) A course to develop practical translation skills and understanding of contemporary China, focusing on Sino-Canadian and multi-lateral political, cultural and trade issues. Interpretive skills will be enhanced through translation exercises and discussion in class. Course materials include original documents and videos from the business communications and other fields.

EAST 540D1 (3), EAST 540D2 (3) FOURTH LEVEL JAPANESE.

(Prerequisite (Undergraduate): EAST 440 or equivalent or permission of instructor) (Students must register for both EAST 540D1 and EAST 540D2.) (No credit will be given for this course unless both EAST 540D1 and EAST 540D2 are successfully completed in consecutive terms) Advanced study of Japanese, with emphasis on reading Japanese newspapers. Classes will be conducted entirely in Japanese.

EAST 543 CLASSICAL JAPANESE 1. (3) (Prerequisite (Undergraduate): EAST 440 or permission of instructor) The course will offer an introduction to the grammar and syntax of classical Japanese. Readings of well-known pre-modern writings.

EAST 544 CLASSICAL JAPANESE 2. (3) (Prerequisite (Undergraduate): EAST 543 or permission of instructor) The grammar and syntax of classical Japanese. Readings in well-known writings of pre-modern Japan.

EAST 546 ADVANCED READING: JAPANESE. (3) (Prerequisite: EAST 440 or permission of instructor) (Restriction: Departmental approval required) In-depth reading and analysis of advanced Japanese texts. Readings will be selected from a variety of prose genres ranging from fiction to journalistic writing.

EAST 547 ADVANCED TRANSLATION IN JAPANESE. (3) (Prerequisite (Undergraduate): EAST 440 or equivalent or permission of the instructor) (Restriction: Departmental approval required) Translation of Japanese texts into English or French. Materials will be selected from a variety of prose genres ranging from fiction to journalistic writing.

EAST 550 CLASSICAL CHINESE POETRY THEMES AND GENRES. (3) (Prerequisite (Undergraduate): EAST 433 or permission of instructor) A study of major themes and genres of classical Chinese poetry from its beginnings to the Yuan dynasty (14th century), with emphasis on critical analysis of text and context. Readings of poems in the original.

EAST 551 TECHNOLOGIES OF SELF IN EARLY CHINA. (3) (Prerequisite (Undergraduate): One advanced course in EAS or permission of the instructor) Readings on self-cultivation drawn from Confucian, Legalist, and Taoist philosophic texts of early China (5th-2nd centuries B.C.) in translation will be compared with historical and archaeological materials on the evolving construction of the "individual" in Chinese social structure, military organization, political and ritual codes.

EAST 552 THE YIJING (BOOK OF CHANGES). (3) (Prerequisite: Any 300-level or above EAST course or permission of instructor.) (Note: No prior knowledge of Chinese required.)

In-depth examination of the Yijing, known in the West as the Book of Changes. The course will combine a close reading of this pivotal text and its numerous commentaries with a social and cultural analysis of the diverse functions it fulfilled through Chinese history - philosophical, political, religious, aesthetic and cosmological.

EAST 556 ADVANCED READING IN CHINESE. (3) (Prerequisite: EAST 430 or permission of instructor) (Restriction: Departmental approval required) In-depth reading and analysis of advanced Chinese texts. Readings will be selected from variety of prose genres ranging from fiction to journalistic writing.

EAST 557 ADVANCED TRANSLATION: CHINESE. (3) (Prerequisite: EAST 430 or equivalent or permission of instructor) (Restriction: Departmental approval required) Translation of Chinese texts into English or French. Materials will be selected from a variety of prose genres ranging from fiction to journalistic writing.

EAST 559 ADVANCED TOPICS: CHINESE LITERATURE. (3) (Prerequisite (Undergraduate): one advanced course in EAST or permission of instructor) (Restriction: Departmental approval required) Consideration of selected topics and aspects of Chinese literature. The content of the course may vary from year to year, ranging from contemporary to modern to pre-modern literature.

EAST 562 JAPANESE LITERARY THEORY AND PRACTICE. (3) (Prerequisite (Undergraduate): Any course in EAS above the 200-level and at least a year of an East Asian Language, or permission of instructor) This course examines Japanese theories of literary production and practice with an emphasis on 20th century thought.

EAST 563 IMAGES, IDEOGRAMS, AESTHETICS. (3) (Prerequisite (Undergraduate): EAST 320 or EAST 330 or EAST 340 or equivalent, or permission of instructor) This course explores theories and usage of ideograms and images in Asian texts, both modern and premodern.

EAST 564 STRUCTURES OF MODERNITY: JAPAN. (3) (Prerequisite (Undergraduate): Any East Asian Studies course above the introductory level, or permission of the instructor) This course explores relations between some of the principal sites which structure the experience of "modernity" in Japan (and elsewhere) - from bodies and cities, to the urban context in general. Along with general approaches (e.g. the idea of everyday life; questions of time), specific topics may include speed, music, architecture, crime, etc.

EAST 569 ADVANCED TOPICS: JAPANESE LITERATURE. (3) (Prerequisite: one advanced course in EAS or permission of instructor) (Restriction: Departmental approval required) Consideration of selected topics and aspects of Japanese literature. The content of the course may vary from year to year from contemporary to modern to pre-modern literature.

EAST 576 ADVANCED READING IN KOREAN. (3) (Prerequisite: EAST 420 or permission of instructor) (Restriction: Departmental approval required) In-depth reading and analysis of advanced Korean texts. Readings will be selected from a variety of prose genres ranging from fiction to journalistic writing.

EAST 577 ADVANCED TRANSLATION: KOREAN. (3) (Prerequisite: EAST 420 or permission of instructor.) (Restriction: Departmental approval required) Translation of Korean texts into English or French. Materials will be selected from a variety of prose genres ranging from fiction to journalistic writing.

EAST 582 JAPANESE CULTURE AND SOCIETY. (3)

EAST 600 EAST ASIAN STUDIES 1. (3)

EAST 601 EAST ASIAN STUDIES 2. (3)

EAST 619 TOPICS IN LITERARY THEORY. (3)

EAST 651 SEMINAR IN TAOIST STUDIES 1. (3)

EAST 652 SEMINAR IN TAOIST STUDIES 2. (3)

EAST 653 CHINESE POPULAR CULTURE 1. (3)

EAST 654 CHINESE POPULAR CULTURE 2. (3)

EAST 655 PREMODERN CHINESE POETRY. (3)

EAST 657 WOMEN'S WRITINGS IN TRADITIONAL CHINA. (3)

EAST 660 SEMINAR: JAPANESE FICTION. (3)

EAST 661 PREMODERN JAPANESE POETRY AND NARRATIVE. (3)

EAST 662 POPULAR CULTURE IN JAPAN. (3)

EAST 663 JAPANESE CULTURE AND THOUGHT. (3)

EAST 680 SEMINAR: SOCIAL CHANGE IN JAPAN. (3)

EAST 690 THESIS RESEARCH 1. (3)

EAST 691 THESIS RESEARCH 2. (3)

EAST 692 THESIS RESEARCH 3. (3)

EAST 693 THESIS RESEARCH 4. (3)

EAST 694 THESIS RESEARCH 5. (3)

EAST 695 THESIS RESEARCH 6. (3)

EAST 696 THESIS RESEARCH 7. (6)

EAST 696D1 (3), EAST 696D2 (3) THESIS RESEARCH 7. (Students must register for both EAST 696D1 and EAST 696D2) (No credit will be given for this course unless both EAST 696D1 and EAST 696D2 are successfully completed in consecutive terms) (EAST 696D1 and EAST 696D2 together are equivalent to EAST 696)

EAST 701 EAST ASIAN STUDIES 4. (6)

EAST 701D1 (3), EAST 701D2 (3) EAST ASIAN STUDIES 4. (Students must register for both EAST 701D1 and EAST 701D2) (No credit will be given for this course unless both EAST 701D1 and EAST 701D2 are successfully completed in consecutive terms)

25 Economics

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Chair — William Watson

25.1 Staff

Emeritus Professor

Kari Polanyi-Levitt; B.Sc.(Lond.), M.A.(Tor.)

Professors

Robert D. Cairns; B.Sc.(Tor.), Ph.D.(MIT)

Russell Davidson; B.Sc., Ph.D.(Glas.), Ph.D.(Br. Col.)(Canada
Research Chair)

Antal Deutsch; B.Com.(Sir G. Wms.), Ph.D.(McG.)

Jean-Marie Dufour; B.Sc.(McG.), M.Sc.(Montr.), M.A.(C'dia.),
M.A., Ph.D.(Chic.)

John Galbraith; B.A.(Qu.), M.Phil., D.Phil.(Oxf.) (*James McGill
Professor*)

George Grantham; B.A.(Antioch), M.A., Ph.D.(Yale)

Christopher Green; M.A.(Conn.), Ph.D.(Wisc.)

Jagdish Handa; B.Sc.(Lond.), Ph.D.(Johns Hop.)

Jennifer Hunt; I.B.(Int'l School of Geneva), S.B.(MIT), Ph.D.
(Harv.)

Ngo van Long; B.Ec.(LaT.), Ph.D.(A.N.U.) (*James McGill
Professor*)

Mary MacKinnon; B.A.(Qu.), M.Phil., D.Phil.(Oxf.)

Robin Thomas Naylor; B.A.(Tor.), M.Sc.(Lond.), Ph.D.(Cant.)

J.C. Robin Rowley; B.Sc., M.Sc., Ph.D.(Lond.)

Victoria Zinde-Walsh; M.A.(Wat.), M.Sc., Ph.D.(Moscow St.)

Associate Professors

Hassan Bencheekroun; Diplôme d'ingénieur d'état(École
Mohamedes des ingénieurs, Morocco), Ph.D.(Laval)

Jim Engle-Warnick; B.S.(Akron), M.B.A.(Carn. Mell.), Ph.D.(Pitt.)
(*William Dawson Scholar*)

Myron Frankman; B.Mgt.E.(Renss.), Ph.D.(Texas)

Franque Grimard; B.A.(York), Ph.D.(Princ.)

C. John Kurien; B.A.(Kerala), M.A., Ph.D.(Vanderbilt)

Daniel Parent; B.A., M.A.(Laval), Ph.D.(Montr.) (*William Dawson
Scholar*)

Christopher T.S. Ragan; B.A.(Vic., BC), M.A.(Qu.), Ph.D.(MIT)

Lee Soderstrom; B.A., Ph.D.(Calif.)

Thomas Velk; M.S., Ph.D.(Wisc.)

Alexander Vicas; B.Com.(McG.), M.A., Ph.D.(Princ.)

William Watson; B.A.(McG.), Ph.D.(Yale)

Licun Xue; B.Eng., M.Eng.(Tianjin), M.A., Ph.D.(McG.)

Assistant Professors

Francisco Alvarez-Cuadrado; B.Sc.(U. Pontifica Comillas),
M.A., Ph.D.(Wash.)

Leah Brooks; B.A.(Chic.), Ph.D.(Calif.-LA)

Takashi Kunimoto; B.E.(Doshisha), M.A.(Kyoto), M.A.,
Ph.D.(Brown)

Sonia Laszlo; B.A.(Ott.), M.A.(W. Ont.), Ph.D.(Tor.)

Markus Poschke; M.Sc.(Maastricht), M.A.(Institut d'Etudes
Politiques, Paris), M.Res., Ph.D.(European University Institute,
Italy)

Maxim Sinityn; B.A.(Central Methodist College), M.S.(Ill.), M.A.,
Ph.D.(N'western)

Erin Strumpf; B.A.(Smith), Ph.D.(Harv.)

Dhanoos Sutthiphisal; B.Eng.(Chulalonghorn), M.B.A.,
M.S.(Lehigh), C. Phil.(Calif.-LA)

25.2 Programs Offered

M.A. in Economics, thesis and non-thesis options.

Ph.D.

Because this Calendar is prepared early in the year, changes may take place after it has been printed. Students are advised to contact the Department Office for supplementary information which may be important to their choice of program.

25.3 Admission Requirements

An Honours B.A. in Economics is the normal requirement, although students holding an ordinary B.A., whether in economics or another discipline, may also be eligible for admission. Students judged by the admissions committee to have deficiencies in their preparation in economics may be admitted to a qualifying year in which they undertake advanced undergraduate work.

Students who have not previously passed a suitable course in statistics must take the undergraduate honours statistics course, ECON 257D1/ECON 257D2. A course in the history of economic thought is also a prerequisite for a graduate degree in economics, and students who have not taken such a course will be required to take ECON 460 and ECON 461 or ECON 660 (the M.A. course in History of Economic Thought). Students are also expected to have completed or to complete three terms of introductory calculus and at least one term of linear algebra.

25.4 Application Procedures

Applications will be considered upon receipt of:

1. application form
2. two copies of official transcripts sent by the university
3. two letters of reference
4. \$80 application fee
5. original TOEFL and/or GRE results, if applicable.

Information and electronic application forms can be accessed from the Economics Department Website at www.mcgill.ca/economics.

Deadline: February 1st for financial consideration.

25.5 Program Requirements

Lectures and examinations in the graduate program (M.A. and Ph.D.) in Economics are given in Macroeconomics, Microeconomics and several fields: Econometrics; Economic Development; Economic History; Industrial Organization; Health Economics; International Economics; Labour Economics; Monetary Economics; Public Finance; Mathematical Economics; Advanced Theory. Courses at the 600 level are usually taught in the first term. Seminars/courses at the 700 level are offered in many of the fields listed above. They are generally given in the second term and normally have as a prerequisite the corresponding 600 level course.

Residency requirement for the M.A. degree: Three full-time terms for the M.A. degree one of which can be an approved Summer term. Many students are able to complete the M.A. requirements in one calendar year.

I. M.A. in Economics (Thesis)

(48 credits)

Required Courses (6 credits)

Preparation courses and completion of research essay:

ECON 610	(3)	Microeconomic Theory 1
ECON 620	(3)	Macroeconomic Theory 1

Complementary Courses (12 credits)

Must include either:

*ECON 662D1/D2	(6)	Econometrics
ECON 665	(3)	Quantitative Methods

A minimum of 6 credits must be taken in the same field.

*ECON 662D1/D2 or equivalent is strongly recommended but will not meet the 6-credit field requirement for the M.A.

Thesis Component – Required (30 credits)

ECON 650	(3)	Research 1
ECON 651	(3)	Research 2
ECON 652	(3)	Research 3
ECON 653	(3)	Research 4
ECON 670	(6)	Thesis 1
ECON 671	(6)	Thesis 2
ECON 672	(6)	Thesis 3

The total thesis program requirement is 48 credits (18 credits of course work and 30 credits for the thesis). At least a grade of B- is required in any individual course and an overall average of B (70%) is needed for graduation.

II. M.A. in Economics (Non-Thesis)

(45 credits)

Required Courses (27 credits)

Preparation courses and completion of research essay:

ECON 610	(3)	Microeconomic Theory 1
ECON 620	(3)	Macroeconomic Theory 1
ECON 650	(3)	Research 1
ECON 651	(3)	Research 2
ECON 654	(3)	Research Methods in Economics
ECON 680	(3)	M.A. Report 1
ECON 681	(3)	M.A. Report 2
ECON 682	(3)	M.A. Report 3
ECON 683	(3)	M.A. Report 4

Complementary Courses (18 credits)

Must include either:

ECON 662D1/D2	(6)	Econometrics
ECON 665	(3)	Quantitative Methods

Additional courses, at the 500 level or higher, as determined by the student's area of study.

The total non-thesis program requirement is 45 credits (27 credits of course work and 18 credits of research). At least a grade of B- is required in any individual course and an overall average of B (70%) is needed for graduation.

III. M.A. Degree Program (Non-Thesis) Option in Development Studies:

The Development Studies Option (DSO) is a cross-disciplinary M.A. program offered as an option within existing M.A. programs in the departments of Geography, History, Political Science, Anthropology, Economics, and Sociology. This non-thesis option is open to master's students specializing in development studies. Students enter through one of the participating departments and must meet the M.A. requirements of that unit. Students will take an interdisciplinary seminar and a variety of graduate level courses on international development issues. The research essay must be on a topic relating to development studies, approved by the DSO coordinating committee.

M.A. in Economics (Non-Thesis) – Development Studies Option/Concentration (45 credits)**Required Courses** (33 credits)

ECON 610	(3)	Microeconomic Theory 1
ECON 620	(3)	Macroeconomic Theory 1
ECON 634	(3)	Economic Development 3
ECON 650	(3)	Research 1
ECON 651	(3)	Research 2
ECON 680	(3)	M.A. Report 1
ECON 681	(3)	M.A. Report 2
ECON 682	(3)	M.A. Report 3
ECON 683	(3)	M.A. Report 4
ECON 734	(3)	Economic Development 4
INTD 657	(3)	Development Studies Seminar

Complementary Courses (12 credits)

3 or 6 credits from:

ECON 662D1/D2	(6)	Econometrics
ECON 665	(3)	Quantitative Methods

6 or 9 credits of additional courses, at the 500 level or higher, related to international development studies to be chosen in consultation with an advisor.

IV. M.A. Degree Program Non-Thesis Option in Social Statistics:

The program complements disciplinary training with research experience applying statistical methods to Statistics Canada data (or equivalent). Students will normally complete normal program course requirements, supplemented by further statistical courses, as advised by the Option advisor, and subject to approval by the home department. Students will complete a statistics-based M.A. research paper (Economics, Political Science, Sociology) or thesis (Geography) in conjunction with an interdisciplinary capstone seminar.

Acceptance into the program is by application to the Social Statistics Option Committee and is contingent on acceptance into the M.A. program in one of the participating departments (Economics, Geography, Political Science, Sociology), which in turn requires meeting the Graduate and Postdoctoral Studies Office admission requirements.

M.A. in Economics (Non-Thesis) – Social Statistics Option/Concentration (45 credits)**Required Courses** (30 credits)

Preparation courses and completion of research essay:

ECON 610	(3)	Microeconomic Theory 1
ECON 620	(3)	Macroeconomic Theory 1
ECON 650	(3)	Research 1
ECON 651	(3)	Research 2
ECON 654	(3)	Research Methods in Economics
ECON 680	(3)	M.A. Report 1
ECON 681	(3)	M.A. Report 2
ECON 682	(3)	M.A. Report 3
ECON 683	(3)	M.A. Report 4
ECON 688	(3)	Seminar on Social Statistics

Complementary Courses (15 credits)

Must include either:

ECON 662D1/D2	(6)	Econometrics
ECON 665	(3)	Quantitative Methods

Additional courses, at the 500 level or higher, as determined by the student's area of study.

REQUIREMENTS FOR THE Ph.D. DEGREE**Coursework** (20 credits)

20 credits in Economics beyond the M.A. requirements as described below:

ECON 662D1/D2	(6)	Econometrics (or equivalent)
ECON 770	(1)	PhD Research Seminar 1

ECON 771 (1) PhD Research Seminar 2

At least 6 of the remaining 12 credits must be in a single field from the choices below.

Advanced Theory
Econometrics
Economic Development
Economic History
Industrial Organization
International Economics
Health Economics
Labour Economics
Monetary Economics
Public Finance

Other field combinations may be considered by the graduate program director as requested.

Ph.D. Comprehensive:

ECON 799 (0) Ph.D. Comprehensive Examination

Doctoral Dissertation

Three years of residence (credit for one year may be granted for master's work at McGill or for graduate study at another university).

Ph.D. Comprehensive Examination. This examination consists of written examinations in Macroeconomics, Microeconomics and two fields. A third field is also required, although this requirement is satisfied by successful completion of two courses in that field. It is expected that the Macro and Micro examinations will be written at the end of the first year and the field examinations at the end of the second year.

Doctoral Dissertations. Doctoral dissertations make original contributions to the literature. The topic must be approved by a two-person supervisory committee whose Chair is the student's Director of Research. The completed thesis must be approved by an external examiner as well as by two internal examiners before the student may defend the work at a formal oral examination.

25.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Note: All undergraduate courses administered by the Faculty of Arts (courses at the 100- to 500-level) have limited enrolment.

The course credit weight is given in parentheses after the title.

ECON 510 EXPERIMENTAL ECONOMICS. (3) (Prerequisites: ECON 230 or ECON 250 or permission of the instructor.) (Restrictions: For U3 students.) Experimental methodology, current topics in experimental economics, and market design.

ECON 525 PROJECT ANALYSIS. (3) (Restriction: Open to advanced undergraduate students. Prerequisite: ECON 250, ECON 352 or equivalent) A course in cost benefit analysis for graduate and advanced undergraduate students.

ECON 531 HISTORICAL EXPERIENCE OF ECONOMIC DEVELOPMENT. (3) (Prerequisite: ECON 230 or ECON 250 or equivalent.) (Restriction: Not open to students who have taken ECON 631.) Examination of historical patterns of economic development.

ECON 534 PENSION CRISIS. (3) The consequences of commitments made by governments in the area of old age pensions and the implications of the resulting tax burden. An international perspective will be adopted.

ECON 546 GAME THEORY. (3) (Prerequisite: ECON 230 or ECON 250) (Restriction: Not open to students who have taken ECON 446. Open to advanced undergraduate students) This course introduces students to game theory, the branch of the social sciences that focuses on the formal modelling and analysis of human

interactions and strategic behaviour. Basic concepts in cooperative and non-cooperative games are applied to economic models.

ECON 567 COMPLEX AND INTERACTIVE SYSTEMS. (3) (Prerequisites: ECON 250, ECON 352) (Restrictions: For Honours and Graduate students in Economics. Permission of the instructor.) Behaviour in open (incomplete) economic systems as they relate to nonlinearities, chaos, adaptiveness, networks, externalities, dynamic competition, computable economics, simulation-driven analogies, disequilibrium dynamics, lock-in phenomena and path dependence, quasi-rationality with uncertainty and fuzzy constraints, evolutionary processes, genetic algorithms, etc.

ECON 577 MATHEMATICAL ECONOMICS 1. (3) (Prerequisites: MATH 133, MATH 139 and MATH 141 or equivalent) A mathematical treatment of basic economic theory.

ECON 602 ECONOMIC HISTORY. (3) Selected topics in European and North American economic history are investigated from the standpoint of the interplay of institutional change and quantitative growth.

ECON 604 MACROECONOMICS FOR POLICY 1. (3)

ECON 605 MICROECONOMICS FOR POLICY 1. (3)

ECON 606 MACROECONOMICS FOR POLICY 2. (3)

ECON 607 MICROECONOMICS FOR POLICY 2. (3)

ECON 610 MICROECONOMIC THEORY 1. (3) This is the first in a two-course sequence in microeconomics. The core microeconomics sequence (ECON 610, ECON 611) provides a rigorous coverage of the economic foundation upon which economic fields are built. Most of the sequence is devoted to building up this foundation of consumer and firm optimisation (including choice under uncertainty), partial and general equilibrium, and welfare economics. The remainder of 154-611 covers special topics that vary from year to year. These are likely to be drawn from the following: social choice; externalities and public goods; models of asymmetric information; the principal-agent framework; search; basic game theory.

ECON 611 MICROECONOMIC THEORY 2. (3) This is the second in a two-course sequence in microeconomics.

ECON 620 MACROECONOMIC THEORY 1. (3) This course is the first in a two-course sequence in macroeconomics. The course offers a thorough treatment of the fundamentals of macroeconomic theory. Emphasis is placed on the construction of economic models with microeconomic foundations. Topics include market-clearing and non-market-clearing models, capital accumulation, business cycles, monetary policy and fiscal policy.

ECON 621 MACROECONOMIC THEORY 2. (3) This is the second in a two-course sequence in macroeconomics. The course provides an in-depth analysis of selected issues in macroeconomic theory, extending and complementing the coverage provided in ECON 620.

ECON 622 PUBLIC FINANCE. (3) A survey of the role of government in the economy (excluding the macroeconomic side - stabilization, etc.). Topics include markets and market failure; public goods; externalities; the theory of the second-best and the study of collective choice, including voting; and the collection of revenue to finance government activity, including optimal taxation of commodities and income.

ECON 622D1 (1.5), ECON 622D2 (1.5) PUBLIC FINANCE. (Students must register for both ECON 622D1 and ECON 622D2) (No credit will be given for this course unless both ECON 622D1 and ECON 622D2 are successfully completed in consecutive terms) (ECON 622D1 and ECON 622D2 together are equivalent to ECON 622) A survey of the role of government in the economy (excluding the macroeconomic side - stabilization, etc.). Topics include markets and market failure, public goods, externalities, the theory of the second-best and the study of collective choice, including voting; and the collection of revenue to finance government activity, including optimal taxation of commodities and income.

ECON 623 MONEY AND BANKING. (3) A rigorous analysis of the demand and supply of money and the role that it plays in the economy. Study of the ideas of the major schools of thought in monetary economics.

ECON 624 INTERNATIONAL ECONOMICS. (3) A detailed examination of theories and policies in international trade and finance.

ECON 624D1 (1.5), ECON 624D2 (1.5) INTERNATIONAL ECONOMICS. (Students must register for both ECON 624D1 and ECON 624D2) (No credit will be given for this course unless both ECON 624D1 and ECON 624D2 are successfully completed in consecutive terms) (ECON 624D1 and ECON 624D2 together are equivalent to ECON 624) A detailed examination of theories and policies in international trade and finance.

ECON 625 ECONOMICS OF NATURAL RESOURCES. (3) The concept of optimal resource management and the associated rules, such as Hotelling's rule and Faustmann's rule. Implications of the need to sink capital for equilibrium in resource utilization under certainty and uncertainty. Conditions under which there is market failure and the merits of price and quantity instruments.

ECON 634 ECONOMIC DEVELOPMENT 3. (3) A systematic treatment of the characteristics and problems of economic development in underdeveloped countries.

ECON 637 INDUSTRIAL ORGANIZATION AND REGULATION. (3) An analysis of the nature of the firm, industrial structure and the effect of structure on firm and industry behaviour and performance.

ECON 641 LABOUR ECONOMICS. (3) A synthesis of theoretical developments in the area of labour economics with stress upon problems of empirical testing.

ECON 650 RESEARCH 1. (3) Preparation for work on M.A. thesis and M.A. research report.

ECON 651 RESEARCH 2. (3) Preparation for work on M.A. thesis and M.A. research report.

ECON 652 RESEARCH 3. (3) Preparation for work on M.A. thesis and M.A. research report.

ECON 653 RESEARCH 4. (3) Preparation for work on M.A. thesis and M.A. research report.

ECON 654 RESEARCH METHODS IN ECONOMICS. (3) Preparation of M.A. research papers.

ECON 660 HISTORY OF ECONOMIC THOUGHT. (3) Selected topics in the history of economic thought.

ECON 662 ECONOMETRICS. (6) A broad treatment of econometric methods, with particular reference to time series processes. Estimation of linear and non-linear models, GLS, IV, Maximum Likelihood, parametric specification testing for linear and non-linear hypotheses, diagnostic testing (autocorrelation, heteroskedasticity, normality, parameter constancy, etc.), modelling technique, non-stationary data processes.

ECON 662D1 (3), ECON 662D2 (3) ECONOMETRICS. (Students must register for both ECON 662D1 and ECON 662D2) (No credit will be given for this course unless both ECON 662D1 and ECON 662D2 are successfully completed in consecutive terms) (ECON 662D1 and ECON 662D2 together are equivalent to ECON 662) A broad treatment of econometric methods, with particular reference to time series processes. Estimation of linear and non-linear models, GLS, IV, Maximum Likelihood, parametric specification testing for linear and non-linear hypotheses, diagnostic testing (autocorrelation, heteroskedasticity, normality, parameter constancy, etc.), modelling technique, non-stationary data processes.

ECON 665 QUANTITATIVE METHODS. (3) A survey of quantitative methods frequently used in economic research. Special emphasis will be placed upon the formulation and evaluation of econometric models. Illustrations will be drawn from the existing empirical literature in economics. Required for all Ph.D. students who have not taken Econometrics as a field.

ECON 670 THESIS 1. (6)

ECON 671 THESIS 2. (6)

ECON 672 THESIS 3. (6)

ECON 675 ANALYSIS OF MACROECONOMIC POLICY. (3) (Prerequisites: ECON 620.) The underlying principles of the design, implementation, and analysis of macroeconomic policy, with applications to monetary policy, exchange-rate policy, tax policy to influence growth and distribution, and the effect of government spending and debt. Emphasis is placed on Canadian macroeconomic policy, although international comparisons are also discussed.

ECON 680 M.A. REPORT 1. (3) The M.A. Report must demonstrate the candidate's ability to do independent work at the graduate level in a particular field of economics. While length will vary with the subject matter, it is expected that on average reports will be about 50 pages long. The Report will be graded jointly by two members of the Department. The supervisor will normally be one of the examiners.

ECON 681 M.A. REPORT 2. (3) The M.A. Report must demonstrate the candidate's ability to do independent work at the graduate level in a particular field of economics. While length will vary with the subject matter, it is expected that on average reports will be about 50 pages long. The Report will be graded jointly by two members of the Department. The supervisor will normally be one of the examiners.

ECON 681D1 (1.5), ECON 681D2 (1.5) M.A. REPORT 2. (Students must register for both ECON 681D1 and ECON 681D2) (No credit will be given for this course unless both ECON 681D1 and ECON 681D2 are successfully completed in consecutive terms) (ECON 681D1 and ECON 681D2 together are equivalent to ECON 681) The M.A. Report must demonstrate the candidate's ability to do independent work at the graduate level in a particular field of economics. While length will vary with the subject matter, it is expected that on average reports will be about 50 pages long. The Report will be graded jointly by two members of the Department. The supervisor will normally be one of the examiners.

ECON 682 M.A. REPORT 3. (3) The M.A. Report must demonstrate the candidate's ability to do independent work at the graduate level in a particular field of economics. While length will vary with the subject matter, it is expected that on average reports will be about 50 pages long. The Report will be graded jointly by two members of the Department. The supervisor will normally be one of the examiners.

ECON 682D1 (1.5), ECON 682D2 (1.5) M.A. REPORT 3. (Students must register for both ECON 682D1 and ECON 682D2) (No credit will be given for this course unless both ECON 682D1 and ECON 682D2 are successfully completed in consecutive terms) (ECON 682D1 and ECON 682D2 together are equivalent to ECON 682) The M.A. Report must demonstrate the candidate's ability to do independent work at the graduate level in a particular field of economics. While length will vary with the subject matter, it is expected that on average reports will be about 50 pages long. The Report will be graded jointly by two members of the Department. The supervisor will normally be one of the examiners.

ECON 683 M.A. REPORT 4. (3) The M.A. Report must demonstrate the candidate's ability to do independent work at the graduate level in a particular field of economics. While length will vary with the subject matter, it is expected that on average reports will be about 50 pages long. The Report will be graded jointly by two members of the Department. The supervisor will normally be one of the examiners.

ECON 705 READING COURSE: SELECTED TOPICS ECONOMICS. (3) Reading course in Economics.

ECON 706 SELECTED TOPICS. (3) (Prerequisites: ECON 610, ECON 620 and 6 additional credits at the 600 level) Reading course in Economics.

ECON 710 SELECTED TOPICS IN ECONOMICS. (3) Selected topics in specialized areas of Economic.

ECON 720 ADVANCED GAME THEORY. (3) The main focus of the course will be the "theory of social situations" (which is closely related to "game theory") which is a new and integrative approach to the study of formal models (both cooperative and non-cooperative) in the social sciences.

ECON 721 ADVANCED MONETARY THEORY. (3) Selected topics in monetary theory, the theory of monetary policy, and the history of monetary institutions.

ECON 724 INTERNATIONAL ECONOMICS. (3) Selected problems in international trade, foreign exchange and international movements of capital.

ECON 726 TOPICS IN ENVIRONMENTAL ECONOMICS. (3) Topics in environmental economics.

ECON 734 ECONOMIC DEVELOPMENT 4. (3) Problems of economic growth and planning in selected underdeveloped countries. Topics covered vary from year to year in response to student interests; growth, poverty and income distribution, LDC labour markets and institutions, trade and development, international debt problems, issues in trade policy.

ECON 737 INDUSTRIAL ORGANIZATION AND REGULATION SEMINAR. (3) Builds on material covered in ECON 637. Problems are examined in greater depth with specific topics varying from year to year.

ECON 741 ADVANCED LABOUR ECONOMICS. (3) Selected theoretical and policy issues in labour economics.

ECON 742 EMPIRICAL MICROECONOMICS. (3) (Prerequisite: First term of ECON 662 and either ECON 634 or ECON 641, or consent of the instructor) Surveys the empirical techniques used in applied microeconomic fields, particularly development and labour economics. Focus is on the formulation of empirical models derived from economic theory, and on various estimation methodologies, including panel data econometrics, limited dependent variable models, and duration analysis. A "hands on" approach is emphasized.

ECON 744 HEALTH ECONOMICS. (3) The emphasis will be on describing and analyzing the structure and performance of the Canadian health system, though some attention will be given to recent attempts by the federal and provincial governments to deal with current problems in this field. Readings will be selected from the economics and health literature.

ECON 750 SELECTED TOPICS: MICROECONOMICS. (3) Topics of interest to the students and staff. These topics will be in areas other than those covered by existing courses and particular attention will be paid to critiques of neoclassical economic theory.

ECON 752 TOPICS IN FINANCIAL ECONOMICS. (3) Selected topics in monetary economics and international finance for advanced graduate work in this area.

ECON 761 ECONOMETRICS: TIME SERIES ANALYSIS. (3) (Restriction: Not open to students who have taken ECON 762) (Offered only in some years) Theory and application of linear, non-linear expectational and asymptotic time series models to economic phenomena. Probabilistic models of economic dynamics and experimental economies, including simulation.

ECON 762 ECONOMETRICS - ASYMPTOTIC AND FINITE - SAMPLE. (3) Exact and asymptotic distribution theory in econometrics: basic results for estimation and inference in regression models, extensions and other selected topics including nonparametric and distribution-free methods for econometric models.

ECON 762D1 (1.5), ECON 762D2 (1.5) ECONOMETRICS - ASYMPTOTIC AND FINITE-SAMPLE. (Students must register for both ECON 762D1 and ECON 762D2) (No credit will be given for this course unless both ECON 762D1 and ECON 762D2 are successfully completed in consecutive terms) (ECON 762D1 and ECON 762D2 together are equivalent to ECON 762) Exact and asymptotic distribution theory in econometrics: basic results for estimation and inference in regression models, extensions and other selected topics including nonparametric and distribution-free methods for econometric models.

ECON 763 FINANCIAL ECONOMETRICS. (3) This course covers advanced time series methods used in the analysis of financial data and other potentially non-stationary time series. Topics: integrated time series, co-integration, unit root testing, conditional heteroscedasticity, long memory, non-parametric and neural network models. Applications include market efficiency, stochastic volatility and predictability of asset returns.

ECON 765 MODELS FOR FINANCIAL ECONOMICS. (3) (Prerequisite: Permission of instructor.) A review of mathematical techniques used in modern finance theory, including measure theory and stochastic processes in continuous time (e.g., Brownian motion) and other techniques essential to understanding arbitrage pricing theory, including the pricing of options.

ECON 770 PHD RESEARCH SEMINAR 1. (1) (Prerequisites: All comprehensive and field examinations are to be completed.) (Note: ECON 770 and ECON 771 may be taken in either order.) Presentation of Ph.D. research.

ECON 771 PHD RESEARCH SEMINAR 2. (1) (Prerequisites: All comprehensive and field examinations are to be completed.) (Note: ECON 770 and ECON 771 may be taken in either order.) Presentation of Ph.D. research.

ECON 799 PH.D.COMPREHENSIVE EXAMINATION. (0)

ECON 799D1 (0), ECON 799D2 (0) PH.D. COMPREHENSIVE EXAMINATION. (Students must register for both ECON 799D1 and ECON 799D2) (No credit will be given for this course unless both ECON 799D1 and ECON 799D2 are successfully completed in consecutive terms) (ECON 799D1 and ECON 799D2 together are equivalent to ECON 799)

26 Educational and Counselling Psychology

Department of Educational and Counselling Psychology
Education Building, Room 614
3700 McTavish Street
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Web site: www.mcgill.ca/edu-ecp

Chair — Susanne P. Lajoie

Program Directors:

Counselling Psychology
Ada Sinacore

Human Development/M.Ed Streams in Educational Psychology

Acting Co-Director — Robert Savage

Acting Co-Director — Tara Flanagan

Learning Sciences
Alenoush Saroyan

School/Applied Child Psychology
Kim Cornish

26.1 Staff

Emeritus Professors

Janet G. Donald; B.A., M.A.(W. Ont.), Ph.D.(Tor.) (*joint appt. with Teaching and Learning Services*)

Eigil Pedersen; B.A.(Sir G. Wms.), M.A.(McG.), Ed.D.(Harv.)

Howard A. Stutt; B.A.(Qu.), B.Ed., M.Ed.(Montr.), F.C.C.T.

Professors

Mark W. Aulls; B.S.(Ball St.), M.Ed.(Ind.), Ed.D.(Georgia)

Robert J. Bracewell; B.Sc., M.A.(McM.), Ph.D.(Tor.)

Jacob A. Burack; B.A.(Col.), M.S., M.Phil., Ph.D.(Yale)

Glenn F. Cartwright; B.A.(Sir G. Wms.), M.A.(McG.), Ph.D.(Alta.), F.A.A.S.P., F.C.C.T.

Kim Cornish; B.Sc.(Lanc.), Ph.D.(Lond.) (*Canada Research Chair, Tier 1*)

Jeffrey L. Derevensky; B.A.(C. W. Post), M.A., Ph.D.(McG.)

Nancy L. Heath; B.A.(McG.), M.Ed.(Ott.), Ph.D.(Tor.) (*William Dawson Scholar (Sabbatical Leave)*)

Carl H. Frederiksen; B.A.(Harv.), M.A., Ph.D.(Ill.)

Susanne P. Lajoie; B.A., M.A.(McG.), Ph.D.(Stan.) (*James McGill Professor and Chair*)

Lynn McAlpine; B.A.(McG.), M.A.(C'dia), Ph.D.(Tor.) (*joint appt. with Teaching and Learning Services*)

Alenoush Saroyan; B.A.(Pahlavi), M.Ed.(Loy. U. Chic.), Ph.D.(McG.)
 Bruce M. Shore; B.Sc., M.A.(McG.), Ph.D.(Calg.)
 Cynthia B. Weston; B.A.(G'town), M.L.S.(SUNY), D.Ed.(Wash.)
(joint appt. with Teaching and Learning Services)

Associate Professors

Alain Breuleux; B.Sc., M.Sc., Ph.D.(Montr.)
 Martin Drapeau; B.A.(Montr.), B.A. Ps.(Queb. à Trois-Rivières), M.P.(Laval), Ph.D.(Montr.)
 Marilyn Fitzpatrick; B.A.(Tor.), M.Ed., Ph.D.(McG.) *(Sabbatical Leave Jan 09-Sept 09)*

Michael L. Hoover; B.S.(Tulane), M.A., M.Phil., Ph.D.(Col.)
 Evelyn Lusthaus; B.S., M.S., Ph.D.(S.U.N.Y. Buffalo) *(on leave)*
 Robert Savage; B.A.(Oxon.), M.Sc.(Camb.), M.Sc., Ph.D.(Lond.)
 Ada L. Sinacore; B.A.(Montclair St.), M.A., M.Ed., Ph.D.(Col.)
 Ingrid E. Sladeczek; B.A., M.S., Ph.D.(Ariz.), A.A.(Md.)
 Ronald Stringer; B.Sc., M.A., Ph.D.(Tor.) *(Sabbatical Leave)*

Assistant Professors

Tara Flanagan; B.A.(Winn.), M.A., Ph.D.(McG.)
 Panayiota Kendeou; B.A.(U. Cypr.), M.A., Ph.D.(Minn.)
 Annett Körner; M.A., Ph.D.(Leipzig)
 Krista Muis; B.A.(Wat.), M.A.(Vic.), Ph.D.(SFU)
 Jeeseon Park; B.A., M.A.(Yonsei), Ph.D.(Penn St.)
 Steven R. Shaw; B.A., M.Ed., Ed.s., Ph.D.(Flor.)
 Nathan Smith; M.Sc., Ph.D.(VCU)
 Victoria Talwar; M.A.(St. And.), M.A., Ph.D.(Qu.)

Faculty Lecturer

Jack de Stefano; B.A.(Loyola), M.Ed., Ed.D.(McG.) *(part-time)*

Associate Professor (Non-Tenure Track)

Renée Stevens; B.A.(Calif.-LA), M.A., Ph.D.(McG.) *(part-time)*

Adjunct Professors

Dermot Bowler, Bertha Dawang, Marcia Delcourt, Judith Gradinger, Anne Jordan, Calvin Kalman, Judith McBride, Katherine Moxness, Judith Norton, Shana Ross, David Shore, Anastassios Stalikas, Harold Wynne

Associate Members

Reut Gruber, Daniel Levitin, Mary H. Maguire

Part-time Instructors

Shawna Atkins, Maureen Baron, Dianne Bateman, Antonio Bernardelli, Elana Bloom, Sam Bruzzese, Scott Conrod, Sandy Freedman, Karen Gazith-Cohen, Judith McBride, Judith Norton, Carolyn Nelham, Monica Oala, Caroline Zanni-Dansereau

26.2 Programs Offered

The Department of Educational and Counselling Psychology offers the following M.A., M.Ed., Ph.D., and postdoctoral degrees:

Master of Arts (M.A.) Degrees

Students can obtain an M.A. degree in:

- 1) Counselling Psychology with a thesis or non-thesis option.
- 2) Educational Psychology with streams in:
 - Health Professions Education
 - Human Development
 - Learning Sciences
 - School/Applied Child Psychology

Master of Education (M.Ed.) Degrees

Students can obtain an M.Ed. degree in Educational Psychology. Please note these are all non-thesis options. The M.Ed. Stream in Educational Psychology offers specialization in:

- Family Life Education (admissions to Family Life Stream are currently suspended)
- General Educational Psychology
- Inclusive Education

- Learning Sciences

Doctor of Philosophy (Ph.D.) Degrees

Students can obtain a Ph.D. Degree in:

- 1) Counselling Psychology
- 2) Educational Psychology with specialization in:
 - Human Development
 - Learning Sciences
- 3) School/Applied Child Psychology

Postdoctoral Degrees

The Department of Educational and Counselling Psychology offers one post doctoral diploma:

- Post-Ph.D. Graduate Diploma in School/Applied Child Psychology

For information about these graduate programs please view our Website at www.mcgill.ca/edu-ecp/programs or please contact the appropriate Program Coordinator:

For Human Development and Educational Psychology programs (excluding School/Applied Child Psychology) contact:

Graduate Program Coordinator
 Mrs. Geri Norton,
 Telephone: (514) 398-4244,
 E-mail: edpsych.education@mcgill.ca

For Counselling Psychology and School/Applied Child Psychology contact:

Graduate Program Coordinator
 Ms. Diane Bernier,
 Telephone: (514) 398-4245,
 E-mail: counsellingpsych.education@mcgill.ca or
schoolpsych.education@mcgill.ca.

Professional Accreditation

The Ph.D. in School/Applied Child Psychology is accredited by the American Psychological Association (APA). The Ph.D. in Counselling Psychology is jointly accredited by the Canadian Psychological Association and the American Psychological Association.

The Ordre des psychologues du Québec (OPQ) accredits both the Ph.D. in Counselling Psychology and the Ph.D. in School/Applied Child Psychology.

The M.A. (Non-Thesis) in Counselling Psychology is accredited by the Ordre professionnel des conseillers et conseillères d'orientation et psychoéducateurs et psychoéducatrices du Québec (OCCOPPQ). Graduates of this program meet the professional requirements for licensing as a Guidance Counsellor in Quebec. This program does not qualify graduates to meet the requirements for certification as a Psychologist.

The M.Ed. Educational Psychology Concentration in Family Life Education is approved by the Association of Family Life Educators of Quebec (AFLEQ). (Please note: admissions to the Family Life Education program are currently suspended.) AFLEQ has established reciprocal recognition of qualifications with the Canadian Association of Family Life Educators.

Graduate degrees in Counselling Psychology or School/Applied Child Psychology, and elsewhere in Education, do not lead to teaching certification – see the Undergraduate Education Calendar for B.Ed. programs (www.coursecalendar.mcgill.ca/ugcal200809). Holders of other undergraduate degrees may apply to enter the B.Ed. with advanced standing.

Research/Training Facilities

The department houses a number of training and research units and maintains working relationships with specialized centres and research groups that offer opportunities for training and research to selected students. For a list of such groups, consult our Website at www.mcgill.ca/edu-ecp/research.

26.3 Admission Requirements

The degrees offered by the Department of Educational and Counselling Psychology have program-specific application requirements. For details please read the specific requirements by program and review individual program Websites (www.mcgill.ca/edu-ecp/prospective).

26.4 Application Procedure

Applicants to all of our graduate programs are required to complete McGill's online application form: www.mcgill.ca/applying/online. An \$80 application fee is to be paid upon completion of this online form.

For all other application procedures, including details about transcripts, letters of reference, Graduate Record Examination (GRE) and Test of English as a Foreign Language (TOEFL) scores and other program-specific requirements, please carefully review the details listed below, or visit our Website at: www.mcgill.ca/edu-ecp/prospective.

Other than the online application, all required materials should be sent to the respective Graduate Program Coordinator at the address listed below. On the envelope, please state the Program, Degree (M.Ed., M.A. with or without thesis, Ph.D., or Doctoral Graduate Diploma) and requested area of specialization.

All programs begin in the Fall term. Application deadlines are December 15th for M.A. Counselling Psychology and January 15th for all other programs.

26.5 Program Requirements

26.5.1 Graduate Degrees in Counselling Psychology – M.A.(Non-Thesis), M.A., Ph.D.

M.A. (NON-THESIS) COUNSELLING PSYCHOLOGY

Aims

The aim of the M.A. Non-Thesis in Counselling Psychology is to produce graduates who (1) are trained in the major applied areas of Counselling; (2) will be qualified to work in a variety of settings where educational, vocational, personal, and developmental counselling is offered; (3) have had an extensive supervised internship in either a clinical or educational setting. This program qualifies graduates for membership into the Ordre des conseillers et conseillères d'orientation et psychoéducateurs et psychoéducatrices du Québec (OCCOPPQ).

Admission Requirements

To be eligible applicants must hold either:

- 1) A baccalaureate degree in psychology, including statistics, theories of personality, history and systems of psychology, abnormal psychology, developmental psychology, and social psychology (18 credit core), with a CGPA of 3.0 out of 4.0.
OR
- 2) A baccalaureate degree in a field other than psychology, with a CGPA of 3.0 or better, and sufficient academic preparation to meet the following requirements:
 - 18 credits in psychology (consisting of core courses as listed above) and up to 24 credits in related disciplines in the social sciences, and a GPA of 3.0 on a 4.0, in those courses which comprise the 42-credit requirement.

All applicants are required to submit a completed application package consisting of:

1. McGill Web Application, available at www.mcgill.ca/applying/online;
2. Two (2) official copies of all university transcripts (sent directly to the Department);
3. A current CV (format based on template provided available on departmental Website);
4. Three (3) letters of reference (format based on template provided; available on departmental Website);

5. Letter of Intent that should be **NO LONGER** than 500 words and needs to include **(a)** your reasons for applying to the program, **(b)** your career aspirations, and **(c)** information relevant to your application to which you would like to direct the attention of the admissions committee;
6. Academic Checklist Form (format based on template available on departmental Website).

For templates mentioned above, please visit the following section of the departmental Website: www.mcgill.ca/edu-ecp/programs/counselling/studentp.

Completed application packages should be sent to:

Diane Bernier, Graduate Program Coordinator
Department of Educational & Counselling Psychology
Faculty of Education
McGill University
3700 McTavish Street, Room 614
Montreal, QC H3A 1Y2

Program Requirements

This degree requires two years (four semesters) and one summer term of full-time study. All students must also attend weekly case conferences.

M.A.(Non-Thesis) Counselling Psychology (60 credits)

Required Courses (30 credits)

EDPC 606	(3)	Theories of Counselling 1
EDPC 607	(3)	Theories of Counselling 2
EDPC 608	(3)	Group Counselling: Theory
EDPC 609	(3)	Psychological Testing 1
EDPC 615	(3)	Assessment and Diagnosis in Counselling
EDPC 618	(3)	Professional Ethics and the Law
EDPC 624	(3)	Group Counselling: Practice
EDPC 662	(3)	Career Psychology
EDPC 665D1	(3)	Practicum
EDPC 665D2	(3)	Practicum

Internship – Required (24 credits)

Four 6-credit components reflect various dimensions of the profession. Completion of the internship is essential to becoming a member of the (OCCOPPQ).

EDPC 679D1	(3)	Internship: General 1
EDPC 679D2	(3)	Internship: General 1
EDPC 680D1	(3)	Internship Research Seminar
EDPC 680D2	(3)	Internship Research Seminar
EDPC 682D1	(3)	Practicum: Psychological Testing
EDPC 682D2	(3)	Practicum: Psychological Testing
EDPC 685D1	(3)	Internship: Vocational and Rehabilitation Counselling
EDPC 685D2	(3)	Internship: Vocational and Rehabilitation Counselling

Elective Courses (6 credits)

The following courses may be offered periodically and taken to complete or exceed the academic requirements. Electives may also be chosen from other courses offered by the Department or other departments of the University. Choice of electives requires approval of the student's faculty advisor.

EDPC 616	(3)	Individual Reading Course
EDPC 630	(3)	Feminism, Women and Psychology
EDPC 635	(3)	Counselling for Sexual Adjustment
EDPC 636	(3)	Theories of Sex Therapy
EDPC 660	(3)	Selected Topics in Counselling
EDPC 670	(3)	Current Trends in Counselling
EDPE 617	(3)	Adolescent Development

M.A. (THESIS) COUNSELLING PSYCHOLOGY

The aim of the M.A. is to produce graduates who (a) are trained in the major academic areas of Counselling Psychology; (b) have sufficient research ability to evaluate research in counselling; (c) are able to design, conduct and interpret research, and (d) can apply research methods in counselling to common problems and

concerns in educational and clinical settings. This program is designed to prepare graduates for research and teaching in the field of counselling psychology and to give them the foundation for doctoral studies that have an emphasis on research. This degree does not fulfill the requirements for membership in the Ordre des conseillers et conseillères d'orientation et psychoéducateurs et psychoéducatrices du Québec (OCCOPPQ). Students can apply to the McGill Counselling Psychology Ph.D. Those who are accepted to the Ph.D. will need to complete an internship in the first year of their Ph.D. Students cannot switch between M.A. (Non-Thesis) and M.A. (Thesis) programs.

Admission Requirements

Same as for the M.A.(Non-Thesis) Counselling Psychology. All applicants are required to submit a completed application package. Detailed description of package are listed under Admission requirements for M.A. (Non-Thesis) Counselling Psychology or on the following section of the departmental Website: www.mcgill.ca/edu-ecp/programs/counselling/studentp.

Please note that admission to this program is limited.

Program Requirements

Credit for the thesis will be awarded upon satisfactory completion of the thesis components listed below. This degree requires a minimum of four semesters and one summer session of full-time study.

M.A. Counselling Psychology (48 credits)

Required Courses (21 credits)

EDPC 606	(3)	Theories of Counselling 1
EDPC 607	(3)	Theories of Counselling 2
EDPC 608	(3)	Group Counselling: Theory
EDPC 609	(3)	Psychological Testing 1
EDPC 662	(3)	Career Psychology
EDPC 665D1	(3)	Practicum
EDPC 665D2	(3)	Practicum

Thesis Component – Required (24 credits)

EDPC 697	(6)	Thesis Preparation 1
EDPC 698	(6)	Thesis Preparation 2
EDPC 699D1	(6)	Thesis Preparation 3
EDPC 699D2	(6)	Thesis Preparation 3

Elective Course (3 credits)

Ph.D. IN COUNSELLING PSYCHOLOGY

This program is built on the scientist-practitioner model. It is currently accredited by the Canadian Psychological Association (CPA) and American Psychological Association (APA) and the Quebec Order of Psychologists (OPQ). The American Psychological Association will cease to accredit Canadian programs in 2015. The Ph.D. program's aims are:

1. To develop professionals who are able to contribute to the advancement of knowledge in the field of counselling psychology through research that studies social phenomena that may impinge upon the practice of psychology. This research may be a study of the practice of counselling psychology or it may be broader in that it has indirect implications for practice.
2. To develop professionals who are able to evaluate the merits and weaknesses of current research in the field and its implications for the practice of counselling psychology.
3. To develop professionals who are able to integrate a broad theoretical and practical knowledge base into the practice and supervision of counselling psychology, that is, to train professionals capable of addressing complex issues and applying that understanding to practice and supervision.
4. To develop professionals who are able to take a leadership role in the profession at a variety of levels including community, university and professional organizational levels.

Graduates of the program will be prepared to assume careers in education and community settings, including faculty positions, counselling and psychological positions on the staff of university and college mental health centres, and professional positions in

psychological agencies offering preventative mental health services.

Admission Requirements

All applicants are required to submit a completed application package consisting of:

1. McGill Web Application, available at www.mcgill.ca/applying/online;
2. Two (2) official copies of all university transcripts (sent directly to the Department);
3. Scores on the Graduate Record Examination (GRE) (both general and the psychology subject tests, sent directly to the Department);
4. Scores on the Test of English as a Foreign Language (TOEFL) (if you are an International Student, sent directly to the Department);
5. A current CV (format based on template available on departmental Website);
6. Three (3) letters of reference (format based on template available on departmental Website);
7. Doctoral Academic Checklist Form (format based on template available on departmental Website);
8. Letter of intent that should be **NO LONGER** than 500 words and needs to include **(a)** your reasons for applying to the program, **(b)** your career aspirations, and **(c)** any information relevant to your application to which you would like to direct the attention of the admissions committee;
9. Statement of your research interests that should provide an indication of how your interests correspond to the areas of expertise of the McGill Counselling Psychology program and its faculty;
10. A writing sample (e.g., paper for a course, M.A. thesis, publication).

For templates mentioned above, please visit the following section of the departmental Website: www.mcgill.ca/edu-ecp/programs/counselling/studentp.

Completed application packages should be sent to:

Diane Bernier, Graduate Program Coordinator
Department of Educational & Counselling Psychology
Faculty of Education
McGill University
3700 McTavish Street, Room 614
Montreal, QC H3A 1Y2

Additional Entrance Notes:

Ph.D. in Counselling Psychology applicants are advised that in accordance with the Quebec Order of Psychology (OPQ), Canadian Psychological Association (CPA) and American Psychological Association (APA) criteria for doctoral program accreditation, all doctoral candidates must have a solid grounding in the history of psychology, biological basis of behaviour, developmental psychology, abnormal psychology, the social-cultural aspects and determinants of behaviour, cognitive-affective psychology, psychological measurement and assessment, statistics and personality. If applicants to this program do not have such courses in their undergraduate or Master's level education, they will be required to take supplemental courses in these domains after entering the doctoral program.

Required Courses, Comprehensive Examination, and Internship (84 credits)

Required Courses (54 credits)

EDEM 692	(3)	Qualitative Research Methods
EDPC 709	(3)	Advanced Theories and Models
EDPC 714	(3)	Theory / Models: Family Therapy
EDPC 719	(3)	Advanced Small Group Counselling
EDPC 720D1	(3)	Seminar Vocational Psychology and Career Development Theory
EDPC 720D2	(3)	Seminar Vocational Psychology and Career Development Theory

EDPC 780	(6)	Professional Development
EDPC 782	(6)	Doctoral Field Experience
EDPC 786	(6)	Seminar: Research Problems in Counselling
EDPE 622	(3)	Multiculturalism and Gender
EDPE 627	(3)	Professional Practice of Psychology
EDPE 676	(3)	Intermediate Statistics 2
EDPE 682	(3)	Univariate/Multivariate Analysis
EDPE 684	(3)	Applied Multivariate Statistics
EDPE 712	(3)	Neurological Bases of Behavior
EDPC 701	(0)	Comprehensive Examination

Complementary Courses (6 credits)

EDPE 616	(3)	Cognitive Development (or an equivalent course)
EDPE 617	(3)	Adolescent Development
or EDPE 623	(3)	Social-Emotional Development

Internship – Required (24 credits)

EDPC 795	(24)	Supervised Fieldwork: Counselling
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Other Requirements

Most applicants to the Ph.D. program enter with previous supervised fieldwork and with considerable educational and clinical counselling experience. Candidates must coordinate with their academic supervisors an appropriate setting for their fieldwork (pre-doctoral practicum and internship). All students attend weekly case conferences.

26.5.2 Ph.D. School/Applied Child Psychology

This program is based on the science of psychology, with a primary foundation in the study of human development especially during childhood and adolescence, as well as psychopathology, the study of individual differences, learning, and the theory of assessment of human performance, potential, and other characteristics. The specific choice of domains is informed by concerns of professional practice such as consultation in home and school environments, other institutions, and techniques for assisting educators and families to address difficulties in learning and behaviour, and the full range of professional concerns of psychologists working within educational and related applied environments. This is a 96-credit, five-year fixed major that includes the M.A.

Admission Requirements

All doctoral students must have a research advisor upon entry to the program. Interested candidates should contact the program coordinator for a faculty list or consult the Department Website. An advisor may be selected from among professors in the Department.

There are two entry levels and patterns:

- starting at Ph.D. 2
- starting at Ph.D. 1

The specific requirements to be admitted at each level are as follows:

Ph.D. 2 Level

Applicants should hold an M.A. in Educational Psychology from McGill or a recognized equivalent degree, reflecting high overall standing, study within the area of proposed doctoral specialization, and evidence of research competence.

The requirements for the M.A. (Thesis) Educational Psychology specialization in School/Applied Child Psychology are described in [section 26.5.4 "Graduate Degrees in Educational Psychology – M.Ed. \(Non-Thesis\), M.A."](#)

Ph.D. 1 Level

Applicants should hold an M.Ed. in Educational Psychology or a Master's degree in a related discipline (e.g., sociology, social work, neuropsychology) lacking only the content in educational psychology that can be acquired within one year of full-time study. The applicant's academic record must reflect high overall standing and evidence of research competence.

All applicants are required to submit a completed application package consisting of:

1. McGill Web Application, available at www.mcgill.ca/applying/online;
2. Two (2) official copies of all university transcripts (sent directly to the Department);
3. Scores on the Graduate Record Examination (GRE) (both general and the psychology subject tests, sent directly to the Department);
4. Scores on the Test of English as a Foreign Language (TOEFL) (if you are an International Student; sent directly to the Department);
5. A current CV (format based on template available on departmental Website);
6. Three (3) letters of reference (format based on template available on departmental Website);
7. Academic Checklist Form (format based on template available on the departmental Website);
8. A 3-5 page summary proposal of the intended thesis research that should demonstrate the appropriateness of studying at McGill and within this Department;
9. A copy of a Master's thesis, Honours thesis or research project (which will be returned after examination);
10. A letter from the applicant's prospective supervisor agreeing to act as their Ph.D. supervisor upon admittance into the program. Candidates should consult the departmental Website for a faculty list, www.mcgill.ca/edu-ecp.

For templates mentioned above, please visit the following section of the departmental Website: www.mcgill.ca/edu-ecp/programs/schoolapplied/prospective.

Completed application packages should be sent to:

Diane Bernier, Graduate Program Coordinator
Department of Educational & Counselling Psychology
Faculty of Education
McGill University
3700 McTavish Street, Room 614
Montreal, QC H3A 1Y2

Additional Entrance Notes:**School/Applied Child Psychology**

An undergraduate Major or Honours degree in Psychology is required including courses in developmental, abnormal and cognitive psychology, history and systems in psychology, and statistics. McGill Psychology graduates completing the 36-credit B.A. Major Concentration must complete at least 18 additional credits of senior undergraduate study in psychology or related subjects.

Students will enrol for two years in the M.A. (Thesis) in Educational Psychology with a specialization in School/Applied Child Psychology and will follow the course sequence noted below. Students will receive the M.A. following the second year having completed all the requirements and, should they maintain a sufficiently high standard of quality, may proceed directly to Ph.D. 2 in their third year of study. Should this standard not be met such students may elect to complete the M.A. or withdraw from the program.

Program Requirements

A dissertation must be submitted displaying original scholarship expressed in satisfactory literary form and constituting a distinct contribution to knowledge on a problem in school/applied child psychology. Work on the dissertation normally begins in the Ph.D. 2 year and becomes the major concern in the Ph.D. 3 year of a student's program of study.

Each student will be supervised by an advisor who will chair the student's doctoral committee. This committee will have a minimum of three members. It will assist the student and advisor in planning the student's program.

Coursework for the Ph.D. in School/Applied Child Psychology (54 credits)**Required Courses (18 credits)**

EDPC 714	(3)	Theory/Models: Family Therapy
EDPE 625	(3)	Practicum 1: School Psychology
EDPE 626	(3)	Practicum 2: School Psychology
EDPE 708	(0)	Comprehensive Examination
EDPE 710	(3)	Consultation in School Psychology
EDPE 712	(3)	Neurological Bases of Behaviour
EDPH 689	(3)	Teaching and Learning in Higher Education

Complementary Courses (12 credits)

Students must select 2 of these 3 practicum settings:

EDPE 721	(6)	School Psychology: Elementary
EDPE 722	(6)	School Psychology: Secondary
EDPE 723	(6)	School Psychology: Community

Internship (24 credits)

EDPE 725	(12)	Internship 1 - School Psychology
EDPE 726	(12)	Internship 2 - School Psychology

26.5.3 Post-Ph.D. Graduate Diploma in School/Applied Child Psychology

This Post-Ph.D. Graduate Diploma enables holders of a doctorate in Psychology to pursue further studies in School/Applied Child Psychology. The course of study is adapted to the background of each student. The program includes exceptionally one, or typically two, years of courses and practica, plus a year of internship. Students register on a per-credit basis (including Internship).

Admission Requirements

1. An earned doctorate in Educational Psychology, another area of Psychology, or a closely related discipline (to be recognized by the Program Committee).
2. Graduate Record Examination Verbal, Quantitative, and Psychology results taken within the past 5 years.
3. Full transcripts of the student's complete university education showing all courses in psychology, education, and related disciplines.
4. At least two (2) letters of recommendation addressing both the candidate's academic record and potential for professional practice in psychology.
5. A statement of experience, career plans, and program appropriateness.
6. A curriculum vitae including all theses or dissertations, publications, and conference presentations, with copies of the title pages and abstracts of any theses or dissertations appended.
7. TOEFL minimum score of 577 on the paper-based test (233 on the computer-based test, or 90 on the Internet-based test with each component score not less than 20) for non-Canadian students from countries where English is not the first language and who have not completed a recognized university degree taught in English.

Students will be required to provide further details in support of any request for a course exemption, (e.g., course outlines, examples of work done in the course, or a letter from the instructor or department where the material is claimed to have been covered).

Program Requirements

The program will be individually tailored to each accepted student in respect of previous studies and experience. Students will not be asked to repeat a course on a topic in which they can demonstrate a high level of competence. The following are expected to be most often required of students.

Required Courses and Clinic-based Practica (30 credits)

EDPC 609	(3)	Psychological Testing 1
EDPC 610	(3)	Psychological Testing 2
EDPC 618	(3)	Professional Ethics and the Law
EDPC 682D1	(3)	Practicum: Psychological Testing
EDPC 682D2	(3)	Practicum: Psychological Testing
EDPE 619	(3)	Child and Adolescent Therapy

EDPE 625	(3)	Practicum 1: School Psychology
EDPE 626	(3)	Practicum 2: School Psychology
EDPE 710	(3)	Consultation in School Psychology
EDPE 714	(3)	Models of Family Therapy

Complementary Courses – Field Placements (12 credits)

(2 days per week, one semester each; students select 2 of these 3 field experiences; placement in a school covering all grades may be applied to either EDPE 721 or EDPE 722):

EDPE 721	(6)	School Psychology: Elementary
EDPE 722	(6)	School Psychology: Secondary
EDPE 723	(6)	School Psychology: Community

Internship (24 credits)

(1 year full-time or 2 years half-time)

EDPE 725	(12)	Internship 1 - School Psychology
EDPE 726	(12)	Internship 2 - School Psychology

Please see the description of the Ph.D. Educational Psychology Major in School/Applied Child Psychology for the full list of requirements from which each student's Graduate Diploma program will be constructed.

Language Requirement

Students are not required to demonstrate knowledge of a second language within this program, however any student wishing to be licensed as a professional psychologist in Quebec must have a working knowledge of French. Accreditation status may be confirmed by contacting the accrediting bodies.

Professional Accreditation

All elements of this Post-Doctoral Graduate Diploma are selected from the professional components of the Ph.D. in School/Applied Child Psychology, which is accredited in the School Psychology category by the American Psychological Association (APA).

Graduates of a respecialization program are normally accorded the same recognition as graduates of the accredited program.

The Ph.D. is approved by the Ordre des psychologues du Québec (OPQ) which has recommended the final stage of professional recognition to the Office des professions of the Government of Quebec. Once this accreditation is confirmed, however, graduates of the Post-Doctoral Graduate Diploma will *not* be automatically eligible for membership in the OPQ and the right to practice professional psychology in Quebec. Candidates wishing to practice in Quebec will be required to apply to the OPQ for the recognition of equivalent qualifications.

APA - Committee on Accreditation, 750 First Street NE, Washington, DC, USA 20002-4242; Tel. 1-800-374-2721

CPA - 151 Slater Street, Suite 205, Ottawa, ON, Canada K1P 5H3; Tel. 1-888-472-0657

OPCCOQ - 1600 Henri Bourassa Blvd. West, Suite 520, Montreal, QC Canada H3M 3E2; Tel. 514-737-6431

OPQ - 1100 Beaumont, Ste. 510, Mt-Royal, QC, Canada H3P 3H5; Tel. 514-738-1881

26.5.4 Graduate Degrees in Educational Psychology – M.Ed. (Non-Thesis), M.A.**M.Ed. EDUCATIONAL PSYCHOLOGY (NON-THESIS)**

The M.Ed. degree offers educators and practicing professionals advanced professional training in areas where educational psychology can make a practical contribution to the design, delivery and assessment of educational programs and the impact of these programs on student learning. Courses aim to promote (a) a greater understanding of human development, individual differences, and the learning process, (b) a greater understanding on classroom processes and strategies for teaching diverse learners in a variety of contexts, (c) the evaluation of student learning, teaching, programs and educational experimentation and innovation, and (d) the application and results of educational research.

The program offers the following streams of study:

- Learning Sciences
- Family Life - admission to this stream is currently suspended
- Inclusive Education
- General Educational Psychology

The degree provides an early and extended emphasis on content, building on the strengths of potential students while providing the option of conducting research (via up to 12 credits of Special Activities) if the intent is to further pursue studies at the Ph.D. level. Courses taken at the M.Ed. level will be credited toward the Ph.D. in Educational Psychology if they are required. Any additional courses listed under the Ph.D. in Educational Psychology will have to be completed. The requirements for the Ph.D. in Educational Psychology are described in 26.5.5 Other Programs in Educational Psychology M.A. (Non-Thesis) and Ph.D.

Admission Requirements

- An undergraduate degree in education, psychology, or another field relevant to the proposed studies in Educational Psychology.
- Minimum CGPA of 3.0 out of 4.0 or higher in undergraduate studies.

All applicants are required to submit a completed application package consisting of:

- McGill Web Application, available at www.mcgill.ca/applying/online;
- Two (2) official copies of all university transcripts (sent directly to the Department);
- Three (3) letters of reference from a professor and/or a supervisor on official letterhead (sent directly to the Department);
- Scores on the Test of English as a Foreign Language (TOEFL) (if you are an International Student; sent directly to the Department);
- A personal statement of interest that should be between 1-2 pages and needs to include **(a)** your reasons for applying to the program, **(b)** your career aspirations, and **(c)** any information relevant to your application to which you would like to direct the attention of the admissions committee;
- A current Curriculum Vitae;
- M.Ed. program application form, downloadable on the departmental Website: www.mcgill.ca/edu-ecp/programs/mededpsych/studentp.

For any further information about the application process, please consult our departmental Website: www.mcgill.ca/edu-ecp.

Completed application packages should be sent to:

Geri Norton, Graduate Program Coordinator
Department of Educational & Counselling Psychology
Faculty of Education
McGill University
3700 McTavish Street, Room 614
Montreal, QC H3A 1Y2

Program Requirements (48 credits)

Required Courses (12 credits)

- EDPE 575 (3) Educational Measurement
EDPE 602 (3) Uses of Research Findings in Education
EDPE 603 (3) Educational Research and Development for Practitioners
EDPE 635 (3) Theories of Learning and Instruction

Complementary Courses (24 credits)

To be taken from only one of the following four streams

Learning Sciences Stream

- EDPE 535 (3) Instructional Design
EDPE 550 (3) Consciousness and Virtual Reality
EDPE 555 (3) Applied Cognitive Science
EDPE 561 (3) Artificial Intelligence in Education

- EDPE 635 (3) Theories of Learning and Instruction
EDPE 636 (3) Classroom Processes - Social.
EDPE 640 (3) Research in Computer Applications
EDPE 641 (3) Use of Computer in Educational Instruction
EDPE 648 (3) Instructional Psychology Seminar
EDPE 655 (3) Learning Science Research Seminar
EDPE 661 (3) Discourse Processes
EDPE 663 (3) Learning Environments and Processes
EDPE 664 (3) Expertise, Reasoning and Problem Solving
EDPE 666 (3) Foundations of Learning Science
EDPE 697 (6) Special Activity 1
EDPE 698 (6) Special Activity 2

Family Life Stream – admission to this stream is currently suspended

- EDPC 501 (3) Helping Relationships
EDPC 502 (3) Group Processes and Individuals
EDPC 503 (3) Human Sexuality: Professionals
EDPC 504 (3) Practicum: Interviewing Skills
EDPC 505 (3) Crisis Intervention Processes
EDPC 507 (3) Practicum: Group Leadership Skills
EDPC 508 (3) Seminar in Special Topics
EDPC 509 (3) Individual Reading Course
EDPC 510 (3) Family Life Education and Marriage
EDPC 540 (3) Foundation of Family Life Education
EDPE 560 (3) Human Development
EDPE 564 (3) Family Communication
EDPE 595 (3) Seminar in Special Topics
EDPE 697 (6) Special Activity 1
EDPE 698 (6) Special Activity 2

Inclusive Education Stream

- EDPE 595 (3) Seminar in Special Topics
EDPE 697 (6) Special Activity 1
EDPE 698 (6) Special Activity 2
EDPI 526 (3) Talented and Gifted Students
EDPI 527 (3) Creativity and its Cultivation
EDPI 536 (3) Practicum Gifted Education 1
EDPI 537 (3) Practicum Gifted Education 2
EDPI 539 (3) Field Work 1: Exceptional Students
EDPI 540 (3) Field Work 2: Exceptional Students
EDPI 628 (3) Gifted Students: Special Needs
EDPI 642 (3) Educational of Learners/Special Needs 1
EDPI 643 (3) Education of Learners/Special Needs 2
EDPI 645 (3) Diagnosis and Assessment in Special Education
EDPI 654 (3) Instruction/Curriculum Adaption
EDPI 665 (3) Research and Theory in Learning Disabilities

General Educational Psychology Stream

Courses to be taken from the list of courses in the other streams or any other 500 level or higher courses offered by the Department or with the approval of the Program Director, from other departments.

Elective Courses (12 credits)

500 or higher level courses to be taken from courses offered by the Department or with approval of the Program Director, from other departments.

M.A. (THESIS) EDUCATIONAL PSYCHOLOGY

(48 credits or 78 credits for stream in School/Applied Child Psychology)

Four streams of study lead to an M.A. with thesis in Educational Psychology. The stream for School/Applied Psychology requires 78 credits; all other streams require 48 credits.

The aim of the M.A. (Thesis) in Educational Psychology is to produce graduates who (a) are broadly trained in educational psychology, (b) have sufficient research competence to critically evaluate research in educational psychology, and to design, conduct and report empirical research, and (c) have experience in applying

research methods and findings to the solution of practical problems in varied educational settings.

The program offers 4 streams:

1. **The Learning Sciences Stream** (48 credits) focuses on the study of learning as it occurs in real-world situations and ways in which learning may be facilitated in designed environments.
2. **The Health Professions Education Stream** (48 credits) focuses on research and the application of research in settings related to the health professions. Student admission and supervision is done jointly with the Centre for Medical Education, see Website: www.mcgill.ca/centreformeded.
3. **The Human Development Stream** (48 credits) allows a focus on development across the life span and thus includes all developmental trajectories.
4. **The School/Applied Child Psychology Stream** (78 credits) focuses on the improvement of the educational and psychological well-being of children.

Admission Requirements for the Learning Sciences and Health Professions Education* Streams

1. An undergraduate degree in education, psychology, or another field relevant to the proposed studies in Educational Psychology. It is recommended that some prior study of a relevant branch of psychology form part of the undergraduate training.
2. Minimum CGPA of 3.0 out of 4.0 or higher in undergraduate studies.

All applicants are expected to provide a completed application package, consisting of:

1. McGill Web Application, available at www.mcgill.ca/applying/online.
2. Two (2) official copies of all university transcripts (sent directly to the Department);
3. Three (3) letters of reference (sent directly to the Department);
4. Scores on the Test of English as a Foreign Language (TOEFL) (if you are an International Student, sent directly to the Department);
5. A personal statement of interest: This letter should be between 1-2 pages and needs to include **(a)** your reasons for applying to the program, **(b)** your career aspirations, and **(c)** any information relevant to your application to which you would like to direct the attention of the admissions committee.
6. A current Curriculum Vitae.

*Note: Health Professions Education Applicants:

Applicants who successfully meet the program requirements will be invited for an interview as part of the application process.

For any further information about the application process, please consult our departmental Website: www.mcgill.ca/edu-ecp.

Completed application packages should be sent to:

Geri Norton, Graduate Program Coordinator
Department of Educational & Counselling Psychology
Faculty of Education
McGill University
3700 McTavish Street, Room 614
Montreal, QC H3A 1Y2

Admission Requirements for the Human Development Stream

1. An undergraduate degree in education, psychology, or another field relevant to the proposed studies in Educational Psychology.
2. Minimum CGPA of 3.0 out of 4.0 or higher in undergraduate studies.

All applicants are expected to provide a completed application package, consisting of:

1. McGill Web Application, available at www.mcgill.ca/applying/online;
2. Two (2) official copies of all university transcripts (sent directly to the Department);

3. Three (3) letters of reference (sent directly to the Department);
4. Scores on the Test of English as a Foreign Language (TOEFL) (if you are an International Student, sent directly to the Department);
5. A personal statement of interest that should be between 1-2 pages and needs to include **(a)** your reasons for applying to the program, **(b)** your career aspirations, and **(c)** any information relevant to your application to which you would like to direct the attention of the admissions committee;
6. A current Curriculum Vitae listing research experience;
7. Applicants must submit the names of two (2) potential supervisors; applicants should consult the Department Website for a faculty list, www.mcgill.ca/edu-ecp (please note, if the applicant has secured a prospective supervisor, they should include this in their application package);
8. Applicants to the stream in Human Development are encouraged but not required to submit scores on the Graduate Record Examination (GRE) (general subject test) - see department website for further details.

For any further information about the application process, please consult our departmental Website: www.mcgill.ca/edu-ecp.

Completed application packages should be sent to:

Geri Norton, Graduate Program Coordinator
Department of Educational & Counselling Psychology
Faculty of Education
McGill University
3700 McTavish Street, Room 614
Montreal, QC H3A 1Y2

Admission Requirements for the School/Applied Child Psychology Stream

1. An undergraduate degree in education, psychology, or another field relevant to the proposed studies in Educational Psychology. It is recommended that some prior study of a relevant branch of psychology form part of the undergraduate training.
2. Minimum CGPA of 3.0 out of 4.0 or higher in undergraduate studies.

All applicants are required to submit a completed application package consisting of:

1. McGill Web Application, available at www.mcgill.ca/applying/online;
2. Two (2) official copies of all university transcripts (sent directly to the Department);
3. Scores on the Graduate Record Examination (GRE) (both general and the psychology subject tests, sent directly to the Department);
4. Scores on the Test of English as a Foreign Language (TOEFL) (if you are an International Student, sent directly to the Department);
5. A current Curriculum Vitae (template available on Department website);
6. Three (3) letters of reference (template available on Department website);
7. Academic Checklist Form (template available on Department website);
8. Letter of Intent that should be no longer than 500 words and must include **(a)** your reasons for applying to the program, **(b)** your career aspirations, and **(c)** any other information relevant to your application to which you would like to direct the attention of the admissions committee.

For templates mentioned above, please visit the following section of the departmental website: www.mcgill.ca/edu-ecp/programs/schoolapplied/prospective.

Completed application packages should be sent to:

Diane Bernier, Graduate Program Coordinator
Department of Educational & Counselling Psychology
Faculty of Education
McGill University
3700 McTavish Street, Room 614
Montreal, QC. H3A 1Y2

Program Requirements

M.A. in Educational Psychology (Thesis) (48 or 78 credits)

Candidates are required to select and follow the set of courses in one of 4 streams of study, select a topic for research, and present the results of such research in the form of an acceptable thesis. All M.A. Educational Psychology candidates complete 33 credits of core required courses, and 15 credits of complementary courses for any one of the Learning Sciences Stream, Health Professions Stream, or Human Development Stream. Students completing the School/Applied Child Psychology Stream complete 45 credits (of specified courses) in addition to the 33 credits of core required courses.

Prerequisite Course (or equivalent) (all streams)

EDPE 575 (3) Educational Measurement

Required Courses (33 credits)

EDPE 605 (3) Research Methods
EDPE 676 (3) Intermediate Statistics 2
EDPE 682 (3) Univariate/Multivariate Analysis
EDPE 604 (3) Thesis 1
EDPE 607 (3) Thesis 2
EDPE 693 (3) Thesis 3
EDPE 694 (3) Thesis 4
EDPE 695 (6) Thesis 5
EDPE 696 (6) Thesis 6

Complementary Courses (15 credits)

(To be taken from one of the three following streams. Students completing the School/Applied Child Psychology Stream refer to the course list at the end.)

Learning Sciences Stream (15 credits)

6 credits from the following:

EDPE 655 (3) Learning Science Research Seminar
EDPE 666 (3) Foundations of Learning Science

and 9 credits selected from the following:

EDPE 637 (3) Issues in Health Professions Education
EDPE 648 (3) Instructional Psychology Seminar
EDPE 661 (3) Discourse Processes
EDPE 663 (3) Learning Environments and Processes
EDPE 664 (3) Expertise, Reasoning and Problem Solving
EDPE 668 (3) Advanced Seminar in Learning Sciences
EDPE 687 (3) Qualitative Methods in Educational Psychology

Health Professions Stream (15 credits)

6 credits from the following:

EDPE 637 (3) Issues in Health Professions Education
EDPE 639 (3) Practicum in Health Professions Education
or EDPH 689 (3) Teaching and Learning in Higher Education

and 9 credits selected from the following:

EDPE 535 (3) Instructional Design
EDPE 555 (3) Applied Cognitive Science
EDPE 635 (3) Theories of Learning and Instruction
EDPE 648 (3) Instructional Psychology Seminar
EDPE 661 (3) Discourse Processes
EDPE 663 (3) Learning Environments and Processes
EDPE 664 (3) Expertise, Reasoning and Problem Solving
EDPE 666 (3) Foundations of Learning Science
EDPE 668 (3) Advanced Seminar in Learning Sciences
EDPE 687 (3) Qualitative Methods in Educational Psychology

or other 500-, 600-, and 700- level courses offered by the Department and with the approval of the supervisor and program director.

Human Development Stream (15 credits)

9 credits from the following:

EDPE 502 (3) Theories of Development and Disabilities
EDPE 672 (3) Human Development Seminar 1
EDPE 673 (3) Human Development Seminar 2

and 6 credits selected from the following:

EDPE 515 (3) Gender Identity Development
EDPE 616 (3) Cognitive Development
EDPE 620 (3) Developmental Psychopathology
EDPE 623 (3) Social-Emotional Development
EDPI 642 (3) Education of Learners/Special Needs 1
EDPI 643 (3) Education of Learners/Special Needs 2

or other 500-, 600-, and 700- level courses offered by the Department and with the approval of the supervisor and program director.

School/Applied Child Psychology Stream (45 credits)*

EDPC 609 (3) Psychological Testing 1
EDPC 610 (3) Psychological Testing 2
EDPC 618 (3) Professional Ethics and the Law
EDPC 682D1 (3) Practicum: Psychological Testing
EDPC 682D2 (3) Practicum: Psychological Testing
EDPE 600 (3) Current Topics: Educational Psychology
EDPE 611 (3) School Psychology Seminar
EDPE 616 (3) Cognitive Development
EDPE 619 (3) Child and Adolescent Therapy
EDPE 620 (3) Developmental Psychopathology
EDPE 622 (3) Multiculturalism and Gender
EDPE 623 (3) Social-Emotional Development
EDPE 627 (3) Professional Practice of Psychology
EDPE 684** (3) Applied Multivariate Statistics
** can be replaced with the following course:
EDPE 687 (3) Qualitative Methods in Educational Psychology
EDPI 654 (3) Instruction/Curriculum Adaptation

* **Note:** There are no complementary courses for students in the School/Applied Child Psychology Stream.

26.5.5 Other Programs in Educational Psychology M.A. (Non-Thesis) and Ph.D.

M.A. (NON-THESIS) EDUCATIONAL PSYCHOLOGY

The M.A. (Non-Thesis) in Educational Psychology is available only to M.A. students admitted to the study sequence leading to the Ph.D. School /Applied Child Psychology, and who wish to transfer after the first semester.

Admission Requirements

Same as M.A. (Thesis) Educational Psychology Stream in School/Applied Child Psychology.

For application information please refer to instructions listed under M.A. (Thesis) Educational Psychology Stream in School/Applied Child Psychology.

For any further information about the application process, please consult our departmental Website: www.mcgill.ca/edu-ecp.

Program Requirements

Detailed program requirements for the full five-year program are listed under the **Ph.D. School/Applied Child Psychology, section 26.5.2**.

Ph.D. IN EDUCATIONAL PSYCHOLOGY

The aim of the Ph.D. in Educational Psychology is to develop graduates who can demonstrate (a) broad scholarship in planning and implementing basic and applied research on problems of cognition, teaching, learning, and human development, (b) mastery of current theoretical issues in educational psychology and their

historical development, and (c) a detailed knowledge of their selected stream. The program emphasizes the development of research skills and supports both basic and applied research pertaining to all domains of educational psychology.

The program offers 2 streams:

1. **Learning Sciences Stream:** The Learning Sciences Stream focuses on the study of learning as it occurs in school and in real-world situations and ways in which learning may be facilitated in designed environments.
2. **The Human Development Stream:** The Human Development Stream allows a focus on development across the life span and thus includes all developmental trajectories. The dissertation forms a major part of the evaluation at the Ph.D. level.

Admission Requirements

All doctoral students must have a research supervisor upon entry to the program. Interested candidates should consult the Department Website for a faculty list, www.mcgill.ca/edu-ecp. All applicants must have a minimum CGPA of 3.0 out of 4.0 or higher. Please note, it is essential to clearly identify your desired stream of study on your application.

There are two entry levels and patterns:

- starting at Ph.D. 2
- starting at Ph.D. 1

The specific requirements to be admitted at each level are as follows:

Ph.D. 2 Level

Applicants should hold an M.A. in Educational Psychology from McGill or a recognized equivalent degree from a program which requires a thesis, reflecting high overall standing, study within the area of proposed doctoral specialization, and evidence of research competence.

Ph.D. 1 Level

(a) Applicants should hold an M.Ed. in Educational Psychology or a Master's degree in a related discipline (e.g., sociology, social work) lacking only the content in educational psychology that can be acquired within one year of full-time study. The applicant's academic record must reflect high overall standing and evidence of research competence.

or

(b) Applicants should hold a Bachelor's degree in psychology, reflecting high academic standing in an Honours or Major program, and have completed an undergraduate thesis or the equivalent. (This option is rarely exercised.)

Application Package for the Learning Sciences Stream

All applicants are required to submit a completed application package consisting of:

1. McGill Web Application, available at www.mcgill.ca/applying/online;
2. Two (2) official copies of all university transcripts (sent directly to the Department);
3. Three (3) letters of reference (sent directly to the Department);
4. Scores on the Test of English as a Foreign Language (TOEFL) (if you are an International Student, sent directly to the Department);
5. A personal statement of interest that should be between 2-3 pages and needs to include **(a)** your reasons for applying to the program, **(b)** your career aspirations, **(c)** any information relevant to your application to which you would like to direct the attention of the admissions committee, and **(d)** a statement describing your general area of research interest;
6. A current Curriculum Vitae;
7. A letter from the applicant's prospective supervisor agreeing to act as their Ph.D. supervisor upon admittance into the program. Candidates should consult the departmental Website for a faculty list, www.mcgill.ca/edu-ecp.

For any further information about the application process, please consult our departmental Website: www.mcgill.ca/edu-ecp.

Completed application packages should be sent to:

Gerri Norton, Graduate Program Coordinator
Department of Educational & Counselling Psychology
Faculty of Education
McGill University
3700 McTavish Street, Room 614
Montreal, QC H3A 1Y2

Application Package for the Human Development Stream

All applicants are required to submit a completed application package consisting of:

1. McGill Web Application, available at www.mcgill.ca/applying/online;
2. Two (2) official copies of all university transcripts (sent directly to the Department);
3. Three (3) letters of reference (sent directly to the Department);
4. Scores on the Test of English as a Foreign Language (TOEFL) (if you are an International Student, sent directly to the Department);
5. A current Curriculum Vitae listing research experience and productivity;
6. A personal statement of interest that should be between 1-2 pages and needs to include **(a)** your reasons for applying to the program, **(b)** your career aspirations, and **(c)** any information relevant to your application to which you would like to direct the attention of the admissions committee;
7. A Research Proposal that should be 2 pages long to demonstrate applicant's ability to develop an academic research proposal. Please note that this document will be used for evaluation purposes only;
8. A letter from the applicant's prospective supervisor agreeing to act as their Ph.D. supervisor upon admittance into the program - see departmental Website for a faculty list, www.mcgill.ca/edu-ecp;
9. Applicants to the stream in Human Development are encouraged but not required to submit scores on the Graduate Record Examination (GRE) (general subject test) - see departmental Website for further details, www.mcgill.ca/edu-ecp.

For any further information about the application process, please consult our departmental Website: www.mcgill.ca/edu-ecp.

Completed application packages should be sent to:

Gerri Norton, Graduate Program Coordinator
Department of Educational & Counselling Psychology
Faculty of Education
McGill University
3700 McTavish Street, Room 614
Montreal, QC H3A 1Y2

Requirements for the Ph.D. Educational Psychology

Differing requirements apply to both the Learning Sciences and Human Development streams and all requirements may be taken partially or wholly in the M.A. or M.Ed. with the following exceptions:

For the Learning Sciences Stream the following courses must be completed in the Ph.D.

EDPE 704	(3)	Advanced Research Seminar 1
EDPE 705	(3)	Advanced Research Seminar 2
EDPE 706	(3)	Advanced Research Seminar 3
EDPE 707	(3)	Advanced Research Seminar 4
EDPE 708	(0)	Comprehensive Examination

For the Human Development Stream the following courses must be completed in the Ph.D.

EDPE 683	(3)	Human Development Seminar 3
EDPE 686	(3)	Human Development Seminar 4
EDPE 708	(0)	Comprehensive Examination

Students may replace any course for which they have equivalent background, subject to approval of Program Director.

Required Courses and Comprehensive Examination for Both Streams (15 credits)

- EDPE 605 (3) Research Methods
- EDPE 676 (3) Intermediate Statistics 2
- EDPE 682 (3) Univariate/Multivariate Analysis
- EDPE 684 (3) Applied Multivariate Statistics
- or EDPE 687(3) Qualitative Methods in Educational Psychology
- EDPE 708 (0) Comprehensive Examination
- EDPH 689 (3) Teaching and Learning in Higher Education

Complementary Courses to be taken from one of the 2 streams described below (27 credits)

Learning Sciences Stream

This Stream is oriented toward studying learning and teaching as they occur in real-world situations and the design of environments that foster meaningful learning in formal and informal contexts including schools, the workplace, online, and home. Themes explored through coursework and research include the cognitive processes and knowledge structures underlying learning and teaching, competence and performance in educationally significant domains and different populations of learners, and the trajectory of expertise development.

Complementary Courses (27 credits)

18 credits from:

- EDPE 655 (3) Learning Science Research Seminar
- EDPE 666 (3) Foundations of Learning Science
- EDPE 704 (3) Advanced Research Seminar 1
- EDPE 705 (3) Advanced Research Seminar 2
- EDPE 706 (3) Advanced Research Seminar 3
- EDPE 707 (3) Advanced Research Seminar 4

and 9 credits from:

- EDPE 637 (3) Issues in Health Professions Education
- EDPE 648 (3) Instructional Psychology Seminar
- EDPE 661 (3) Discourse Processes
- EDPE 663 (3) Learning Environments and Processes
- EDPE 664 (3) Expertise, Reasoning and Problem Solving
- EDPE 668 (3) Advanced Seminar in Learning Sciences

Human Development Stream

The Human Development Stream provides doctoral students with both psychology and education undergraduate training the opportunity to pursue an intensive research focused degree spanning all trajectories of development across the lifespan. The Stream is centered on a mentor model of supervision whereby students work closely with supervisors in a research apprenticeship to develop specialized expertise in their chosen field of study.

Complementary Courses (27 credits)

15 credits from:

- EDPE 502 (3) Theories of Development and Disabilities
- EDPE 672 (3) Human Development Seminar 1
- EDPE 673 (3) Human Development Seminar 2
- EDPE 683 (3) Human Development Seminar 3
- EDPE 686 (3) Human Development Seminar 4

12 credits from:

- EDPE 515 (3) Gender Identity Development
- EDPE 616 (3) Cognitive Development
- EDPE 620 (3) Developmental Psychopathology
- EDPE 623 (3) Social-Emotional Development
- EDPI 642 (3) Education of Learners/Special Needs 1
- EDPI 643 (3) Education of Learners/Special Needs 2
- EDPI 756 (3) Internship/Special Needs Education

Or from the list of 500-, 600-, and 700- courses offered by the Department and with the approval of the supervisor and program committee.

26.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click on Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Single term and Multi-term Courses (D1/D2, N1/N2, J1/J2/J3)

The same course may be available as a single term offering and also as a multi-term offering. The course content and credit weight is equivalent in all modes, the only difference being the scheduling.

Courses with numbers ending in D1 and D2 are taught in two consecutive terms (most commonly Fall and Winter). Students must register for the same section of both the D1 and D2 components. When registering for a fall term D1 course the student will automatically be registered for the winter term D2 portion. No credit will be given unless both components (D1 and D2) are successfully completed in consecutive terms, e.g., Fall 2008 and Winter 2009.

Note: Some courses are open only to students in specific programs or concentrations. For specific program applicability consult the program profiles above. Some courses, particularly in psychological assessment, have supplementary lab fees. Details are available from the Program Coordinator (Secretary).

Some courses are offered in alternate years and others only when numbers warrant. Annual lists are available. Please consult the Department before attempting to register.

For more information on Multi-term Courses, Course Terminology, Class Schedule and Course Catalogue, see the *General Information, Regulations and Research Guidelines, Graduate and Postdoctoral Studies Calendar for 2008-09*.

Descriptions of courses not scheduled in 2008-09 can usually be found in the preceding Calendar.

The course credit weight is given in parentheses after the title.

★ Denotes courses taught only in alternate years.

□ Denotes limited enrolment.

◆ Indicates that department approval/permission must be obtained by a student prior to registration.

† Denotes courses not available as Education electives.

26.6.1 EDPC – Ed Psych & Couns (Counselling)

COURSES CURRENTLY SCHEDULED FOR 2008-09:

EDPC 501 HELPING RELATIONSHIPS. (3) (Offered through Continuing Education.) A course in the basic principles of human relationships and communication skills, approached from a theoretical and experimental viewpoint. An emphasis will be given to training in basic listening skills, interviewing techniques, and the interpretation of non-verbal behaviour and communication.

EDPC 502 GROUP PROCESSES AND INDIVIDUALS. (3) (Offered through Continuing Education.) A laboratory course in which participants observe individual dynamics within a group setting as well as understand the developmental phases of the group. Participants will be encouraged to experiment with their own behaviour, in order to increase their own awareness of functioning.

EDPC 503 HUMAN SEXUALITY: PROFESSIONALS. (3) Historical, biological, anthropological, psychological and sociological perspectives of human sexual development. Sexual dysfunctions and approaches to sex therapy. Attitudes toward sexuality held by professional helpers relative to their implications for the learning and teaching of human sexuality and sex therapy.

EDPC 504 PRACTICUM: INTERVIEWING SKILLS. (3) (Offered through Continuing Education.) (Prerequisite: EDPC 501) This course will enable students to become practitioners in the field of Applied Social Sciences. Theoretical principles of the helping relationship

will be applied in particular situations. Demonstration, lecture, role-playing and psychodrama techniques will be used.

EDPC 505 CRISIS INTERVENTION PROCESSES. (3) (Offered through Continuing Education.) Instruction in the skills of working with crisis situations involving persons emotionally disturbed, suicidal, or alcoholic, and those who are on drugs or experiencing emotional trauma, as well as other problems. Attention will be given to identification of referral sources and the writing of reports.

EDPC 507 PRACTICUM: GROUP LEADERSHIP SKILLS. (3) (Offered through Continuing Education.) (Prerequisite: EDPC 502) The practical aspects of group leadership, group design and planning. Candidates will set up groups, conduct such groups over a number of sessions, and assess these groups according to the theoretical models covered in the prerequisite course.

★ **EDPC 508 SEMINAR IN SPECIAL TOPICS.** (3) (Offered through Summer Studies.) Content will vary from year to year and will be announced prior to registration. The seminar may be given by a single instructor or by a group, as the occasion warrants.

EDPC 509 INDIVIDUAL READING COURSE. (3) (Restriction: Permission of Program Director required) (By arrangement with individual instructor.)

EDPC 510 FAMILY LIFE EDUCATION AND MARRIAGE. (3) (Offered through Continuing Education.) The contribution of central concepts of psychological theories and therapeutic systems to the understanding of marriage and relationships. Special attention will be given to gender and ethnicity issues in order to increase the sensitivity of students to the issues typically confronted in the modern marriage and family.

EDPC 540 FOUNDATION OF FAMILY LIFE EDUCATION. (3) (Restriction: Not open to students who have taken EDPC 640) (Offered through Continuing Education.) An examination of the psychological and sociological foundations of family life education tracing the evolution of theory, research and practice within this domain.

★ **EDPC 542 COUNSELLING ROLE OF THE TEACHER.** (3) (Offered through Continuing Education or Summer Studies.) Theory and practice in interpersonal communication, interviewing, group dynamics, group leadership management, and referral criteria and procedures for students with developmental problems who experience trauma or crisis. Addressed primarily to elementary and secondary teachers who combine instructional responsibilities with a supportive role in school guidance and counselling activities.

★ **EDPC 562 CAREER EDUCATION AND GUIDANCE.** (3) (Offered through Continuing Education or Summer Studies.) A review of career education and guidance programs that refer to the subject matter and related methods and techniques designed to foster the intellectual development of career awareness, career planning, career decision-making, and the necessary career-resilient employability skills for the school-to-work transition.

EDPC 606 THEORIES OF COUNSELLING 1. (3) An introduction to counselling theories especially as they are related to theories of personality, human development and learning.

EDPC 607 THEORIES OF COUNSELLING 2. (3) (Prerequisite: EDPC 606) A detailed study of phenomenological, developmental and behavioural theories of counselling among others.

EDPC 608 GROUP COUNSELLING: THEORY. (3) Examines the theory and process of group counselling with an emphasis on skills and techniques. Particular attention will be given to the procedural aspects of organizing a group, the theory underlying certain approaches, the process, and evaluation of outcomes.

EDPC 609 PSYCHOLOGICAL TESTING 1. (3) (Prerequisite: a basic statistics course.) For Counselling Psychology and School/Applied Child Psychology students. History of psychological testing, theoretical aspects of individual and group testing, basic theories of intelligence, and ethical and legal issues in testing. An introduction to tests of intelligence (particularly the WISC-R), aptitude, personality, and interests, including issues of validity, reliability, and construction.

EDPC 610 PSYCHOLOGICAL TESTING 2. (3) (Prerequisite: EDPC 609) (Required in School/Applied Psychology. Optional in Counselling Psychology, but recommended for students specializing in school or child counselling.) Theory and interpretation of intelligence tests, particularly the Wechsler and Binet scales. Practice in writing test reports, particularly as a part of a case study. The use of intelligence test results in conjunction with other types of tests.

EDPC 615 ASSESSMENT AND DIAGNOSIS IN COUNSELLING. (3) An introduction to differential assessment and diagnosis for counsellors in educational and mental health settings. The clinical interview, the assessment process, the DSM-IV, relevant test instruments, diagnostic procedures, and development of treatment plans will be subjects of study. Models of record keeping and referral procedures will be reviewed.

EDPC 616 INDIVIDUAL READING COURSE. (3) Candidates may, with the consent of the Department, elect this individual reading and conference course in lieu of one of the above courses.

EDPC 618 PROFESSIONAL ETHICS AND THE LAW. (3) (Restriction: For Counselling Psychology and School/Applied Child Psychology students.) Ethics in the helping professions and some of the philosophical bases for making ethics decisions. Quebec and Canadian law relative to human rights of clients; responsibilities of counselling and school psychologists toward clients and society in general.

EDPC 624 GROUP COUNSELLING: PRACTICE. (3) (Prerequisite: EDPC 608) The practical dimension of planning and designing a group. Setting up and conducting a group in a professional setting over a period of sessions and evaluating a group in terms of models studied in EDPC 608.

EDPC 662 CAREER PSYCHOLOGY. (3) Contemporary perspectives on career development, career planning and work values are reviewed. Current issues related to career development through the life stages such as personal values and aptitudes, the family and the societal content will be explored within the existing and emerging theories of vocational, developmental, and transitional psychology.

EDPC 665D1 (3), EDPC 665D2 (3) PRACTICUM. (Students must register for both EDPC 665D1 and EDPC 665D2) (No credit will be given for this course unless both EDPC 665D1 and EDPC 665D2 are successfully completed in consecutive terms.) Practice in counselling interactions in preparation for internship. Developing expertise and confidence in a full range of skills to help clients make and implement self-directed choices. Emphasis on the counsellor as an educational and therapeutic agent dealing with vocational, educational, and personal counselling using various intervention modes.

★ **EDPC 670 CURRENT TRENDS IN COUNSELLING.** (3) Advanced studies in current trends in the counselling profession. Recent developments in areas such as behavioural counselling, interpersonal process recall, and consultation models will be treated. The content of the course will change periodically to reflect developing trends.

EDPC 679 INTERNSHIP: GENERAL 1. (6)

EDPC 679D1 (3), EDPC 679D2 (3) INTERNSHIP: GENERAL 1. (Students must register for both EDPC 679D1 and EDPC 679D2) (No credit will be given for this course unless both EDPC 679D1 and EDPC 679D2 are successfully completed in consecutive terms.) (EDPC 679D1 and EDPC 679D2 together are equivalent to EDPC 679)

EDPC 680D1 (3), EDPC 680D2 (3) INTERNSHIP RESEARCH SEMINAR. (Students must register for both EDPC 680D1 and EDPC 680D2) (No credit will be given for this course unless both EDPC 680D1 and EDPC 680D2 are successfully completed in consecutive terms) Students become acquainted with current research designs in both quantitative and qualitative traditions and develop skills in both analyzing research projects and critiquing journal articles. Special emphasis is given to the application of research findings to field settings and clinical process. Lecture, discussion, workshops, and student research presentations are used.

EDPC 682 PRACTICUM: PSYCHOLOGICAL TESTING. (6) Seminar and field practice in the administration and interpretation of educational and psychological tests including personality, within clinical and educational settings. Selection and evaluation of test instruments will be covered. Supervision of report writing and the ethical use of test information.

EDPC 682D1 (3), EDPC 682D2 (3) PRACTICUM: PSYCHOLOGICAL TESTING. (Prerequisite: EDPC 609.) (Restriction: Open only to students in Counselling Psychology or School/Applied Child Psychology) (Students must register for both EDPC 682D1 and EDPC 682D2) (No credit will be given for this course unless both EDPC 682D1 and EDPC 682D2 are successfully completed in consecutive terms) (EDPC 682D1 and EDPC 682D2 together are equivalent to EDPC 682) Seminar and field practice in the administration and interpretation of educational and psychological tests including personality, within clinical and educational settings. Selection and evaluation of test instruments will be covered. Supervision of report writing and the ethical use of test information.

EDPC 685 INTERNSHIP: VOCATIONAL AND REHABILITATION COUNSELLING. (6) Study, observation, and practice of specialized aspects of counselling through Faculty supervision and direction by personnel in the internship setting.

EDPC 685D1 (3), EDPC 685D2 (3) INTERNSHIP: VOCATIONAL AND REHABILITATION COUNSELLING. (Students must register for both EDPC 685D1 and EDPC 685D2) (No credit will be given for this course unless both EDPC 685D1 and EDPC 685D2 are successfully completed in consecutive terms) (EDPC 685D1 and EDPC 685D2 together are equivalent to EDPC 685) Study, observation, and practice of specialized aspects of counselling through Faculty supervision and direction by personnel in the internship setting.

EDPC 697 THESIS PREPARATION 1. (6)

EDPC 698 THESIS PREPARATION 2. (6)

EDPC 699D1 (6), EDPC 699D2 (6) THESIS PREPARATION 3. (Students must register for both EDPC 699D1 and EDPC 699D2) (No credit will be given for this course unless both EDPC 699D1 and EDPC 699D2 are successfully completed in consecutive terms)

EDPC 701 COMPREHENSIVE EXAMINATION. (0)

□★ **EDPC 709 ADVANCED THEORIES AND MODELS.** (3) (Prerequisite: EDPC 624) Further study of theories and models in counselling, their history, development, and applications.

EDPC 714 THEORY / MODELS: FAMILY THERAPY. (3) For doctoral students in Counselling and School Psychology. Theoretical and therapeutic models in family therapy, core concepts and their relevance for application, intervention strategies, the child in family context, impact on school performance.

EDPC 719 ADVANCED SMALL GROUP COUNSELLING. (3) (Prerequisite: EDPC 709) Further study of theories and models in counselling, their history, development and applications.

EDPC 720D1 (3), EDPC 720D2 (3) SEMINAR VOCATIONAL PSYCHOLOGY AND CAREER DEVELOPMENT THEORY. (Students must register for both EDPC 720D1 and EDPC 720D2) (No credit will be given for this course unless both EDPC 720D1 and EDPC 720D2 are successfully completed in consecutive terms) Review and critique of vocational psychology theories and contributions of contemporary career development theories to the understanding of the processes and the determinants of career choice, life stages, adjustment, and career patterns in personal and vocational development. Study of selected problems, designs and outcomes of research in vocational psychology and career development.

EDPC 770 INDIVIDUAL READING COURSE. (6) Candidates may, with the consent of the Program Director, elect this individual reading and conference course.

EDPC 780 PROFESSIONAL DEVELOPMENT. (6) (Restriction: For Ph.D. students in Counselling Psychology and, with permission, in School/Applied Child Psychology.) Individually planned and developed (1) supervision of Master's practicum or internship students, (2) co-teaching with a McGill staff member, and (3) diversified

research experiences utilizing different techniques and instrumentation.

EDPC 780D1 (3), EDPC 780D2 (3) PROFESSIONAL DEVELOPMENT. (Students must register for both EDPC 780D1 and EDPC 780D2) (No credit will be given for this course unless both EDPC 780D1 and EDPC 780D2 are successfully completed in consecutive terms) (EDPC 780D1 and EDPC 780D2 together are equivalent to EDPC 780) Individually planned and developed (1) supervision of Master's practicum or internship students, (2) co-teaching with a McGill staff member, and (3) diversified research experiences utilizing different techniques and instrumentation.

EDPC 782 DOCTORAL FIELD EXPERIENCE. (6) (Corequisite: EDPC 780) A 2-day/week, 2-term (minimum 500 hours) doctoral practicum integrating research, theory, and supervised practica to provide a perspective for clinical work within the field of counselling psychology. Skill development in counselling intervention, assessment, treatment plans, etc. Clientele will be individuals, families, and groups with a variety of concerns.

EDPC 782D1 (3), EDPC 782D2 (3) DOCTORAL FIELD EXPERIENCE. (Corequisite: EDPC 780D1) (Students must register for both EDPC 782D1 and EDPC 782D2) (No credit will be given for this course unless both EDPC 782D1 and EDPC 782D2 are successfully completed in consecutive terms) (EDPC 782D1 and EDPC 782D2 together are equivalent to EDPC 782) A 2-day/week, 2-term (minimum 500 hours) doctoral practicum integrating research, theory, and supervised practica to provide a perspective for clinical work within the field of counselling psychology. Skill development in counselling intervention, assessment, treatment plans, etc. Clientele will be individuals, families, and groups with a variety of concerns.

EDPC 786 SEMINAR: RESEARCH PROBLEMS IN COUNSELLING. (6) Supervised study of selected topics for the particular option selected. These will be reported in the seminar and research and professional problems in counselling common to all levels will be covered with emphasis on recent literature.

EDPC 786D1 (3), EDPC 786D2 (3) SEMINAR: RESEARCH PROBLEMS IN COUNSELLING. (Students must register for both EDPC 786D1 and EDPC 786D2) (No credit will be given for this course unless both EDPC 786D1 and EDPC 786D2 are successfully completed in consecutive terms) (EDPC 786D1 and EDPC 786D2 together are equivalent to EDPC 786) Supervised study of selected topics for the particular option selected. These will be reported in the seminar and research and professional problems in counselling common to all levels will be covered with emphasis on recent literature.

EDPC 795 SUPERVISED FIELDWORK: COUNSELLING. (24) (Prerequisites: EDPC 679, EDPC 680, EDPC 682, EDPC 685) A 5-day, 10 to 11-month supervised internship (minimum 1200 hours). Study, observation, assessment and diagnosis, and practice in Counselling Psychology settings. Group seminar and individual conferences. May be accumulated over two years.

EDPC 795D1 (12), EDPC 795D2 (12) SUPERVISED FIELDWORK: COUNSELLING. (Students must register for both EDPC 795D1 and EDPC 795D2) (No credit will be given for this course unless both EDPC 795D1 and EDPC 795D2 are successfully completed in consecutive terms) (EDPC 795D1 and EDPC 795D2 together are equivalent to EDPC 795) A 5-day, 10 to 11-month supervised internship (minimum 1200 hours). Study, observation, assessment and diagnosis, and practice in Counselling Psychology settings. Group seminar and individual conferences. May be accumulated over two years.

26.6.2 EDPE – Ed Psych & Couns (Psychology)

COURSES CURRENTLY SCHEDULED FOR 2008-09:

EDPE 502 THEORIES OF DEVELOPMENT AND DISABILITIES. (3) Developmental theory to form a foundation for scholarly, empirical, and applied work with both typical and atypical populations.

EDPE 515 GENDER IDENTITY DEVELOPMENT. (3) (Prerequisites: EDPE 208, EDPE 300 or a course in developmental psychology)

(Offered through Continuing Education.) Theoretical models and empirical findings relevant to the development of gender identity. Special attention is given to the influence of peers in school settings. Psychological, physiological, parental, peer and cultural influences on gender identity.

★ **EDPE 535 INSTRUCTIONAL DESIGN.** (3) This course draws on the fields of learning theory, developmental psychology, and measurement to focus on the tasks of constructing instructional materials. Areas to be considered include behaviour analysis, concept formation, and test construction.

EDPE 550 CONSCIOUSNESS AND VIRTUAL REALITY. (3) (Restriction: Not open to students who have taken EDPE 650.) An exploration of the nature and role of consciousness from the virtual reality research perspective, and the implications of virtual reality and cyberspace in education.

EDPE 555 APPLIED COGNITIVE SCIENCE. (3) Examination of foundations of cognitive science including contributions by psychology, linguistics, and computer science. Consideration of theory and methodology or cognitive science in educational and instructional contexts.

EDPE 560 HUMAN DEVELOPMENT. (3) (Offered through Continuing Education.) A review of current theory and knowledge of human development through the life cycle. Particular attention is given to emotional and social development. All major age-stages are considered. Emphasis is placed on the effects of interaction between individuals of these different age groupings.

EDPE 561 ARTIFICIAL INTELLIGENCE IN EDUCATION. (3) (Restriction: Not open to students who have taken EDPE 660.) An exploration of the principles of artificial intelligence as a metaphor for understanding conventional instructional and learning-processes. Topics include expert systems, intelligent computer-assisted instruction, tutoring systems, fifth-generation languages, and logic programming (e.g. Prolog). Lectures, discussion, demonstrations, and where possible site visits and hands-on experience will be provided.

EDPE 564 FAMILY COMMUNICATION. (3) (May be offered through Summer Studies) Family communication processes and interpersonal reactions in the context of marriage and the contemporary family will be considered. Attention will be given to role changes and the effect of crises on marital and family relationships.

EDPE 575 EDUCATIONAL MEASUREMENT. (3) (Offered through Continuing Education and Summer Studies.) Statistical measurements in education, graphs, charts, frequency distributions, central tendencies, dispersion, correlation, and sampling errors.

□ ♦ **EDPE 595 SEMINAR IN SPECIAL TOPICS.** (3) (Restriction: Permission must be obtained from the Department before registration.) The content of the seminar will vary from year to year and will be announced prior to registration. The seminar may be given by a single instructor or by a group, as the occasion warrants.

□ ♦ **EDPE 596 SEMINAR IN SPECIAL TOPICS.** (3) Seminar in selected topics in Educational and Counselling Psychology. The topic will vary from year and will be announced prior to registration.

EDPE 600 CURRENT TOPICS: EDUCATIONAL PSYCHOLOGY. (3) Current issues and developments and reviews of major areas in educational psychology in the context of research in the Department and the evolution of the discipline at large.

EDPE 600D1 (1.5), EDPE 600D2 (1.5) CURRENT TOPICS: EDUCATIONAL PSYCHOLOGY. (Restriction: Open to School/Applied Psychology students only.) (Students must register for both EDPE 600D1 and EDPE 600D2) (No credit will be given for this course unless both EDPE 600D1 and EDPE 600D2 are successfully completed in consecutive terms) (EDPE 600D1 and EDPE 600D2 together are equivalent to EDPE 600) Current issues and developments and reviews of major areas in educational psychology in the context of research in the Department and the evolution of the discipline at large.

EDPE 602 USES OF RESEARCH FINDINGS IN EDUCATION. (3) (Pre-/Co-requisite: EDPE 575 or equivalent.) Basic concepts of educational research for the student who is likely to be a regular

consumer of research but only an occasional generator of research and will be able to use common tools of information retrieval.

EDPE 603 EDUCATIONAL RESEARCH AND DEVELOPMENT FOR PRACTITIONERS. (3) (Prerequisite: EDPE 602) Emphasis on applied research in school settings focusing on action research. The steps involved in action research for the improvement of practice.

EDPE 604 THESIS 1. (3) (Corequisite: EDPE 600) Literature survey and thesis planning.

EDPE 605 RESEARCH METHODS. (3) (Corequisite: EDPE 676) Research methods and designs, planning and evaluating research, relations between research and statistical designs, interdisciplinary and nonquantitative approaches, meta-analysis, and the use of computers beyond computation. Ethics, scholarly writing.

EDPE 607 THESIS 2. (3) (Corequisite: EDPE 604) Preparation of a thesis proposal.

EDPE 611 SCHOOL PSYCHOLOGY SEMINAR. (3) (Restriction: Open to School/Applied Psychology students only.) Focus on the profession and practice of school psychology. Four major areas of information within the discipline of school psychology will be addressed: history and organizational systems, psychological service delivery in educational settings, ethical and legal issues, and new trends and future developments in school psychology and training.

EDPE 616 COGNITIVE DEVELOPMENT. (3) Assessment of theories of cognitive development including Piagetian, neo-Piagetian, and information-processing approaches. Theoretical models and empirical findings, and their application to educational and other settings.

EDPE 619 CHILD AND ADOLESCENT THERAPY. (3) (Restriction: For School/ Applied Child Psychology students only) Therapeutic models for individual and group interventions for children and adolescents; case histories; gender and cultural minority issues; emphasis on classical and innovative strategies and methods for school and counselling psychologists.

EDPE 620 DEVELOPMENTAL PSYCHOPATHOLOGY. (3) (Prerequisite: EDPE 615) Theory, research, and practice in developmental processes in the study of psychopathology, including aberrant behavior in childhood, at-risk and resilient children, and mental illness.

EDPE 622 MULTICULTURALISM AND GENDER. (3) (Restriction: Open to School/ Applied Child and Counselling Psychology students only) Multicultural, multilingual and gender issues as they relate to the practising school and counselling psychologist. Implications and their impact in assessment, research, training, and intervention.

EDPE 623 SOCIAL-EMOTIONAL DEVELOPMENT. (3) (Prerequisites: EDPE 615, EDPE 616 or EDPE 620) Social-emotional development including temperament, attachment, gender identity, and peer relations. Biological and environmental influences, continuity and change, and qualitative versus quantitative variables.

EDPE 625 PRACTICUM 1: SCHOOL PSYCHOLOGY. (3) (Prerequisites: EDPC 609, EDPC 610, EDPC 618, EDPI 654, EDPE 611, EDPE 616.) (Corequisites: EDPC 682, EDPE 620.) Clinic experiences (normally 8-10 hours/week) (a) conducting assessment batteries, (b) interpreting assessment findings and developing intervention plans, (c) providing remedial services for specific learning domains and practical recommendations, (d) acquiring skills in group intervention techniques. Weekly case review and student progress meetings.

EDPE 626 PRACTICUM 2: SCHOOL PSYCHOLOGY. (3) (Prerequisites: EDPE 620, EDPE 625.) (Corequisite: EDPC 682) Clinic experiences (normally 8-10 hours/week) building upon EDPE 625: (a) conducting assessment batteries, (b) interpreting assessment findings and developing intervention plans, (c) providing remedial services for specific learning domains and practical recommendations, (d) acquiring skills in group intervention techniques. Weekly

case review and student progress meetings. May continue to the end of the public school year.

EDPE 627 PROFESSIONAL PRACTICE OF PSYCHOLOGY. (3) (Restriction: Open only to students in Counselling Psychology or School/Applied Child Psychology) Professional and governmental structures regulating the practice of psychology in Quebec, Canada, and North America and their relation to the work of psychologists. Required for licensing in Quebec.

EDPE 629 SCHOOL PSYCHOLOGY RESEARCH PROJECT. (6) (Prerequisites: EDPC 618, EDPE 605.) (Corequisite: EDPE 682) Open to School/Applied Child Psychology students. An individually supervised research project in school/applied child psychology.

EDPE 635 THEORIES OF LEARNING AND INSTRUCTION. (3) An analysis of the relationship between theory and research about learning and teaching from a historical perspective.

EDPE 636 CLASSROOM PROCESSES - SOCIAL. (3) Instructional or environmental effects on learning and their implications for educational practice, with particular emphasis on such topics as the social psychology of learning, family background and effects, classroom interaction, teacher impact, and ethnographic and survey approaches to their study.

EDPE 637 ISSUES IN HEALTH PROFESSIONS EDUCATION. (3) An overview of health professions education issues, including: learning and assessment in the clinical setting, medical core competencies, design, delivery and evaluation of health professions education programs, organization & management of health professions education programs and systems, organizational change and leadership, clinical reasoning and decision making, interdisciplinary education.

◆ **EDPE 639 PRACTICUM IN HEALTH PROFESSIONS EDUCATION.** (3) (Restriction: Approval by instructor required for registration.) Practical exposure to teaching, learning, and evaluation in health professions education, including participant/observer experience in ambulatory clinics, inpatient settings, operating rooms, small group sessions, lectures, laboratories, and seminars. Seminars for discussion and reflection on experiences.

★ **EDPE 640 RESEARCH IN COMPUTER APPLICATIONS.** (3) Recent research findings on applications of the computer to educational and psychological issues. Research paradigms. The use of the computer as an object of research as well as a research tool in education. Future directions in research.

EDPE 648 INSTRUCTIONAL PSYCHOLOGY SEMINAR. (3) (Prerequisite: EDPE 666 and EDPE 635 or permission of the instructor. Prerequisites can be taken at the same time as this course.) Theoretical, methodological, and empirical bases of research in instructional processes.

EDPE 655 LEARNING SCIENCE RESEARCH SEMINAR. (3) (Prerequisite: EDPE 666 - Foundations of Learning Science or permission of instructor. Prerequisites cannot be taken at the same time as this course.) (Restrictions: The content of course is sufficiently different to benefit those students who would wish to take the course again.) Seminar treating current issues in theory, research and methodology in the learning sciences.

EDPE 656 APPLIED COGNITIVE THEORY/METHODS. (3) (Prerequisite: EDPE 555 or permission of instructor.) Models of knowledge representation, cognitive architectures, and cognitive processes for complex domains of performance and instruction. Methods of data collection that allow testing of models of performance and learning in such domains.

EDPE 661 DISCOURSE PROCESSES. (3) (Prerequisites: EDPE 666 or permission of the instructor) (Corequisites: EDPE 655 and EDPE 666 or permission of instructor) Structure and function of discourse processes. Topics include language acquisition, syntactic and semantic processes, text comprehension, spoken versus written discourse, classroom discourse, narrative discourse, literary discourse, computational discourse, and an overview of methods for discourse analysis.

EDPE 663 LEARNING ENVIRONMENTS AND PROCESSES. (3) (Prerequisites: EDPE 666 or equivalent of permission of instructor)

(Corequisites: EDPE 655 or permission of instructor) Research on natural and designed contexts to support learning and development of expertise: social and cognitive processes underlying effective participation and learning in collaborative learning environments including those mediated by technology.

EDPE 664 EXPERTISE, REASONING AND PROBLEM SOLVING. (3) (Prerequisites: EDPE 666 or permission of the instructor) (Corequisites: EDPE 655) Current research on the development of expertise, problem solving, and reasoning in formal and informal educational settings, exploring cognitive, interpersonal, and socio-cultural dimensions. Introduction to methodologies for analyzing data related to cognitive processes.

EDPE 666 FOUNDATIONS OF LEARNING SCIENCE. (3) (Prerequisites: A 500 or 600 level graduate course in cognitive or instructional psychology or permission of instructor) An introduction to theory and research pertaining to the interdisciplinary study of the learning sciences. Focuses on cognitive-psychological and social-psychological foundations of human learning, as well as on the design of learning environments.

EDPE 668 ADVANCED SEMINAR IN LEARNING SCIENCES. (3) (Prerequisites: EDPE 666 - Foundation of Learning Science or EDPE 605 Research Methods or permission of the instructor) (Corequisites: EDPE 655 Learning Sciences Research Seminar or permission of the instructor) Critical analysis and synthesis of contemporary theoretical and empirical research in educational psychology and cognate areas. Topics addressed for each offering may change as a function of current debates and issues in the educational literature. Examples of topics would be motivation, assessment, epistemology, self-regulated learning, and metacognition.

EDPE 670 EDUCATIONAL EVALUATION. (3) (Prerequisite: EDPE 635) Theories and models of evaluation as applied to educational programs and instructional systems.

EDPE 672 HUMAN DEVELOPMENT SEMINAR 1. (3) (Prerequisite: EDPE 502 or permission of the instructor (Minimum Grade/Test score(s) needed is B-).) Theories and developments in the science of human development within the context of research and practice and the evolution of the field at large.

EDPE 673 HUMAN DEVELOPMENT SEMINAR 2. (3) (Prerequisite: EDPE 672 (Minimum Grade/Test score(s) needed is B-).) Continuation of theories and developments in the science of human development within the context of research and practice and evolution of the field at large.

EDPE 676 INTERMEDIATE STATISTICS 2. (3) (Prerequisite: EDPE 675 or equivalent.) Analysis of variance and covariance, fixed, random and mixed effects, crossed and nested designs; regression models. Computer data processing using existing packages.

EDPE 682 UNIVARIATE/MULTIVARIATE ANALYSIS. (3) (Prerequisite: EDPE 676) General linear model as a unified data analytic system for estimation and hypothesis testing that subsumes regression, analysis of variance, and analysis of covariance for single dependent variables. Introduction to generalizations involving multiple dependent (criterion) variables. Applications oriented toward education, educational psychology and counselling psychology. Experience with data-analysis tools.

EDPE 683 HUMAN DEVELOPMENT SEMINAR 3. (3) (Prerequisite: EDPE 673 (Minimum Grade/Test score(s) needed is B-).) Recent developments of specific topics in human development.

EDPE 684 APPLIED MULTIVARIATE STATISTICS. (3) (Prerequisite: EDPE 682 or equivalent.) Principal methods, models, and hypothesis-testing procedures for the prediction and analysis of patterns, structure, and relationships in multivariate data, e.g., discriminant, principal components, canonical correlation, profile analyses, measurement models, factor and path analysis, repeated measures. Applications oriented toward education and educational and counselling psychology. Experience with data-analysis tools.

EDPE 686 HUMAN DEVELOPMENT SEMINAR 4. (3) (Prerequisite: EDPE 683 (Minimum Grade/Test score(s) needed is B-).)

Continuation of recent developments of specific topics in human development.

EDPE 687 QUALITATIVE METHODS IN EDUCATIONAL PSYCHOLOGY. (3) (Prerequisites: EDPE 605 or equivalent or permission of the instructor) The logics of design and selection of phenomenology, grounded theory, ethnography, case study and mixed design methods with emphasis on data analysis in light of issues of research purpose, epistemology, reliability and validity.

EDPE 691 READING COURSE. (3)

EDPE 692 READING COURSE. (6)

EDPE 692D1 (3), EDPE 692D2 (3) READING COURSE. (Students must register for both EDPE 692D1 and EDPE 692D2) (No credit will be given for this course unless both EDPE 692D1 and EDPE 692D2 are successfully completed in consecutive terms) (EDPE 692D1 and EDPE 692D2 together are equivalent to EDPE 692)

EDPE 693 THESIS 3. (3) Thesis research under supervision of a research director.

EDPE 694 THESIS 4. (3) Thesis research under supervision of a research director.

EDPE 695 THESIS 5. (6) Thesis research under supervision of a research director.

EDPE 695D1 (3), EDPE 695D2 (3) THESIS 5. (Students must register for both EDPE 695D1 and EDPE 695D2) (No credit will be given for this course unless both EDPE 695D1 and EDPE 695D2 are successfully completed in consecutive terms) (EDPE 695D1 and EDPE 695D2 together are equivalent to EDPE 695) Thesis research under supervision of a research director.

EDPE 696 THESIS 6. (6) Thesis research under supervision of a research director.

EDPE 696D1 (3), EDPE 696D2 (3) THESIS 6. (Students must register for both EDPE 696D1 and EDPE 696D2) (No credit will be given for this course unless both EDPE 696D1 and EDPE 696D2 are successfully completed in consecutive terms) (EDPE 696D1 and EDPE 696D2 together are equivalent to EDPE 696) Thesis research under supervision of a research director.

EDPE 697 SPECIAL ACTIVITY 1. (6)

EDPE 697D1 (3), EDPE 697D2 (3) SPECIAL ACTIVITY 1. (Students must register for both EDPE 697D1 and EDPE 697D2) (No credit will be given for this course unless both EDPE 697D1 and EDPE 697D2 are successfully completed in consecutive terms) (EDPE 697D1 and EDPE 697D2 together are equivalent to EDPE 697)

EDPE 698 SPECIAL ACTIVITY 2. (6) A project relevant to improving educational practice. It may be an internship, a research project, or an innovation in teaching, supervised by the student's advisor and with the approval of the department. It is completed by the submission of a project report, monograph, or production. For M.Ed. students only.

EDPE 698D1 (3), EDPE 698D2 (3) SPECIAL ACTIVITY 2. (Students must register for both EDPE 698D1 and EDPE 698D2) (No credit will be given for this course unless both EDPE 698D1 and EDPE 698D2 are successfully completed in consecutive terms) (EDPE 698D1 and EDPE 698D2 together are equivalent to EDPE 698) A project relevant to improving educational practice. It may be an internship, a research project, or an innovation in teaching supervised by the student's advisor and with the approval of the department. It is completed by the submission of a project report, monograph, or production. For M.Ed. students only.

◆ **EDPE 704 ADVANCED RESEARCH SEMINAR 1.** (3) (Prerequisites: EDPE 666 - Foundations of Learning Science, EDPE 655 - Learning Sciences research Seminar) Issues in epistemology and methodology of research on human learning and instruction. Consideration of theoretical, design, and methodological approaches relevant to participants' proposed research project. Preparation for the comprehensive examination and initial doctoral research proposal.

◆ **EDPE 705 ADVANCED RESEARCH SEMINAR 2.** (3) (Prerequisites: EDPE 666 - Foundations of Learning Sciences EDPE 655 -

Learning Sciences Research Seminar EDPE 704 - Advanced Research Seminar 1) (Restrictions: Open to doctoral students only) Continuation of Advanced Research Seminar 1.

◆ **EDPE 706 ADVANCED RESEARCH SEMINAR 3.** (3) (Prerequisites: EDPE 666 - Foundations of Learning Sciences, EDPE 655 - Learning Sciences Research Seminar, EDPE 704 - Advanced Research Seminar 1, EDPE 705 - Advanced Research Seminar 2) (Restrictions: Open to doctoral students only) Continuation of Advanced Research Seminar 2.

◆ **EDPE 707 ADVANCED RESEARCH SEMINAR 4.** (3) (Prerequisites: EDPE 666 - Foundations of Learning Sciences, EDPE 655 - Learning Sciences Research Seminar, EDPE 704 - Advanced Research Seminar 1, EDPE 705 - Advanced Research Seminar 2, EDPE 706 - Advanced Research Seminar 3) (Restrictions: Open to doctoral students only) Continuation of Advanced Research Seminar 3.

EDPE 708 COMPREHENSIVE EXAMINATION. (0) A four-part evaluation which is normally taken at the end of the Ph.D. 2 year. A detailed description of the examination is provided to all students.

EDPE 708D1 (0), EDPE 708D2 (0) COMPREHENSIVE EXAMINATION. (Students must register for both EDPE 708D1 and EDPE 708D2) (No credit will be given for this course unless both EDPE 708D1 and EDPE 708D2 are successfully completed in consecutive terms) (EDPE 708D1 and EDPE 708D2 together are equivalent to EDPE 708) A four-part evaluation which is normally taken at the end of the Ph.D. 2 year. A detailed description of the examination is provided to all students.

EDPE 710 CONSULTATION IN SCHOOL PSYCHOLOGY. (3) (Corequisites: EDPE 625, EDPE 626 or equivalent.) Open only to students in School/Applied Child Psychology and with permission, Counselling Psychology and Special Populations Major. A clinical course on the use of consultation in educational and school-related settings. Topics include: consultation theory, the process of evaluations of the consultation process and outcomes, critical study of relevant research and practice. Includes problem identification, problem analysis, treatment implementation, and treatment evaluation of one case.

EDPE 712 NEUROLOGICAL BASES OF BEHAVIOR. (3) Development of human brain structure and function related to sensory, motor, emotional, perceptual, cognitive, and linguistics skills. Neuroanatomy and neurophysiology relevant to neuropsychological function, dysfunction, rehabilitation. Psychopharmacological influences.

EDPE 721 SCHOOL PSYCHOLOGY: ELEMENTARY. (6) (Prerequisite: EDPE 626) Open only to Ph.D. students in School/Applied Child Psychology. Field experience. Two days or 16 hours per week supervised by faculty members and a field supervisor in a school providing elementary education. Weekly class meetings. Students must also register for either EDPE 722 or EDPE 723 in the same academic year.

EDPE 721D1 (3), EDPE 721D2 (3) SCHOOL PSYCHOLOGY: ELEMENTARY. (Prerequisite: EDPE 626) (Students must register for both EDPE 721D1 and EDPE 721D2) (No credit will be given for this course unless both EDPE 721D1 and EDPE 721D2 are successfully completed in consecutive terms) (EDPE 721D1 and EDPE 721D2 together are equivalent to EDPE 721) Open only to Ph.D. students in School/Applied Child Psychology. Field experience. Two days or 16 hours per week supervised by faculty members and a field supervisor in a school providing elementary education. Weekly class meetings. Students must also register for either EDPE 722 or EDPE 723 in the same academic year.

EDPE 722 SCHOOL PSYCHOLOGY: SECONDARY. (6) (Prerequisite: EDPE 626) Open only to Ph.D. students in School/Applied Child Psychology. Field experience. Two days or 16 hours per week supervised by faculty members and a field supervisor in a school providing secondary education. Weekly class meetings. Students must also register for either EDPE 721 or EDPE 723 in the same academic year.

EDPE 722D1 (3), EDPE 722D2 (3) SCHOOL PSYCHOLOGY: SECONDARY. (Prerequisite: EDPE 626) (Students must register for both EDPE 722D1 and EDPE 722D2) (No credit will be given for

this course unless both EDPE 722D1 and EDPE 722D2 are successfully completed in consecutive terms) (EDPE 722D1 and EDPE 722D2 together are equivalent to EDPE 722) Open only to Ph.D. students in School/Applied Child Psychology. Field experience. Two days or 16 hours per week supervised by faculty members and a field supervisor in a school providing secondary education. Weekly class meetings. Students must also register for either EDPE 721 or EDPE 723 in the same academic year.

EDPE 723 SCHOOL PSYCHOLOGY: COMMUNITY. (6) (Prerequisite: EDPE 626) Open only to Ph.D. students in School/Applied Child Psychology. Field experience. Two days or 16 hours per week supervised by faculty members and a field supervisor in an educationally relevant community or institutional setting. Weekly class meetings. Students must also register for either EDPE 721 or EDPE 722 in the same academic year.

EDPE 723D1 (3), EDPE 723D2 (3) SCHOOL PSYCHOLOGY: COMMUNITY. (Prerequisite: EDPE 626) (Students must register for both EDPE 723D1 and EDPE 723D2) (No credit will be given for this course unless both EDPE 723D1 and EDPE 723D2 are successfully completed in consecutive terms) (EDPE 723D1 and EDPE 723D2 together are equivalent to EDPE 723) Open only to Ph.D. students in School/Applied Child Psychology. Field experience. Two days or 16 hours per week supervised by faculty members and a field supervisor in a school providing secondary education. Weekly class meetings. Students must also register for either EDPE 721 or EDPE 723 in the same academic year.

EDPE 725 INTERNSHIP 1 - SCHOOL PSYCHOLOGY. (12) (Prerequisites: EDPE 708 and two of EDPE 721, EDPE 722 or EDPE 723) Open only to Ph.D. students in School/Applied Child Psychology. A 2 1/2 day, 10 to 12-month supervised internship (minimum 600 hours) including assessment and diagnosis normally in a school-based setting. This also includes group supervision to discuss cases that arise in internship settings. May be combined with EDPE 726 in a single full-time year long internship; this full-time pattern is typical in accredited sites.

EDPE 725D1 (6), EDPE 725D2 (6) INTERNSHIP 1 - SCHOOL PSYCHOLOGY. (Prerequisites: EDPE 708 and two of EDPE 721, EDPE 722 or EDPE 723) (Students must register for both EDPE 725D1 and EDPE 725D2) (No credit will be given for this course unless both EDPE 725D1 and EDPE 725D2 are successfully completed in consecutive terms) (EDPE 725D1 and EDPE 725D2 together are equivalent to EDPE 725) Open only to Ph.D. students in School/Applied Child Psychology. A 2 1/2 day, 10 to 12-month supervised internship (minimum 600 hours) including assessment and diagnosis normally in a school-based setting. This also includes group supervision to discuss cases that arise in internship settings. May be combined with EDPE 726 in a single full-time year long internship; this full-time pattern is typical in accredited sites.

EDPE 726 INTERNSHIP 2 - SCHOOL PSYCHOLOGY. (12) (Prerequisites: EDPE 708 and two of EDPE 721, EDPE 722 or EDPE 723) Open only to Ph.D. students in School/Applied Child Psychology. A 2 1/2 day, 10 to 12-month supervised internship (minimum 600 hours) including assessment and diagnosis normally in an educationally relevant community-based center (e.g., hospital, clinic), group supervision, case discussions. May be combined with EDPE 725 in a single full-time year long internship; this full-time pattern is typical in accredited sites.

EDPE 726D1 (6), EDPE 726D2 (6) INTERNSHIP 2 - SCHOOL PSYCHOLOGY. (Prerequisites: EDPE 708 and two of EDPE 721, EDPE 722 or EDPE 723) (Students must register for both EDPE 726D1 and EDPE 726D2) (No credit will be given for this course unless both EDPE 726D1 and EDPE 726D2 are successfully completed in consecutive terms) (EDPE 726D1 and EDPE 726D2 together are equivalent to EDPE 726) Open only to Ph.D. students in School/Applied Child Psychology. A 2 1/2 day, 10 to 12-month supervised internship (minimum 600 hours) including assessment and diagnosis normally in an educationally relevant community-based center (e.g., hospital, clinic), group supervision, case discussions. May be combined with EDPE 725 in a single full-time year long internship; this full-time pattern is typical in accredited sites.

26.6.3 EDPH – ED PSYCH & COUNS (COLLEGIAL)

COURSES CURRENTLY SCHEDULED FOR 2008-09:

EDPH 689 TEACHING AND LEARNING IN HIGHER EDUCATION. (3)

Students will develop an understanding of teaching and learning as a process in which instruction is based on the learning to be accomplished. Students will design, develop, and evaluate a university course of their choice, and will develop facility and confidence in using teaching methods appropriate to their domains.

26.6.4 EDPI – Ed Psych & Couns (Inclusive)

Courses currently scheduled for 2008-09:

EDPI 526 TALENTED AND GIFTED STUDENTS. (3) (Offered through Continuing Education.) The psychology and education of exceptionally able children. Definitions, assessment, classroom adaptations, technology, educational programs and educational issues. The course combines theoretical background and practical concerns. Application component: application of teaching methods with exceptionally able students.

★ **EDPI 527 CREATIVITY AND ITS CULTIVATION.** (3) (Offered through Continuing Education.) Recent research, theory, and educational practice concerning creativity, with special attention to creativity in students and educational settings.

□ ♦ **EDPI 539 FIELD WORK 1: EXCEPTIONAL STUDENTS.** (3) (Restriction: Permission of Program Director required.) Supervised experience with exceptional students in an approved educational setting.

□ ♦ **EDPI 540 FIELD WORK 2: EXCEPTIONAL STUDENTS.** (3) (Prerequisite: EDPI 539) (Restriction: Permission of Program Director required.) Supervised experience with exceptional students in an approved educational setting.

EDPI 543 FAMILY, SCHOOL AND COMMUNITY. (3) (Offered through Summer Studies.) Examination of family, school, community and societal influences on student growth, development and adjustment. Emphasis on family perspectives, school orientation, community services, and community collaboration. Application component: using knowledge and skills in the field.

EDPI 616 INDIVIDUAL READING COURSE. (3) Reading Course.

EDPI 642 EDUCATION OF LEARNERS/SPECIAL NEEDS 1. (3) Introduction to learners with different types of special needs. Emphasis on current research and practice of educating students with special needs.

EDPI 643 EDUCATION OF LEARNERS/SPECIAL NEEDS 2. (3) Contemporary issues in the education of students with special needs: assessment and identification; service delivery models; instructional methods; parent/professional relationships; research priorities; legislative policies; adult education; employment training.

EDPI 645 DIAGNOSIS AND ASSESSMENT IN SPECIAL EDUCATION. (3) Purposes of diagnosis and assessment; formal and informal assessment procedures; issues in traditional testing procedures; emerging trends in assessment.

EDPI 654 INSTRUCTION/CURRICULUM ADAPTATION. (3) Adapting instruction and curriculum for students with special needs; developing individualized programs and methods; building curriculum that addresses both academic and social needs of students.

EDPI 656 CLINIC PRACTICUM IN SPECIAL EDUCATION. (6) Participation as a special education professional in a field setting. Opportunity to plan, implement and evaluate curriculum for students with special needs, and participate as a team member.

EDPI 656D1 (3), EDPI 656D2 (3) CLINIC PRACTICUM IN SPECIAL EDUCATION. (Students must register for both EDPI 656D1 and EDPI 656D2) (No credit will be given for this course unless both EDPI 656D1 and EDPI 656D2 are successfully completed in consecutive terms) (EDPI 656D1 and EDPI 656D2 together are equivalent to EDPI 656) Participation as a special education professional in a field setting. Opportunity to plan, implement and evaluate curriculum for students with special needs, and participate as a team member.

EDPI 665 RESEARCH AND THEORY IN LEARNING DISABILITIES. (3) Review of recent research and literature in the field of learning disabilities; examination of research and theory as it relates to current practices.

EDPI 667 BEHAVIORAL AND EMOTIONAL PROBLEMS. (3) Behavioural and emotional problems examined from different psychological perspectives. Theoretical issues and behavior management applications in educational settings.

EDPI 680 SELECTED TOPICS IN SPECIAL EDUCATION 1. (3) A detailed examination of recent developments in specific topics of special education. The content of the seminar will vary from year to year and will be announced prior to registration.

EDPI 743 SEMINAR ON SPECIAL NEEDS. (3) (Prerequisite: EDPI 643) Contemporary issues in the education of students with special needs. Professional and research issues.

EDPI 743D1 (1.5), EDPI 743D2 (1.5) SEMINAR ON SPECIAL NEEDS. (Students must register for both EDPI 743D1 and EDPI 743D2.) (No credit will be given for this course unless both EDPI 743D1 and EDPI 743D2 are successfully completed in consecutive terms.) (EDPI 743D1 and EDPI 743D2 together are equivalent to EDPI 743.) Contemporary issues in the education of students with special needs. Professional and research issues.

EDPI 756 INTERNSHIP/SPECIAL NEEDS EDUCATION. (3) (Prerequisite: EDPI 656) Supervised internship in special needs education in a field setting tailored to the needs and interests of individual students.

EDPI 756D1 (1.5), EDPI 756D2 (1.5) INTERNSHIP/SPECIAL NEEDS EDUCATION. (Students must register for both EDPI 756D1 and EDPI 756D2) (No credit will be given for this course unless both EDPI 756D1 and EDPI 756D2 are successfully completed in consecutive terms) (EDPI 756D1 and EDPI 756D2 together are equivalent to EDPI 756) Supervised internship in special needs education in a field setting tailored to the needs and interests of individual students.

COURSES IN OTHER DEPARTMENTS

Students are encouraged to broaden their perspectives with elective courses from elsewhere in the Faculty of Education and the University as a whole. Eligibility to enrol in a specific course should always be ascertained in advance.

Students interested in statistical models and techniques in test theory are welcome to enrol in PSYC 510 offered by the Department of Psychology.

EDPE 692 READING COURSE. (6)

EDPE 692D1 (3), EDPE 692D2 (3) READING COURSE. (Students must register for both EDPE 692D1 and EDPE 692D2) (No credit will be given for this course unless both EDPE 692D1 and EDPE 692D2 are successfully completed in consecutive terms) (EDPE 692D1 and EDPE 692D2 together are equivalent to EDPE 692)

EDSL 630 QUALITATIVE/ETHNOGRAPHIC METHODS. (3) An examination of theoretical and applied issues in qualitative and ethnographic studies in second language education.

EDEC 635 ADVANCED WRITTEN COMMUNICATION. (3) Rhetorical practices and principles that remain constant across disciplines: generating and organizing ideas; setting goals; planning; considering readers; editing and revising. Students will analyze and produce texts that use the formats, rhetorical strategies, styles, genres, and other conventions of their disciplines.

27 Electrical and Computer Engineering

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Chair — David V. Plant

Graduate Program Director — Fabrice Labeau

27.1 Staff

Emeritus Professors

Eric L. Adler; B.Sc.(Lond.), M.A.Sc.(Tor.), Ph.D.(McG.), F.I.E.E.E., Eng.

Gerry W. Farnell; B.A.Sc.(Tor.), S.M.(MIT), Ph.D.(McG.), F.I.E.E.E., Eng.

Tomas J.F. Pavlasek; B.Eng., M.Eng., Ph.D.(McG.), Eng.

Maier L. Blostein; B.Eng., M.Eng.(McG.), Ph.D.(Ill.), F.I.E.E.E., Eng.

Nicholas C. Rumin; B.Eng., M.Sc., Ph.D.(McG.), Eng.

Pierre R. Bélanger; B.Eng.(McG.), S.M., Ph.D.(MIT), F.I.E.E.E., Eng.

Post-Retirement

Clifford H. Champness; M.Sc.(Lond.), Ph.D.(McG.)

Professors

Peter E. Caines; B.A.(Oxf.), D.I.C. Ph.D.(Lond.), F.R.S.C., F.I.E.E.E., F.C.I.A.R. (*James McGill Professor and Macdonald Professor*)

James Clark; B.Sc., Ph.D.(Br. Col.), *Associate Dean, Academic*
Frank Ferrie; B.Eng., Ph.D.(McG.)

Francisco D. Galiana; B.Eng.(McG.), S.M., Ph.D.(MIT), F.I.E.E.E., Eng.

Vincent Hayward; Dip.d'Ing.(ENSM, Nantes), Doc.Ing.(Orsay), Eng.

Geza Joos; B.Sc.(C' dia), M.Eng. Ph.D.(McG.) (*CRC Chair*)

Peter Kabal; B.A.Sc., M.A.Sc., Ph.D.(Tor.)

Tho Le-Ngoc; M.Eng.(McG.), Ph.D.(Ott.), F.I.E.E.E.

Harry Leib; B.Sc.(Technion), Ph.D.(Tor.)

Martin D. Levine; B.Eng., M.Eng.(McG.), Ph.D.(Lond.), F.C.I.A.R., F.I.E.E.E., Eng.

David A. Lowther; B.Sc.(Lond.), Ph.D.(C.N.A.A.), F.C.A.E., Eng. (*James McGill Professor*)

Lorne Mason; B.Eng., Ph.D.(Sask.)

Boon-Teck Ooi; B.E.(Adel.), S.M.(MIT), Ph.D.(McG.), Eng.

David V. Plant; M.S., Ph.D.(Brown), F.I.E.E.E., F.O.S.A (*James McGill Professor*)

Gordon Roberts; B.A.Sc.(Wat.), M.A.Sc., Ph.D.(Tor.), Eng. (*James McGill Professor*) F.I.E.E.E.

Jonathan P. Webb; B.A., Ph.D.(Cant.)

Associate Professors

Jan Bajcsy; B.Sc.(Harv.), M.Eng., Ph.D.(Princ.)

Benoit Boulet; B.Sc.(Laval), M.Eng.(McG.), Ph.D.(Tor.) (*William Dawson Scholar*)

Benoit Champagne; B.Eng., M.Eng.(Montr.), Ph.D.(Tor.)

Lawrence Chen; B.Eng.(McG.), M.A.Sc., Ph.D.(Tor.)

Jeremy R. Cooperstock; A.Sc.(Br. Col.), M.Sc., Ph.D.(Tor.),

Mourad El-Gamal; B.Sc.(Cairo), M.Sc.(Nashville), Ph.D.(McG.) (*William Dawson Scholar*)

Dennis Giannacopoulos; M.Eng., Ph.D.(McG.)

Andrew Kirk; B.Sc.(Brist.), Ph.D.(Lond.) (*William Dawson Scholar*
Associate Dean, Research and Graduate Education)

Fabrice Labeau; M.S., Ph.D.(Louvain)

Steve McFee; B.Eng., Ph.D.(McG.)

Hannah Michalska; B.Sc., M.Sc.(Warsaw), Ph.D.(Lond.)

Milica Popovich; B.Sc.(Colo.), M.Sc., Ph.D.(N'western)
 Ioannis Psaromiligkos; B.Sc.(Patras), M.Sc., Ph.D.(Buffalo)
 Richard Rose; B.Sc., M.S.(Ill.), Ph.D.(GIT)
 Ishiang Shih; M.Eng., Ph.D.(McG.)
 Zeljko Zilic; B.Eng.(Zagreb), M.Sc., Ph.D.(Tor.)

Assistant Professors

Ramesh Abhari; M.A.Sc.,(Tehran), Ph.D.(Tor.)
 Tal Arbel; M.Eng., Ph.D.(McG.)
 Vamsy Chodavarapu; B.Eng.(India), M.S.(NY), Ph.D.(NY)
 Mark Coates; B.Eng.(Australia), Ph.D.(Camb.)
 Warren Gross; B.A.Sc.(Wat.), M.A.Sc., Ph.D.(Tor.)
 Anas Hamoui; M.Eng.(McG.), Ph.D.(Tor.)
 Roni Khazaka; M.Eng., Ph.D.(Car.)
 Shie Mannor; B.A., B.Sc., Ph.D.(Haifa)
 Zetian Mi; B.A.Sc.(China), M.Sc.(Iowa), Ph.D.(Mich.)
 Sam Musallam; B.Sc., M.Sc., Ph.D.(Tor.)
 Michael Rabbat; B.S.(Ill.), M.S.(Texas), Ph.D in progress(Wisc.)
 Martin Rochette; B.A., M.Eng, Ph.D.(Laval)
 Thomas Szkopek; B.A.Sc., M.A.Sc.(Tor.) Ph.D.(Calif.-LA)

Lecturer

Kenneth L. Fraser

Associate Members

D.L. Collins, Gregory Dudek, Alan C. Evans, William R. Funnell,
 Henrietta L. Galiana, Jean Gotman, Robert E. Kearney, Frank
 Verhaegan

Adjunct Professors

Ray Bartnikas, Eric Boisvert, Charalambos Charalambous,
 Robert DiRaddo, Danny Grant, Cedric Guss, Cheng K. Jen, Irene
 Leszkowicz, Miguel Marin, Donald McGillis, Douglas
 O'Shaughnessy, Farouk Rizk, Anthony Rodolakis, Robert
 Sabourin

27.2 Programs Offered

The Department offers programs of graduate studies leading to a degree of Master of Engineering or Doctor of Philosophy.

An equivalent of one (1) calendar year of full time study is required to obtain a Master's in Engineering.

The Ph.D. program maintains a requirement of the equivalent of two (2) calendar years of full time study besides the requirements for the Master's degree.

The research interests and facilities of the Department are very extensive, involving more than 51 faculty members and 308 post-graduate students. The major activities are divided into the following groups: Bio-Electrical Engineering, Telecommunications and Signal Processing, Systems and Control, Micro-electronics and Computer Systems, Nano-Electronic Devices and Materials, Photonics Systems, Computational Electromagnetics, Power Engineering and Intelligent Systems.

Research Facilities

The Department has extensive laboratory facilities for all its main research areas. In addition, McGill University often collaborates with other institutions for teaching and research.

- The laboratories for research in Robotics, Control and Vision are in the Centre for Intelligent Machines (CIM).
- Telecommunications laboratories focus their work on signal processing, broadband communications and networking; these laboratories form part of the Centre for Advanced Systems and Communications (SYTACom), a McGill University Research Centre devoted to foster innovation in the area of communications systems and technologies via advanced research and training of highly qualified personnel.
- The Microelectronics and Computer System (MACS) Laboratory supports research in VLSI, mixed signal circuits, design for testability, formal methods telecommunications, computing and optical systems.
- Antenna and microwave research, and optical fiber and integrated optics research are carried out in a fully equipped facility.

- The Photonics Systems laboratory includes continuous wave and femtosecond Ti:Sapphire lasers, diode lasers, extensive optics and optomechanics, and sophisticated electronic and imaging equipment.
- Solid state facilities include measurement equipment for magnetic and electric properties of materials, vacuum deposition and RF sputtering systems.
- The Computational Analysis and Design Laboratory provides tools for numerical analysis, visualization, interface design and knowledge-based system development.
- There is also a well-equipped laboratory for power electronics and power systems research.

The Department has extensive computer facilities. Most research machines are networked providing access to a vast array of hardware. In addition, McGill University is linked to the Centre de Recherche Informatique de Montréal (CRIM) and the University Computing Centre.

There are three other universities in Montreal: Concordia University is the other English-language university; l'Université de Montréal, and its affiliated school of engineering, l'École Polytechnique, is the largest Francophone university; l'Université du Québec has a campus in Montreal and in major towns throughout the province.

The proximity of these schools to McGill University ensures a rich array of courses is available to suit individual needs. McGill also collaborates on research projects with many organizations such as l'Institut de la Recherche d'Hydro-Québec (IREQ) and l'Institut National de la Recherche Scientifique (INRS).

Financial Support

Graduate Assistantships: The Department awards several graduate assistantships to qualified full-time graduate students. These are normally funded from research grants or contracts awarded to individual faculty members. In return, the graduate assistant is expected to perform research-related tasks assigned by the professor from whose grant the assistantship is paid. A good part, but not necessarily all, of this work can be used for preparing a thesis. There is no special application form for graduate assistantships; all applicants who indicate a need for support on their application forms will be considered. A large fraction of research funding comes from Canadian Government agencies, with the stipulation that only graduate students who are either Canadian citizens or Permanent Residents may be supported. Consequently, graduate assistantships can be offered to a very small number of international students. They should also note that Canadian authorities will not grant an Immigrant Visa to a foreign national who wishes to enter Canada to study.

Teaching Assistantships: Graduate students, with the approval of their supervisors, may also undertake teaching assistantships for an additional remuneration. These are awarded at the beginning of the term. The Department can make no prior commitments.

Graduate students can also receive financial aid through fellowships, loans or bursaries. For more information, please refer to the Fellowships and Awards Website at www.mcgill.ca/gps, or contact the Graduate and Postdoctoral Studies Office, McGill University, James Administration Building, Room 400, 845 Sherbrooke Street West, Montreal, QC H3A 2T5.

27.3 Admission Requirements

TOEFL Requirement: Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in English by a Test of English as a Foreign Language (TOEFL) with a score not below 600 on the paper-based test, 250 on the computer-based test, or 100 on the Internet-based test, with each component score not less than 20 or IELTS with a minimum overall band of 7.0.

Permanent Residents may also be required to submit TOEFL results. Official results must be received before the application deadline.

GRE Requirement: A GRE score on the General Aptitude Test is required by all students who have completed their undergraduate degrees outside Canada. A minimum total score of 1100 for the verbal and quantitative sections is required. There is no minimum for the analytical writing section. Official results must be received before the application deadline.

M.Eng. Degree (Admission Requirements)

The applicant must be the graduate of a recognized university and hold a Bachelor's degree equivalent to a McGill degree in Electrical or Computer Engineering or a closely allied field. An applicant holding a degree in another field of engineering or science will be considered but a qualifying year may be given to make up any deficiencies. The applicant must have a high academic achievement: a standing equivalent to a Cumulative Grade Point Average (CGPA) of 3.0 out of 4 or a GPA of 3.2 out of 4.0 for the last two full-time academic years. Satisfaction of these general requirements does not guarantee admission. Admission to graduate studies is limited and acceptance is on a very competitive basis.

Ph.D. Degree (Admission Requirements)

Candidates who fulfill the general requirements of the Graduate and Postdoctoral Studies Office and who possess a Master's degree may be accepted for a course of study leading to the Ph.D. degree in Electrical Engineering.

27.4 Application Procedures

Applications will be considered upon receipt of:

1. completed application form;
2. application fee (Can\$80);
3. two official copies of all previous and current transcripts;
4. two reference letters (sent directly by the referees);
5. TOEFL and GRE scores (if applicable).

The Department accepts most of its graduate students for September; the chance of acceptance for January is significantly lower.

Application deadlines:

September admission:

December 15 - all applicants.

January admission:

August 1 - International applicants

October 1 - Canadian citizens and Permanent Residents.

All documents must be received by the Department's Admissions Committee by the above deadlines.

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

27.5 Program Requirements

A student may satisfy the M.Eng. degree requirements by completing one of the following options: the M.Eng. Thesis (46 credits, 47 if the multidisciplinary Computational Science and Engineering option is selected), or the 47 credit M.Eng Project (Non-Thesis).

Students in the thesis option must carry a full load (minimum of 12 credits) during the three terms of the residency requirement. Courses must be completed with a grade of B- or better.

M.Eng. in Electrical Engineering (Thesis) (46 credits)

Complementary Courses (18 credits minimum)

At least six graduate-level courses (minimum of 18 credits), normally with a minimum of four ECSE 500- or 600-level courses.*

Thesis Component – Required (28 credits)

- ECSE 691 (4) Thesis Research 1
 ECSE 692 (4) Thesis Research 2
 ECSE 693 (4) Thesis Research 3

- ECSE 694 (4) Thesis Research 4
 ECSE 695 (4) Thesis Research 5
 ECSE 696 (4) Thesis Research 6
 ECSE 697 (4) Thesis Research 7

* Under special circumstances, and subject to departmental approval, students may be allowed to take more than two non-departmental courses; a letter of recommendation from their supervisor outlining the reason for such an action is required.

Under no circumstance will more than three non-departmental courses be permitted.

Note: In some cases, if approval is given by the Graduate Chairman, COMP (Computer Science) courses can be counted as ECSE.

Students who choose the thesis option must register for all 28 credits during the course of study. Students in the thesis option must carry a full load (minimum of 12 credits) during the three terms of the residency requirement.

M.Eng. Thesis - Computational Science and Engineering (CSE) Option/Concentration (47 credits)

Required Course (1 credit)

- ECSE 670D1/D2 (1) CSE Seminar

Complementary Courses (minimum 18 credits)

Six courses at the graduate level (500 or above) are required (minimum 18 credits), with a grade of B- or better. Two courses (minimum 6 credits) from List A, and two courses (minimum 6 credits) from List B. At least two of the courses taken from Lists A and B must be from outside the Department of Electrical and Computer Engineering.

List A - Scientific Computing Courses:

- CIVE 602 (4) Finite Element Analysis
 COMP 522 (4) Modelling and Simulation
 COMP 540 (3) Matrix Computations
 COMP 566 (3) Discrete Optimization 1
 MATH 578 (4) Numerical Analysis 1
 MATH 579 (4) Numerical Differential Equations

List B - Applications and Specialized Methods Courses:

- ATOC 512 (3) Atmospheric and Oceanic Dynamics
 ATOC 513 (3) Waves and Stability
 ATOC 515 (3) Turbulence in Atmosphere and Oceans
 CIVE 514 (3) Structural Mechanics
 CIVE 572 (3) Computational Hydraulics
 CIVE 603 (4) Structural Dynamics
 CIVE 613 (4) Numerical Methods: Structural Engineering
 COMP 505 (3) Advanced Computer Architecture
 COMP 557 (3) Fundamentals of Computer Graphics
 COMP 558 (3) Fundamentals of Computer Vision
 COMP 567 (3) Discrete Optimization 2
 COMP 621 (4) Optimizing Compilers
 COMP 642 (4) Numerical Estimation Methods
 COMP 767 (4) Advanced Topics: Applications 2
 ECSE 507 (3) Optimization and Optimal Control
 ECSE 532 (3) Computer Graphics
 ECSE 547 (3) Finite Elements in Electrical Engineering
 ECSE 549 (3) Expert Systems in Electrical Design
 MATH 555 (4) Fluid Dynamics
 MATH 560 (4) Optimization
 MATH 651 (4) Asymptotic Expansion and Perturbation Methods
 MATH 761 (4) Topics in Applied Mathematics 1
 MECH 533 (3) Subsonic Aerodynamics
 MECH 537 (3) High-Speed Aerodynamics
 MECH 538 (3) Unsteady Aerodynamics
 MECH 539 (3) Computational Aerodynamics
 MECH 541 (3) Kinematic Synthesis
 MECH 545 (3) Advanced Stress Analysis
 MECH 572 (3) Introduction to Robotics
 MECH 573 (3) Mechanics of Robotic Systems

MECH 576	(3)	Computer Graphics and Geometrical Modelling
MECH 577	(3)	Optimum Design
MECH 610	(4)	Fundamentals of Fluid Dynamics
MECH 620	(4)	Advanced Computational Aerodynamics
MECH 632	(4)	Theory of Elasticity
MECH 642	(4)	Advanced Dynamics
MECH 650	(4)	Heat Transfer
MECH 654	(4)	Compt. Fluid Flow and Heat Transfer

Thesis Component – Required (28 credits)

ECSE 691	(4)	Thesis Research 1
ECSE 692	(4)	Thesis Research 2
ECSE 693	(4)	Thesis Research 3
ECSE 694	(4)	Thesis Research 4
ECSE 695	(4)	Thesis Research 5
ECSE 696	(4)	Thesis Research 6
ECSE 697	(4)	Thesis Research 7

Students who choose the thesis option must register for all 29 credits during the course of study. Students in the thesis option must carry a full load (minimum of 12 credits) during the three terms of the residency requirement.

M.Eng. in Electrical Engineering Project (Non-Thesis)
(47 credits)

Non-thesis option students have an oral presentation and two examiners grade their project. Courses must be completed with a grade of B- or better.

A part-time program is possible.

Complementary Courses (27 - 36 credits)

At least nine graduate-level courses (minimum of 27 credits), normally with a minimum of six ECSE 500- or 600-level courses.*

Project Component (11 - 20 credits)

The credits assigned to the project can vary between 11 and 20 depending on the number of course credits taken.

ECSE 651	(1)	M. Eng. Project 1
ECSE 652	(2)	M.Eng. Project 2
ECSE 653	(3)	M.Eng. Project 3
ECSE 654	(4)	M.Eng. Project 4
ECSE 655	(5)	M.Eng. Project 5
ECSE 656	(5)	M.Eng. Project 6

* Under special circumstances, and subject to departmental approval, students may be allowed to take more than three non-departmental courses; a letter of recommendation from their supervisor outlining the reason for such an action is required.

Under no circumstance will more than four non-departmental courses be permitted.

Ph.D. Program Requirements**Required Courses** (0 credits)

ECSE 701	(0)	Ph.D. Qualifying Examination
ECSE 702	(0)	Ph.D. Research Plan Proposal
ECSE 703	(0)	Doctoral Research Seminar

To complete the doctoral program, the following requirements must be met.

- Successful completion of the courses prescribed by the student's Supervisory Committee.
- Passing the Ph.D. Qualifying Examination (course ECSE 701). Students must register for this course upon admission to the doctoral program. The exam must take place within one year of admission to the doctoral program; non-compliance with this rule will result in a first failure. The contents of the Qualifying Examination are set at the Preliminary Meeting. The examiners at the Qualifying Examination include the student's Supervisory Committee together with any other examiners chosen by the committee. Successful completion of this course will award the student a PASS grade in the course ECSE 701.
- Approval of the thesis proposal submitted by the student (course ECSE 702, Ph.D. Research Plan Proposal). Students

must register for this course upon successful completion of the course ECSE 701. It must be completed within two years of admission to the doctoral program. Non-compliance with this rule will result in a first failure. The student must present a brief written thesis proposal to the Supervisory Committee. The proposal should contain a statement of the proposed research, results already obtained, if any, and expected results. The proposal is to be received by members of the Committee in advance of its presentation. The format of the thesis proposal submission is an oral presentation of the written statement by the student and then a period in which he/she will be questioned on the proposal by the Supervisory Committee. When the proposal is accepted by the Supervisory committee, the student receives a PASS grade in the course ECSE 702.

- Successful completion of the Research Seminar examination (course ECSE 703, Doctoral Research Seminar). Students must register for this course upon successful completion of the course ECSE 702. It must be completed within three years of admission to the doctoral program. Non-compliance with this rule will result in a failure. The student must first submit a written manuscript, which demonstrates the progress made towards the Ph.D. thesis, for evaluation by the members of the Ph.D. Supervisory Committee. This will be followed by an oral presentation, in the form of a research seminar, in which the student presents the research work described in the manuscript. The presentation will normally be open to the public.
- Passing the final thesis defense as per the regulations of the Graduate and Postdoctoral Studies Office.

27.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

The course credit weight is given in parentheses after the title, along with the number of weekly contact hours (lectures, lab/tutorials) and expected hours of study, e.g., (3) (3-0-6) indicates 3 credits (3 lecture hours - no other contact hours - 6 hours of personal study).

□ Denotes limited enrolment

ECSE 500 MATHEMATICAL FOUNDATIONS OF SYSTEMS. (3) (3-0-6) (Restriction: Open only to graduate students within the Faculty of Engineering.) Basic set theories and algebraic structures, linear spaces, linear mappings, topological and metric spaces, separable spaces, continuity, compactness, Lebesgue measure on Euclidean spaces, measurability, Banach spaces, Hilbert spaces, linear bounded operators in Banach spaces, dual spaces, adjoint operators, the Orthogonal Projection Theorem, properties of the Fourier series, convergence in probability.

ECSE 501 LINEAR SYSTEMS. (3) (3-0-6) (Corequisite: ECSE 500 or permission of instructor.) Mathematical models of linear systems, fundamental solution and transition matrices, non-homogeneous linear equations, controllability and observability of linear systems, reachable subspaces, Cayley-Hamilton's Theorem, Kalman's controllability and observability rank conditions, minimal realizations, frequency response, invariant subspaces, finite and infinite horizon linear regulator problems, uniform, exponential, and input-output stability, the Lyapunov equation.

ECSE 504 SAMPLED DATA CONTROL. (3) (3-0-6) (Prerequisite: ECSE 304 or ECSE 306.) (Corequisites: ECSE 404 or ECSE 501.) Sampling and aliasing. Conversion of continuous-time controllers using s-to-z transformations; pre-and post-filtering. Discrete time state representation and z-transfer function of sampled linear, time-invariant systems. Correspondence between system theoretic results for continuous- and discrete-time systems.

Sampled-data design, including pole placement, LQR control and model predictive control.

ECSE 505 NONLINEAR CONTROL SYSTEMS. (3) (3-0-6) (Prerequisite: ECSE 501) Basic ODE formulation of non-linear systems; structural properties; Lyapunov and LaSalle stability theory and nonlinear and multivariable controller design; input-output stability; small gain theorem, conservation, passivity; system linearization, zero and inverse dynamics and regulator design; discontinuous and sliding mode control; applications to deterministic adaptive control.

ECSE 506 STOCHASTIC CONTROL & DECISION THEORY. (3) (3-0-6) (Prerequisites: ECSE 509 and ECSE 500.) Gaussian processes and tail bounds; Bandit problems and optimal policies; Markov decision processes; Dynamic programming and optimal control in discrete time; learning models control from data; the ODE method and stochastic approximation; Q-learning; Approximate dynamic programming, linear stochastic systems; linear Gaussian systems; linear-quadratic control; system identification and stochastic adaptive control.

ECSE 507 OPTIMIZATION AND OPTIMAL CONTROL. (3) (3-0-6) (Prerequisites: MATH 264 or MATH 265 or MATH 248, MATH 270 or MATH 247) General Introduction to optimization methods including steepest descent, conjugate gradient, Newton algorithms. Generalized matrix inverses and the least squared error problem. Introduction to constrained optimality; convexity and duality; interior point methods. Introduction to dynamic optimization; existence theory, relaxed controls, the Pontryagin Maximum Principle. Sufficiency of the Maximum Principle.

ECSE 508 MULTI-AGENT SYSTEMS. (3) (3-0-6) (Prerequisite: ECSE 305 or equivalent.) Introduction to game theory, strategic games, extensive form games with perfect and imperfect information, repeated games and folk theorems, cooperative game theory, introduction to mechanism design, markets and market equilibrium, pricing and resource allocation, application in telecommunication networks, applications in communication networks, stochastic games.

ECSE 509 PROBABILITY AND RANDOM SIG. 2. (3) (3-0-6) (Prerequisites: ECSE 304 and ECSE 305) Multivariate Gaussian distributions; finite-dimensional mean-square estimation (multivariate case); principal components; introduction to random processes; weak stationarity: correlation functions, spectra, linear processing and estimation; Poisson processes and Markov chains: state processes, invariant distributions; stochastic simulation.

ECSE 510 STOCHASTIC PROCESSES AND SYSTEMS. (3) (3-0-6) (Prerequisite: ECSE 500 and ECSE 509 or equivalent.) Basic notions. Linear state space (SS) systems. Least squares estimation and prediction: conditional expectations; Orthogonal Projection Theorem. Kalman filtering; innovations; Riccati equation. ARMA and SS systems. Stationary processes; Wold decomposition; spectral factorization; Weiner filtering. The Weiner process; linear stochastic differential equations; continuous time filtering. Chapman-Kolmogorov, Fokker-Plank equations. Applications.

ECSE 511 INTRODUCTION TO DIGITAL COMMUNICATION. (3) (3-1-5) (Prerequisite: ECSE 304.) (Corequisite: ECSE 509) (An advanced version of ECSE 411) (Tutorials assigned by instructor.) Amplitude and angle modulation including AM, FM, FDM and television systems; introduction to random processes; sampling and quantization, PCM systems, TDM; digital modulation techniques, Maximum-Likelihood receivers, synchronization issues; elements of information theory including information sources, source coding and channel capacity.

ECSE 512 DIGITAL SIGNAL PROCESSING 1. (3) (3-1-5) (Prerequisites: ECSE 304 and ECSE 305) Review of discrete-time transforms, sampling and quantization, frequency analysis. Structures for IIR and FIR filters, coefficient quantization, roundoff noise. The DFT, its properties, frequency analysis and filtering using DFT methods, the FFT and its implementation. Multirate processing, subsampling and interpolation, oversampling techniques.

ECSE 513 ROBUST CONTROL SYSTEMS. (3) (3-0-6) (Prerequisites: ECSE 304 and ECSE 500.) Feedback interconnections of LTI

systems; Nominal stability and performance of feedback control systems; Norms of signals and systems; H2-optimal control; H-infinity-optimal control; Uncertainty modeling for robust control; Robust closed-loop stability and performance; Robust H-infinity control; Robustness check using mu-analysis; Robust controller design via mu-synthesis.

ECSE 514 PROBABILISTIC REASONING AND ARTIFICIAL INTELLIGENCE. (3) (3-0-6) (Prerequisites: COMP 206, COMP 360, COMP 424 or ECSE 526, and MATH 323 or ECSE 305.) (Restriction: Not open to students who have taken COMP 526.) Belief networks, utility theory, Markov decision processes, learning algorithms.

ECSE 515 OPTICAL FIBRE COMMUNICATIONS. (3) (Prerequisite(s): ECSE 304, ECSE 305 and ECSE 571) Optical fibre communication technology and principles of optical transport: modulation formats, signal propagation and impairments in optical fibres, sources of noise, amplification and regeneration, optical signal processing technologies, system design.

ECSE 520 PARALLEL COMPUTING SYSTEMS. (3) (3-2-4) (Prerequisite: ECSE 427.) (Restriction: Credit will only be given for one of ECSE 420 and ECSE 520.) Parallel computing models: shared memory, message passing and data parallel. Single-chip multiprocessors. Techniques for designing scalable cache coherent shared memory multiprocessors. Programming shared memory and message passing systems. Multithreading and synchronization; interplay between parallel programming and architecture.

ECSE 521 DIGITAL COMMUNICATIONS 1. (3) (3-0-6) (Prerequisite: ECSE 411 or ECSE 511.) (Corequisite: ECSE 509) Modulation: orthogonal and biorthogonal signalling, MPSK, QAM, modulation with memory. Detection: coherent, noncoherent and differentially coherent detection, performance issues and channel capacity, synchronization. Coding: block and convolutional codes, fast Hadamard Transform decoding, Viterbi algorithm, turbo-codes. Band-limited channels: intersymbol interference, spectral shaping, correlative coding, data estimation and channel equalization.

ECSE 523 SPEECH COMMUNICATIONS. (3) (3-0-6) (Prerequisite: ECSE 412 or ECSE 512) Articulatory and acoustic descriptions of speech production, speech production models, speech perception, digital processing of speech signals, vocoders using formant, linear predictive and cepstral techniques, overview of automatic speech recognition systems, speech synthesis systems and speaker verification systems.

ECSE 524 INTERCONNECTS AND SIGNAL INTEGRITY. (3) (3-0-6) (Prerequisites: ECSE 334 and ECSE 352 or ECSE 353.) Interconnect structures, signal integrity issues: reflection, crosstalk, noise, electromagnetic interference, Lossy transmission lines, RLGC matrix representations, wave propagation in multilayered substrates, periodically loaded lines, Floquet's theorem, power distribution network, simultaneous switching noise, packaging structures, chip interconnection technologies, substrate integrated waveguides, methods for experimental characterization of interconnects, signal integrity CAD tools.

ECSE 526 ARTIFICIAL INTELLIGENCE. (3) (3-0-6) (Prerequisite: ECSE 322) Design principles of autonomous agents, agent architectures, machine learning, neural networks, genetic algorithms, and multi-agent collaboration. The course includes a term project that consists of designing and implementing software agents that collaborate and compete in a simulated environment.

ECSE 527 OPTICAL ENGINEERING. (3) (3-0-6) (Prerequisites: ECSE 352) A structure introduction to modern optical engineering. Topics covered include the propagation of light through space, refraction, diffraction, polarization, lens systems, ray-tracing, aberrations, computer-aided design and optimization techniques, Gaussian beam analysis, micro-optics and computer generated diffractive optical elements. Systems and applications will be stressed throughout.

ECSE 528 TELECOMMUNICATION NETWORK ARCHITECTURE. (3) (3-0-6) (Prerequisite: ECSE 304 and ECSE 322) (Corequisite: ECSE 509) Organization of large, highspeed, multiservice telecommunication networks. Connection hierarchies, protocol stacks, transmission formats. Local-area networking: Token Ring and Ethernet.

Multiplexing for wide-area transport: performance modelling and analysis, traffic scheduling and shaping. Routing and flow control. Switch architecture: performance criteria, buffer management, routers versus switches and hybrids.

ECSE 529 IMAGE PROCESSING AND COMMUNICATION. (3) (3-0-6) (Prerequisite: ECSE 304 or ECSE 306.) Introduction to vision in man and machine; computer vision systems; biological vision systems; biological signal processing; edge detection; spatial- and frequency-domain processing; color. Low-level visual processing in computer vision, psychophysics, and neurobiology, and their similarities and differences.

ECSE 530 LOGIC SYNTHESIS. (3) (3-2-4) (Prerequisite: ECSE 323) The place of logic synthesis in microelectronics. Representations of Boolean functions: logic covers, binary decision diagrams. Two-level synthesis algorithms, Espresso. Multi-level synthesis to Boolean networks: don't care methods, algebraic optimizations, delay modelling. Sequential synthesis: state-based optimizations, state assignment, network optimizations. Technology mapping: library cell and FPGA mapping.

ECSE 532 COMPUTER GRAPHICS. (3) (3-0-6) (Prerequisite: ECSE 322) Introduction to computer graphics systems and display devices: raster scan, scan conversion, graphical input and interactive techniques - window environments; display files: graphics languages and data structures: 2D transformations; 3D computer graphics, hidden line removal and shading; graphics system design; applications. Laboratory project involving the preparation and running of graphics programs.

ECSE 533 PHYSICAL BASIS OF SEMICONDUCTOR DEVICES. (3) (3-0-6) (Prerequisites: ECSE 330, ECSE 351 and PHYS 271) Quantitative analysis of diodes and transistors. Semiconductor fundamentals, equilibrium and non-equilibrium carrier transport, and Fermi levels. PN junction diodes, the ideal diode, and diode switching. Bipolar Junction Transistors (BJT), physics of the ideal BJT, the Ebers-Moll model. Field effect transistors, metal-oxide semiconductor structures, static and dynamic behaviour, small-signal models.

ECSE 534 ANALOG MICROELECTRONICS. (3) (3-0-6) (Prerequisite: ECSE 334) Design of analog ICs using specialized analog CAD tools such as SPICE. Voltage and current amplifier design which encompasses the study of biasing circuits, current sources and mirrors, input and output stages, and frequency compensation; precision reference sources; analog multipliers; oscillators; waveform generators and shaping circuits, and analog switches.

ECSE 535 NANO-ELECTRONIC DEVICES. (3) (3-0-6) (Prerequisites: ECSE 352, PHYS 271) Physical principles and modeling of nano-electronic devices. Bandstructure and electronic density of states, Quantum wells, wires and dots. Ballistic electron transport, tunneling and scattering mechanisms. Electrical and optical properties of nanostructures, fundamental performance limits. Research devices and materials.

ECSE 536 RF MICROELECTRONICS. (3) (3-3-3) (Prerequisite: ECSE 334.) (Restriction: Instructor's permission required.) Introduction to Radio Frequency Integrated Circuits and wireless transceiver architectures. Modeling of passive/active integrated devices. Design of monolithic bipolar and CMOS LNAs, mixers, filters, broadband amplifiers, RF power amplifiers, VCOs, and frequency synthesizers. Analysis of noise and non-linearity in RFICs. Project using modern RFIC simulation/layout CAD tools.

ECSE 543 NUMERICAL METHODS IN ELECTRICAL ENGINEERING. (3) (3-0-6) (Prerequisites: ECSE 322, ECSE 334 and ECSE 352) DC resistor networks and sparse matrix methods. Nonlinear electric and magnetic circuits: curve-fitting; the Newton-Raphson method. Finite elements for electrostatics. Transient analysis of circuits: systems of Ordinary differential equations; stiff equations. Transient analysis of induced currents. Solution of algebraic eigenvalue problems. Scattering of electromagnetic waves: the boundary element method; numerical integration.

ECSE 545 MICROELECTRONICS TECHNOLOGY. (3) (3-0-6) (Prerequisite: ECSE 432 or ECSE 533) Basic techniques in the fabrication of microelectronic circuits. Four-point probe, alloyed contacts,

diffusion processes, ion implantation epitaxy, silicon dioxide, photolithography, selected diffusion and metallization, transistor fabrication, dry etching, monolithic integrated circuits, isolation, mask making, thin and thick film components, MOS gate voltage and integrated circuits.

ECSE 547 FINITE ELEMENTS IN ELECTRICAL ENGINEERING. (3) (3-0-6) (Prerequisites: ECSE 322 and ECSE 352) Finite elements for electrostatics. Energy minimization. Semi-conductors. Nonlinear magnetics and Newton-Raphson. Axisymmetric problems. Capacitance, inductance, and resistance through finite elements. Resonance: cavities, waveguides. High order and curvilinear elements.

ECSE 548 INTRODUCTION TO VLSI SYSTEMS. (3) (2-2-5) (Prerequisites: ECSE 334 and ECSE 323) (Restriction: Instructor's permission required.) (Lab hours assigned by instructor.) An interdisciplinary course for electrical engineering and computer science students. A structured design methodology for managing the complexity of VLSI system design. Sufficient information on integrated devices, circuits, digital subsystems and system architecture is presented to enable students to span the range of abstractions from device physics to VLSI digital systems.

ECSE 549 EXPERT SYSTEMS IN ELECTRICAL DESIGN. (3) (3-0-6) (Prerequisites: ECSE 323 and ECSE 361) Design processes in electrical engineering. Hierarchical design. Computer aided design. Expert system technology. Device representations, heuristics and structures, algebraic models. Design versus diagnosis, "Shallow" and "Deep" systems, second generation (multi-paradigm) systems. Shells and their uses in design systems. Knowledge acquisition systems.

ECSE 559 FLEXIBLE AC TRANSMISSION SYSTEMS. (3) (3-0-6) (Prerequisites: ECSE 334 and ECSE 361) Operating principles of controllers of flexible AC transmission systems (FACTS). Transformer, thyristor and gate-turn-off thyristor (GTO) technologies. Modulation methods: harmonic elimination, pulse width modulation. Applications in: shunt and series advanced static VAR Controllers (ASVC), phase shifters, unified power flow controllers (UPFC).

ECSE 563 POWER SYSTEMS OPERATION AND PLANNING. (3) (3-0-6) (Prerequisite: ECSE 361) Design and operation of large scale power systems: Temporal, spatial and hierarchical decomposition of tasks. Local vs. distributed control. Load-frequency control. Voltage and speed regulation. Interconnected power systems. Power flow. Security states. Optimal operation of power systems. Power system reliability.

ECSE 565 INTRODUCTION TO POWER ELECTRONICS. (3) (3-0-6) (Prerequisite: ECSE 334) Semiconductor power switches - thyristors, GTO's, bipolar transistors, MOSFET's. Switch mode power amplifiers. Buck and boost principles. Modulation methods -PWM, delta, hysteresis current control. Rectifiers, inverters, choppers.

ECSE 570 AUTOMATIC SPEECH RECOGNITION. (3) (3-0-6) (Prerequisites: ECSE 305 and ECSE 322.) Acoustic phonetics and signal representations. Pattern classification, stochastic modeling, language modeling and search algorithms as applied to speech recognition. Techniques for robustness, integration of speech recognition with other user interface modalities, and the role of automatic speech recognition in speech understanding.

ECSE 571 OPTOELECTRONIC DEVICES. (3) (3-0-6) (Prerequisites: ECSE 352) (Corequisite: ECSE 533) Physical basis of optoelectronic devices including Light Emitting Diodes, semiconductor optical amplifiers, semiconductor lasers, quantum well devices, and solid state lasers. Quantitative description of detectors, optical modulation, optical logic devices, optical interconnects, and optomechanical hardware. Throughout the course, photonic systems applications will be addressed.

ECSE 572 NONLINEAR OPTICS. (3) (3-0-6) (Prerequisite: ECSE 352) Nonlinear optical processes and their applications: optical fibres, waveguides and crystals. Origin of second- and third-order nonlinear susceptibility, symmetry properties, coupled-wave propagation, phase-matching techniques, sum- and difference frequency generation, parametric amplification, four-wave mixing,

self- and cross-phase modulation, soliton propagation, Raman scattering and the electro-optic effect.

ECSE 573 MICROWAVE ELECTRONICS. (3) (3-0-6) (Prerequisite: ECSE 432 or ECSE 533) Physical basis of modern microwave devices and circuits. Microwave transistors and tunnel diodes, transferred electron devices, transit time devices and infra red devices. Microwave generation and amplification, microwave FET circuits. Noise and power amplification.

ECSE 574 CMOS SENSOR MICROSYSTEMS. (3) (3-0-6) (Prerequisite: ECSE 485) CMOS sensor microsystems, fundamentals of microfabrication, micromachining technology, recognition elements, CMOS signal detection components, and sensor system integration and packaging.

ECSE 593 ANTENNAS AND PROPAGATION. (3) (3-0-6) (Prerequisites: ECSE 303 and ECSE 352.) Fundamentals of antenna theory: sources, radiation pattern and gain. Classification of antennas. Main antenna types and their characteristics. Antenna temperature, remote sensing and radar cross-section. Self and mutual impedances. Special topics include adaptive antennas, very large array (VLA) used in radio astronomy and biomedical applications.

ECSE 596 OPTICAL WAVEGUIDES. (3) (3-0-6) (Prerequisite: ECSE 352) An in-depth analysis to guided-wave propagation. Dielectric waveguides (slab, 2D, nonlinear, spatial solitons), optical fibers (modes, dispersion relations, propagation in dispersive, nonlinear fibers, temporal solitons), beam propagation method, coupled mode theory, waveguide devices (couplers, gratings, etc.). Selection of current research topics of interest (e.g. photonic crystals, optical signal processing, etc.)

ECSE 597 CIRCUIT SIMULATORS. (3) (3-0-6) (Prerequisites: ECSE 303, ECSE 330 and ECSE 352) Principles of circuit simulation. Formulation of network equations. Frequency domain analysis. Nonlinear networks. Transient analysis. Sensitivity analysis and optimization. Model order reduction. High-speed interconnect analysis. Complex frequency hopping. Analysis of radio frequency circuits.

ECSE 607 TELECOMMUNICATIONS NETWORK ANALYSIS. (4) (6-0-9) (Prerequisite: ECSE 509.) Mathematical modeling, analysis, and optimization techniques for the design, control and management of modern networks. Next Generation internet architectures and service models; source and aggregate traffic models; traffic estimation and forecasting; traffic control and resource management; performance models; network dimensioning.

ECSE 608 MACHINE LEARNING. (4) (3-0-9) (Prerequisites: COMP 424, COMP 526 or ECSE 514, COMP 360, MATH 323 or ECSE 305.) (Restriction: Not open to students who have taken COMP 652.) An overview of state-of-the-art algorithms used in machine learning, including theoretical properties and practical applications of these algorithms.

ECSE 609 CUSTOM HIGH-PERFORMANCE COMPUTING ARCHITECTURES. (4) (3-0-9) (Prerequisites: ECSE 425 or ECSE 525, and ECSE 487 or ECSE 431.) Design of custom computer architectures for high-performance computing. Reconfigurable computing elements and systems. Mapping algorithms to hardware. High-level synthesis and CAD algorithms. Applications to computing problems in physics, chemistry, and biology.

ECSE 610 WIRELESS TELECOMMUNICATIONS. (4) (3-0-9) (Prerequisite: ECSE 511) An introduction to the theory and technology of wireless networks, with the emphasis on networking. Topics include channel modelling, cellularity and frequency reuse, the multiple access problem, services integration, flow control, diversity, smart antennas and aspects of wireless network management. First and second generation systems are described in detail.

ECSE 615 DIGITAL SIGNAL PROCESSING 2. (4) (3-0-9) (Prerequisites: ECSE 509 and ECSE 512) Filter banks, multi-rate signal processing, multi-resolution analysis and wavelets, transform coding. Second-order stochastic processes: Wold decomposition, spectral analysis, power spectral estimation and polyspectra, optimum filtering and linear prediction, adaptive filtering, LMS filters, recursive least-square and transform domain techniques.

ECSE 617 ARRAY SIGNAL PROCESSING. (4) (3-0-9) (Prerequisite: ECSE 412 or ECSE 512, ECSE 509) Introduction to the mathematical principles of array signal processing and their applications. Conventional beamformer design, optimum array processing structures; detection and direction of arrival estimation, modern subspace methods; adaptive array algorithms; implementation issues (matrix processing, subspace tracking, array calibration); selected applications from wireless communications, audio processing, underwater acoustics.

ECSE 618 HAPTICS. (4) (3-0-9) (Prerequisite: Permission of instructor.) Study of touch as relevant to technological systems. Applications. Elements of anatomy, neuroanatomy, physiology, and behaviour. Technology of tactile transducers. Computational synthesis of tactile signals: Elements of contact mechanics, deformation theory and inelasticity, and computational methods to simulate those for realtime synthesis.

ECSE 620 INFORMATION THEORY AND CODING. (4) (3-0-9) (Prerequisites: ECSE 411 or ECSE 511, and ECSE 510) Point-to-point communications: source and channel models, lossless source coding (prefix codes, Ziv-Lempel algorithm), performance limits for channel codes, source coding subject to a fidelity criterion, end-to-end performance limits. Approaching the limits: convolutional codes, linear codes. The multi-access problem: achievable rate regions, TDMA, CDMA. Secure communications.

ECSE 621 STAT. DETECTION AND ESTIMATION. (4) (3-0-9) (Prerequisites: ECSE 411 or ECSE 511, ECSE 510) On the processing of signals with random components, for applications in pattern recognition, image processing, robotics, telecommunications and control. A framework for statistical decision-making, geometrical representation of optimal strategies, Bayes and minimax rules, hypothesis testing, sequential decision-making, parameter estimation, Qiener and Kalman filtering, tracking, estimation of power spectra.

ECSE 623 DIGITAL COMMUNICATION 2. (4) (3-0-9) (Prerequisite: ECSE 510, ECSE 521) Adaptive channel equalization: the LMS algorithm, recursive Least-Squares algorithms, blind equalization. Multipath fading channels: channel characterization and models, diversity techniques for slowly fading channels, detection techniques for frequency selective channels. Spread Spectrum Communications: direct sequence and frequency hopping, multiple access techniques, single and multi-user demodulation techniques. Multicarrier systems.

ECSE 624 DATA COMPRESSION. (4) (3-0-9) (Prerequisites: ECSE 510 and ECSE 412 or ECSE 512) Theory and design of signal coding systems: Waveform characterization (speech and image waveforms), sampling (aliasing, optimal reconstruction filters), linear prediction. Scalar quantization: uniform and nonuniform, optimality, robust quantization. Differential coding, adaptive prediction, noise feedback. Run-length coding, entropy coding. Transform coding: transforms, bit assignment. Vector quantization: design, optimality, combined source/channel designs. Delayed decision coding: tree and trellis coding.

ECSE 625 TELECOMMUNICATION NETWORK DESIGN. (4) (3-0-9) (Prerequisites: ECSE 510, ECSE 528) Instruction in the design and use of algorithms for telecommunication network planning and control, with emphasis on computational efficiency. Applications include topological design, route selection, specification and configuration management of virtual networks. Relevant computational techniques include steepest descent, branch-and-bound, flow deviation.

ECSE 626 STATISTICAL COMPUTER VISION. (4) (3-0-9) (Prerequisite: ECSE 529 or equivalent, ECSE 305 or equivalent.) An overview of statistical techniques as applied to computer vision and image processing. Topics include regularization, Kalman filtering, Markov-Chain Monte Carlo methods, importance sampling and particle filtering, Markov Random fields, parameter estimation, mean-field techniques, stochastic and deterministic annealing, principal and independent components analysis.

ECSE 634 ANALOG INTEGRATED CIRCUITS SIGNAL PROCESSING. (4) (3-0-9) (Prerequisites: ECSE 334, ECSE 303 or equivalent)

Analog signal processing techniques for monolithic implementation. Filter approximation theory; filter realization methods; integrated filter technologies; active-RC, MOSFET-capacitor, transconductance-capacitor, switched-capacitor, switched-current; filter tuning methods. Phase-locked loops; signal conversion techniques.

ECSE 648 VLSI DESIGN. (4) (1-5-3) (Prerequisite: ECSE 548) (Limited enrolment) A project course with the opportunity to apply the knowledge acquired in 304-548 to the design of a complete digital IC of medium complexity. Completed designs will be submitted for fabrication to the Implementation Centre of the Canadian Microelectronics Corporation. The course includes lectures on advanced topics in VLSI design.

ECSE 649 VLSI TESTING. (4) (3-0-9) (Prerequisite: B.Eng. or equivalent.) The course is to orient designers of VLSI chips and boards to think about testing problems in parallel with the design process. Consideration in structured design-for-testability as a requirement for complex systems will be emphasized; as well as the emerging concept of built-in self-test (BIST).

ECSE 651 M. ENG. PROJECT 1. (1) (0-0-3)

ECSE 652 M.ENG. PROJECT 2. (2) (0-0-6)

ECSE 653 M.ENG. PROJECT 3. (3) (0-0-9)

ECSE 654 M.ENG. PROJECT 4. (4) (0-0-12)

ECSE 655 M.ENG. PROJECT 5. (5) (0-0-15)

ECSE 656 M.ENG. PROJECT 6. (5) (0-0-15)

ECSE 670D1 (0.5), ECSE 670D2 (0.5) COMPUTATIONAL SCIENCE ENGINEERING SEMINAR. (Restriction: This seminar course is open only to students who were admitted to the CSE Program Option.) (Students must register for both ECSE 670D1 and ECSE 670D2.) (No credit will be given for this course unless both ECSE 670D1 and ECSE 670D2 are successfully completed in consecutive terms.) Techniques and applications in computational science and engineering.

ECSE 670N1 COMPUTATIONAL SCIENCE ENGINEERING SEMINAR. (0.5) (Restriction: This seminar course is open only to students who were admitted to the CSE Program Option.) (Students must also register for ECSE 670N2.) (No credit will be given for this course unless both ECSE 670N1 and ECSE 670N2 are successfully completed in a twelve month period.) Techniques and applications in computational science and engineering.

ECSE 670N2 COMPUTATIONAL SCIENCE ENGINEERING SEMINAR. (0.5) (Prerequisite: ECSE 670N1.) (No credit will be given for this course unless both ECSE 670N1 and ECSE 670N2 are successfully completed in a twelve month period.) See ECSE 670N1 for description.

ECSE 675 SOLAR CELLS AND JUNCTIONS. (4) (3-0-9) (Prerequisite: ECSE 432) Schottky junctions: potential barriers, diffusion theory, thermionic emission theory, image force lowering, carrier injection, depletion layer recombination, tunnelling, effect of surface states and interfacial layer, barrier height determination. Photovoltaic solar cells: short circuit current, spectral response, equivalent circuit, fill factor, conversion efficiency.

ECSE 677 EXPERIMENTAL TECHNIQUES: SOLID STATE. (4) (0-6-6) (Prerequisite: ECSE 545) Experimental project in solid state involving the following: techniques of preparation, fabrication and orientation of samples and structures for experimental study; use of special laboratory apparatus; measurement of electronic, optical and structural properties of samples and structures; evaluation of electronic behaviour and performance; interpretation of relevant physical processes and phenomena.

ECSE 678 SPECIAL TOPICS IN SOLIDS 1. (4) (3-0-9) (Prerequisite: ECSE 432) Discussion of topics in semiconductor electronics and electronic properties of materials in areas of current research to the Department.

ECSE 681 COLLOQUIUM IN ELECTRICAL ENGINEERING. (4) Directed reading, seminar and discussion course in various subjects of current interest in electrical engineering research.

ECSE 682 TOPICS IN COMPUTERS AND CIRCUITS. (4) (3-0-9)

ECSE 683 TOPICS IN VISION AND ROBOTICS. (4) (3-0-9)

ECSE 684 TOPICS: COMPUTER AIDED DESIGN. (4) (3-0-9)

ECSE 685 TOPICS IN POWER ENGINEERING. (4) (3-0-9)

ECSE 686 TOPICS: COMMUNICATIONS SYSTEMS. (4) (3-0-9)

ECSE 688 RECENT ADVANCES IN ELECTRICAL ENGINEERING 1. (4) (3-0-9) Course content suited to the area of specialization of the lecture.

ECSE 691 THESIS RESEARCH 1. (4) (3-0-9)

ECSE 692 THESIS RESEARCH 2. (4) (3-0-9)

ECSE 693 THESIS RESEARCH 3. (4) (3-0-9)

ECSE 694 THESIS RESEARCH 4. (4) (3-0-9)

ECSE 695 THESIS RESEARCH 5. (4) (3-0-9)

ECSE 696 THESIS RESEARCH 6. (4) (3-0-9)

ECSE 697 THESIS RESEARCH 7. (4) (3-0-9)

ECSE 701 PH.D. QUALIFYING EXAMINATION. (0) Oral Examination of Ph.D. student's background in defined areas.

ECSE 702 PH.D. RESEARCH PLAN PROPOSAL. (0) Definition of a plan for Ph.D. research.

ECSE 703 DOCTORAL RESEARCH SEMINAR. (0) (Prerequisite: ECSE 702.) Submission of a research manuscript and presentation of work in an accompanying seminar.

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28.1 Staff

Emeritus Professors

M.D. Bristol; A.B.(Yale), Ph.D.(Prin.)

M. Puhvel; B.A., M.A.(McG.), Ph.D.(Harv.)

J. Ripley; B.A., M.A.(New Br.), Ph.D.(Birm.)

D. Suvin; B.A., M.Sc., Ph.D.(Zagreb), F.R.S.C.

W.C. Wees; B.A.(N'western), M.A.(Roch.), Ph.D.(N'western)

D. Williams; B.A.(Boston), M.A., Ph.D.(Tor.)

Professors

K. Borris; B.A.(Vic. (BC)), Ph.D.(Edin.)

M.A. Kilgour; B.A.(Tor.), Ph.D.(Yale)

M. Kreiswirth; B.A.(Hamilton), M.A.(Chic.), Ph.D.(Tor.)

R. Lecker; B.A., M.A., Ph.D.(York) (*Greenshields Professor of English*)

K. McSweeney; B.A., Ph.D.(Tor.) (*Molson Professor of English*)

P. Sabor; B.A.(Camb.), M.A.(Qu.), Ph.D.(Lond.) (*Canada Research Chair in 18th Century Studies*)

M. Stenbaek; B.A.(Copen.), M.A., Ph.D.(Montr.)

B. Trehearne; B.A., M.A., Ph.D.(McG.)

P. Yachnin; B.A.(McG.), M.Litt.(Edin.), Ph.D.(Tor.) (*Tomlinson Chair in Shakespeare Studies*)

Associate Professors

D.A. Bray; B.A.(McG.), Ph.D.(Edin.)

S. Carney; B.A.(Manit.) M.A.(Alta.), Ph.D.(York)

M.N. Cooke; B.A.(Qu.), M.A.(C'nell), M.A., Ph.D.(Tor.)

W. Folkert; B.A.(Calif. St.), M.A., Ph.D.(McG.)

P. Gibian; B.A.(Yale), M.A.(N.Y.), Ph.D.(Stan.)

Y. Halevi-Wise; B.A.(Hebrew), M.A.(G'town), Ph.D.(Princ.)

D.C. Hensley; B.A., M.A.(Cant.), Ph.D.(Yale)

A. Hepburn; B.A., M.A.(W. Ont.), Ph.D.(Princ.)
 M. Hickman; B.A.(Brown), M.A., Ph.D.(Mich.)
 B. Kaite; B.A.(C'dia), M.A.(McM.), Ph.D.(Carl.)
 P. Neilson; B.A.(Bishop's), M.F.A.(Calg.)
 T. Ponech; B.A.(McG.), Ph.D.(N'western)
 D. Salter; B.A.(Br. Col.), M.A., Ph.D.(Tor.)
 M.W. Selkirk; B.A.(Alta), M.F.A.(Ill.)

Assistant Professors

J. Fumo; B.A.(Mass-Amherst), M.A., Ph.D.(Princ.)
 T. Heise; B.A.(Flor. St.), M.A.(Calif., Davis), Ph.D.(NYU)
 E. Hurley; B.A.(McG.), M.A.(Brown), Ph.D.(CUNY)
 T. Mole; B.A., M.A., Ph.D.(Bristol)
 M. Morgan; B.A.(Harv.), Ph.D.(Stan.)
 D. Nystrom; B.A.(Wis.), M.A., Ph.D.(Va.)
 M. Popescu; B.A., M.A.(Bucharest), Ph.D.(Windsor), Ph.D.(Penn.)
 F. Ritchie; B.A., M.A.(Durh.), Ph.D.(Lond.)
 N. Schantz; B.A.(Stan.), M.A., Ph.D.(U.S.C.)
 S. Sobecki; B.A., M.Phil., M.A., Ph.D.(Camb.)
 T. Sparks; B.A.(Bates College), M.A., Ph.D.,(Wash.)
 A. Thain; B.A.(McG.), Ph.D.(Duke)

28.2 Programs Offered

Master's and Ph.D.

All students who apply will be considered for support which normally takes the form of a Teaching or Research Assistantship.

28.3 Admission Requirements

A statement of proposed research, transcripts, writing sample and two letters of recommendation are required of all applicants.

M.A. Degree

Admission to the M.A. program requires an Honours degree in English or its equivalent. Outstanding applicants from related disciplines may be invited to take a qualifying year.

Ph.D. Degree

Admission to the doctoral program is highly competitive. Outstanding students with the Master's degree in hand are accepted into Ph.D 2. In rare circumstances, outstanding graduates of B.A. programs will be considered for "fast-tracking" into the doctoral program, entering at Ph.D.1. They follow the M.A. program (Thesis option) and if at the end of the first year their work is evaluated successfully they go on to complete the remaining requirements of the Ph.D. program.

28.4 Application Procedures

Applications will be considered upon receipt of:

1. application form;
2. transcripts;
3. two letters of reference;
4. \$80 application fee;
5. a writing sample;
6. statement of proposed research.

All information is to be submitted directly to the Graduate Coordinator.

Applications close January 15.

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

28.5 Program Requirements

M.A. Degree

The Department offers two options towards the M.A. degree, one with a thesis and the other without thesis. Both options consist of 48 credits and are designed to be completed in four terms (of 12 credits each), but it is possible to complete the program in three terms, or one calendar year.

The two programs are similar; the non-thesis option substitutes two seminars and a research paper for the thesis. Both options require participation in a series of sessions on bibliography and research methods.

M.A. in English (Thesis) (48 credits)

Required Course (6 credits)

ENGL 694 (6) Bibliography Seminar

Complementary Courses (15 credits)

15 credits of Departmental seminar courses at the 500, 600 or 700 level

Thesis Component – Required (27 credits)

ENGL 695 (3) M.A. Thesis Preparation

ENGL 699 (24) M.A. Thesis

M.A. in English (Non-Thesis) (48 credits)

Required Courses (9 credits)

ENGL 693 (3) Research Methods

ENGL 694 (6) Bibliography Seminar

Complementary Courses (21 credits)

21 credits of Departmental seminar courses at the 500, 600 or 700 level

Project Component – Required (18 credits)

ENGL 681 (3) M.A. Research Paper Preparation 1

ENGL 682 (3) M.A. Research Paper Preparation 2

ENGL 683 (3) M.A. Research Paper Preparation 3

ENGL 684 (9) M.A. Research Paper

Ph.D. Degree

Doctoral students are expected to complete in their first year (Ph.D.2) the two halves of the compulsory proseminar ENGL 787 (taken in the fall term) and ENGL788 (taken in the winter term) and four other courses, but may substitute for the two second-term courses one extended supervised research project. This course work must be chosen in order to make possible the identification of a major and a minor area of concentration. In Ph.D.3, candidates complete a compulsory research project in the area of the dissertation and submit the dissertation proposal. The language requirement must be fulfilled before the dissertation proposal is approved.

It is the policy of the Department to urge candidates to complete the Ph.D. program within six years. A candidate intending to submit the thesis to meet the deadline for Spring Convocation must give notice of this intention before January 1. A candidate intending to meet the deadline for Fall Convocation must give such notice before May 1.

Ph.D. in English

Complementary Courses (12 credits)

four 3-credit Departmental seminars

or two 3-credit Departmental seminars and

ENGL 796 (6) Research Project

Comprehensive Component – Required (15 credits)

ENGL 787 (3) Research Seminar

ENGL 788 (3) Research Seminar 2

ENGL 797 (6) Compulsory Research Project

ENGL 798 (3) Dissertation Proposal

28.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click **Class Schedule**) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. **Class Schedule lists courses by term and includes days, times, locations, and names of instructors.**

Courses with numbers ending D1 and D2 are taught in two consecutive terms (most commonly Fall and Winter). Students must register for both the D1 and D2 components. No credit will be

given unless both components (D1 and D2) are successfully completed in consecutive terms.

Note: All undergraduate courses administered by the Faculty of Arts (courses at the 100- to 500-level) have limited enrolment.

The course credit weight is given in parentheses after the title.

The following is a list of all courses in English approved for offering at the graduate level. Courses at the 500 level are also open to advanced undergraduates. A maximum of two courses at the 500 level may be taken by Master's students.

ENGL 500 MIDDLE ENGLISH. (3) (Fall) (The Medieval Dream Vision)

ENGL 501 16TH CENTURY. (3) (Fall) (Sex Differences and Sexual Dissidence in Early Modern Culture)

ENGL 502 17TH CENTURY. (3)

ENGL 503 18TH CENTURY. (3) (Winter) (Hero-Villain)

ENGL 504 19TH CENTURY. (3)

ENGL 505 20TH CENTURY. (3) (Winter) (Modern Poetry and the "Fascination" with Difficulty)

ENGL 516 SHAKESPEARE. (3)

ENGL 525 AMERICAN LITERATURE. (3) (Winter) (The City and 19th Century American Writing)

ENGL 527 CANADIAN LITERATURE. (3) (Fall) (Green-scapes: The Environment and the Canadian Imagination)

ENGL 528 CANADIAN LITERATURE. (3)

ENGL 529D1 (1.5), ENGL 529D2 (1.5) INTERDISCIPLINARY SEMINAR - NORTH AMERICAN STUDIES. (Students must register for both ENGL 529D1 and ENGL 529D2.) (No credit will be given for this course unless both ENGL 529D1 and ENGL 529D2 are successfully completed in consecutive terms) (ENGL 529D1 and ENGL 529D2 together are equivalent to ENGL 529)

ENGL 530 LITERARY FORMS. (3) (Fall) (The Short Story)

ENGL 533 LITERARY MOVEMENTS. (3)

ENGL 540 LITERARY THEORY 1. (3) (Winter) (Philosophy of Literature)

ENGL 545 TOPICS IN LITERATURE & SOCIETY. (3)

ENGL 553 OLD ENGLISH LITERATURE. (3) (Winter) (Prerequisite (Undergraduate): ENGL 351) (Poems of Wisdom and Experience in the *Exeter Book*)

ENGL 565 MEDIEVAL DRAMA WORKSHOP. (3)

ENGL 566 SPECIAL STUDIES IN DRAMA 1. (3) (Winter) (Queer Theatre in Canada and the U.S.)

ENGL 568 TOPICS IN THE DRAMATIC FORM. (3)

ENGL 585 CULTURAL STUDIES: FILM. (3) (Fall) (Ecology of Film) Advanced study of a specific topic in film.

ENGL 586 CULTURAL STUDIES: OTHER MEDIA. (3) Advanced study of a specific topic in a medium or media other than film, such as television, advertising, radio, or the internet.

ENGL 587 THEORETICAL APPROACHES TO CULTURAL STUDIES. (3) Advanced study of theoretical issues in and approaches to cultural studies.

ENGL 604 OLD ENGLISH LANGUAGE AND PROSE LITERATURE. (3)

ENGL 607 MIDDLE ENGLISH LITERATURE. (3) (Winter) (Prison and Exile in Late Medieval and Tudor England)

ENGL 608 CHAUCER 1. (3)

ENGL 609 CHAUCER 2. (3)

ENGL 615 SHAKESPEARE. (3) (Winter) (Shakespeare: Public and Private)

ENGL 616 ELIZABETHAN AND JACOBEAN DRAMA. (3)

ENGL 640 THE AMERICAN NOVEL. (3)

ENGL 661 SEMINAR OF SPECIAL STUDIES. (3)

ENGL 662 SEMINAR OF SPECIAL STUDIES. (3)

ENGL 675 LITERARY CRITICISM. (3)

ENGL 680 CANADIAN LITERATURE. (3) (Winter) (The Canadian Novel)

ENGL 681 M.A. RESEARCH PAPER PREPARATION 1. (3)

ENGL 682 M.A. RESEARCH PAPER PREPARATION 2. (3)

ENGL 683 M.A. RESEARCH PAPER PREPARATION 3. (3)

ENGL 684 M.A. RESEARCH PAPER. (9) The writing of the research paper.

ENGL 684D1 (4.5), ENGL 684D2 (4.5) M.A. RESEARCH PAPER. (Students must register for both ENGL 684D1 and ENGL 684D2) (No credit will be given for this course unless both ENGL 684D1 and ENGL 684D2 are successfully completed in consecutive terms) (ENGL 684D1 and ENGL 684D2 together are equivalent to ENGL 684) The writing of the research paper.

ENGL 687 RESEARCH SEMINAR. (3) (Fall/Winter) (Independent Reading Course)

ENGL 690 SEMINAR OF SPECIAL STUDIES. (3)

ENGL 693 RESEARCH METHODS. (3) Bibliography for the research paper proposal.

ENGL 694 BIBLIOGRAPHY SEMINAR. (6) (Fall) An introduction to research methods.

ENGL 695 M.A. THESIS PREPARATION. (3) Independent thesis preparation. This involves background reading and the preparation of a working bibliography for the thesis, and the preparation of a formal thesis proposal.

ENGL 699 M.A. THESIS. (24)

ENGL 699D1 (12), ENGL 699D2 (12) M.A. THESIS. (Students must register for both ENGL 699D1 and ENGL 699D2) (No credit will be given for this course unless both ENGL 699D1 and ENGL 699D2 are successfully completed in consecutive terms) (ENGL 699D1 and ENGL 699D2 together are equivalent to ENGL 699)

ENGL 699J1 M.A. THESIS. (8) (Students must also register for ENGL 699J2 and ENGL 699J3) (No credit will be given for this course unless ENGL 699J1, ENGL 699J2 and ENGL 699J3 are all successfully completed in consecutive terms) (ENGL 699J1, ENGL 699J2 and ENGL 699J3 together are equivalent to ENGL 699)

ENGL 699J2 M.A. THESIS. (8) (Prerequisite: ENGL 699J1) (Students must also register for ENGL 699J3) (No credit will be given for this course unless ENGL 699J1, ENGL 699J2 and ENGL 699J3 are all successfully completed in consecutive terms) (ENGL 699J1, ENGL 699J2 and ENGL 699J3 together are equivalent to ENGL 699) See ENGL 699J1 for course description.

ENGL 699J3 M.A. THESIS. (8) (Prerequisite: ENGL 699J2) (No credit will be given for this course unless ENGL 699J1, ENGL 699J2 and ENGL 699J3 are all successfully completed in consecutive terms) (ENGL 699J1, ENGL 699J2 and ENGL 699J3 together are equivalent to ENGL 699) See ENGL 699J1 for course description.

ENGL 699N1 M.A. THESIS. (12) (Students must also register for ENGL 699N2) (No credit will be given for this course unless both ENGL 699N1 and ENGL 699N2 are successfully completed in a twelve month period) (ENGL 699N1 and ENGL 699N2 together are equivalent to ENGL 699)

ENGL 699N2 M.A. THESIS. (12) (Prerequisite: ENGL 699N1) (No credit will be given for this course unless both ENGL 699N1 and ENGL 699N2 are successfully completed in a twelve month period) (ENGL 699N1 and ENGL 699N2 together are equivalent to ENGL 699)

See ENGL 699N1 for course description.

ENGL 708 STUDIES IN A LITERARY FORM. (3) (Fall) (Angels and She-Devils: Women on Stage in the Long Eighteenth Century)

ENGL 710 RENAISSANCE STUDIES. (3)

ENGL 714 RENAISSANCE POETRY. (3)

ENGL 716 SPECIAL STUDIES IN SHAKESPEARE. (3)

- ENGL 722 MILTON.** (3)
- ENGL 726 NARRATIVE PROSE OF 18TH CENTURY.** (3)
- ENGL 730 ROMANTIC THEORY AND POETRY.** (3) (Fall) (Romanticism and Its Critics)
- ENGL 731 19TH CENTURY STUDIES.** (3)
- ENGL 733 VICTORIAN NOVEL.** (3) (Winter) (Novels with a Conscience)
- ENGL 734 STUDIES IN FICTION.** (3) (Fall) (South African Fiction)
- ENGL 736 MODERN POETRY.** (3)
- ENGL 757 MODERN DRAMA.** (3) (Fall) (Contemporary British Theatre)
- ENGL 761 20TH CENTURY NOVELISTS.** (3) (Fall) (Later British Modernist Fiction)
- ENGL 770 STUDIES IN AMERICAN LITERATURE.** (3) (Winter) (Contextualizing US Fiction, 1960-2000)
- ENGL 776 FILM THEORY.** (3) (Winter) (Cinematic Bodies)
- ENGL 785 STUDIES IN LITERARY THEORY.** (3)
- ENGL 786 RESEARCH SEMINAR.** (3) (Fall/Winter) (Independent Reading Course)
- ENGL 787 RESEARCH SEMINAR 1.** (3)
- ENGL 788 RESEARCH SEMINAR 2.** (3)
- ENGL 796 RESEARCH PROJECT.** (6) (Restriction: Ph.D Candidates)
- ENGL 797 COMPULSORY RESEARCH PROJECT.** (6) (Restriction: Ph.D Candidates)
- ENGL 798 DISSERTATION PROPOSAL.** (3) (Restriction: Ph.D Candidates)

29 Environment

McGill School of Environment
 Downtown Campus
 3534 University Street
 Montreal, QC H3A 2A7
 Telephone: (514) 398-2827
 Fax: (514) 398-1643

Macdonald Campus
 Rowles House
 21,111 Lakeshore Road
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Coordinator — C. Zhu
 Telephone: (514) 398-2827
 Fax: (514) 398-1643
 E-mail: grad.mse@mcgill.ca
 Website: www.mcgill.ca/mse

Director — N. Roulet

29.1 Staff

Professors

- P.G. Brown; B.A.(Haver.), M.A., Ph.D.(Col.) (*joint appt. with Geography and Natural Resource Sciences*)
- C. Chapman; B.Sc., M.A., Ph.D.(Alta.) (*joint appt. with Anthropology*)
- N. Roulet; B.Sc., M.Sc.(Trent); Ph.D.(McM.) (*joint appt. with Geography*) (*James McGill Professor*)

Associate Professors

- M. Badami; B.Tech., M.Sc.(IIT), M.E.Des.(Calg.), Ph.D.(Br. Col.) (*joint appt. with School of Urban Planning*)
- S. De Blois; B.Sc.(Agr.)(McG.), M.Sc., Ph.D.(Montr.) (*joint appt. with Plant Science*)

- F. Fabry; B.Sc., M.Sc., Ph.D.(McG.) (*joint appt. with Atmospheric and Oceanic Sciences*)
- G. Mikkelsen, Gregory; B.A.(Trinity), M.S., Ph.D.(Chic.) (*joint appt. with Philosophy*)
- A. Ricciardi; B.Sc.(Agr.), M.Sc., Ph.D.(McG.) (*joint appt. with Redpath Museum*)
- R. Sieber; B.Sc.(Mich. St.), M.P.A.(W. Mich.), Ph.D.(Rutg.) (*joint appt. with Geography*)

Assistant Professors

- E. Bennett; B.A.(Oberlin), M.Sc., Ph.D.(Wisc.) (*joint appt. with Natural Resource Sciences*)
- J. Ellis; B.A.(Calg.), LL.B., B.C.L.(McG.), LL.M.(Br. Col.) (*joint appt. with Law*)
- I. Hirose; B.A., M.A.(Waseda), Ph.D.(St. And.) (*joint appt. with Philosophy*)
- B. Leung; B.Sc.(Br. Col.); Ph.D.(Car.) (*joint appt. with Biology*)
- G. Peterson; B.Sc.(Wat.), M.Sc., Ph.D.(Flor.) (*joint appt. with Geography*)
- R. Sengupta; B.Sc.(Bom.), M.Sc.(IIT), Ph.D.(S. Illinois) (*joint appt. with Geography*)
- I. Vaccaro; B.A.(Barcelona), D.E.A.(Paris), M.A., Ph.D.(Wash.) (*joint appt. with Anthropology*)

Faculty Lecturers

- C. Duncan; B.A.(Qu.), M.A., Ph.D.(York (Can.))
- G. McCourt; B.Sc., M.Sc.(Alta.); M.Sc.(McG.)
- J. Marshall; B.A.(McG.), M.A.(Tor.), Ph.D.(McG.)

Associate Members

- Agricultural Economics:* J. Henning, P. Thomassin
Agricultural and Biosystems Engineering: B. Bonnell
Anthropology: A. Costopoulos, J. Galaty
Architecture: A. Friedman
Atmospheric and Oceanic Sciences: P. Ariya, C. Lin, R. Stewart
Avian Science and Conservation Centre: D. Bird
Biology: L. Chapman, A. Gonzalez, I. Gregory-Eaves, M. Lechowicz, B. McGill, C. Potvin
Bioresource Engineering: S. Barrington, R. Kok
Chemical Engineering: N. Tufenkji, V. Yargeau
Civil Engineering and Applied Mechanics: S. Gaskin, S. Ghoshal, V.T.V. Nguyen, J. Nicell
Dietetics and Human Nutrition, School of: T. Johns, H. Kuhnlein
Earth and Planetary Sciences: D. Baker, A. Mucci, J. Paquette
Economics: R. Cairns, M. Frankman, C. Green, F. Grimard, T. Naylor
Geography: G. Chmura, O. Coomes, T. Meredith, T. Moore, W.H. Pollard, N. Roulet
History: M. Echenberg
Law, Faculty of: J. Glenn
Management, Faculty of: S. Maguire, V. Verter
Medicine, Ethics, Law: M. Somerville
Natural Resource Sciences: B. Côté, M. Curtis, J.W. Fyles, W. Hendershot, R. Titman, T. Wheeler
Parasitology, Institute of: M. Scott
Pathology: B. Case
Philosophy: P. Buckley
Plant Science: C. Begg, P. Dutilleul, D. Smith, M. Waterway
Political Science: P. Oxhorn
Redpath Museum: D.M. Green
Sociology: U. Locher
Urban Planning, School of: J. Wolfe

29.2 Programs Offered

Resolving environmental issues requires a dialogue between pure and applied sciences and the social sciences and humanities. The degradation of the biological and biophysical environment has roots in the structure of human societies while solutions to environmental problems impact on human livelihoods.

A number of academic departments and institutes at McGill promote graduate-level research and training on environmental topics and have faculty members whose main research interest falls in this domain. As such, environmental research is wide-

spread throughout the McGill community. The Environment Option provides a vehicle whereby discipline-based graduate programs can easily and effectively incorporate collaborations from at least one other discipline into their research.

Goals of the Option

To provide thesis or non-thesis students in existing graduate programs with an understanding of how knowledge is transferred into action with regard to the environment; to develop an appreciation of the role of scientific, political, socio-economic, and ethical judgments in influencing that process.

To provide a forum whereby graduate students in environment throughout the University bring their disciplinary perspectives together and enrich each other's learning through structured courses, formal seminars, and informal discussions and networking.

29.3 Admission Requirements

Once accepted into a partner department, candidates will apply for admission to the Environment Option through the McGill School of Environment. Their acceptability will be based on their academic experience and performance, and availability of a potential MSE accredited supervisor or co-supervisor for their proposed research.

29.4 Program Requirements

Students admitted into the Environment Option will be supervised or co-supervised by an accredited McGill faculty member. Their advisory committee will include at least one individual from outside the home department. It is expected that the thesis, dissertation or project as well as the final seminar presentation will contain an environmental component and will include a discussion of the applied implications of the research findings. Together with the courses common to the Environment Option, specific course requirements for each program are given within the departmental listings cited below.

Program List

The Environment option is currently available with the following graduate programs:

Anthropology

M.A., see section "M.A. in Anthropology (Thesis) Environment Option/Concentration"

Atmospheric and Oceanic Sciences

M.Sc., see section "M.Sc. in Atmospheric and Oceanic Sciences (Thesis) – Environment Option/Concentration"

Biology

M.Sc., see section "M.Sc. in Biology – Environment Option"

Ph.D., see section "Ph.D. in Biology – Environment Option"

Bioresource Engineering

M.Sc., see section "M.Sc. in Bioresource Engineering (Thesis) – Environment Option (46 credits)"

M.Sc. (Applied), see section "M.Sc. Applied in Bioresource Engineering (Non-Thesis) – Environment Option (45 credits)"

Ph.D., see section "Ph.D. in Bioresource Engineering – Environment Option"

Earth and Planetary Sciences

M.Sc., see section "M.Sc. in Earth and Planetary Sciences (Thesis) – Environment Option/Concentration"

Ph.D., see section "Ph.D. in Earth and Planetary Sciences; Environment Option/Concentration"

Entomology

M.Sc., see section "M.Sc. in Entomology (Thesis) – Environment Option/Concentration"

Ph.D., see section "Ph.D. in Entomology – Environment Option/Concentration"

Geography

M.A., see section "M.A. in Geography (Thesis) – Environment Option/Concentration"

M.Sc., see section "or M.Sc. in Geography (Thesis) – Environment Option/Concentration"

Ph.D., see section "Ph.D. in Geography – Environment Option/Concentration"

Law

LL.M., see section "Master of Laws (LL.M.) (Thesis) – Environment Option/Concentration"

LL.M. (Non-Thesis), see section "Master of Laws (LL.M.) (Non-Thesis) – Environment Option/Concentration"

Medicine, Experimental

M.Sc., see section "M.Sc. in Experimental Medicine (Thesis) – Environment Option/Concentration"

Ph.D., see section "Ph.D. in Experimental Medicine – Environment Option/Concentration"

Microbiology

M.Sc., see section "M.Sc. in Microbiology (Thesis) – Environment Option/Concentration"

Ph.D., see section "Ph.D. in Microbiology – Environment Option/Concentration"

Parasitology

M.Sc., see section "M.Sc. in Parasitology (Thesis) – Environment Option/Concentration"

Ph.D., see section "Ph.D. in Parasitology – Environment Option/Concentration"

Philosophy

Ph.D., see section "Ph.D. in Philosophy; Environment Option/Concentration"

Plant Science

M.Sc., see section "M.Sc. in Plant Science (Thesis) – Environment Option/Concentration"

Ph.D., see section "Ph.D. in Plant Science – Environment Option/Concentration"

Renewable Resources

M.Sc., see section "M.Sc. in Renewable Resources (Thesis) – Environment Option/Concentration"

Ph.D., see section "Ph.D. in Renewable Resources – Environment Option/Concentration"

Sociology

M.A., see section "M.A. in Sociology (Thesis) Environment Option/Concentration"

Ph.D., see section "Ph.D. in Sociology – Environment Option/Concentration"

29.5 Courses

ENVR 519 GLOBAL ENVIRONMENTAL POLITICS. (3) (Prerequisite: ENVR 201 or ENVR 203 or permission of instructor.) (Restrictions: Open to students in the Environment Option (available to other students with permission of instructor).) (Not open to students who have taken ENVR 580 -- section 001 -- in Winter 2002, Fall 2003, or Fall 2004.) (Note: This course has been offered three times as a Topics in Environment Course.) How the problem of environmental degradation is dealt with at the international level. The scope and nature of global environmental protection issues that cross boundaries, both physical and conceptual. Actors, structures

and processes of international society. Consideration of global commons and transnational resources and of environmental externalities.

ENVR 540 ECOLOGY OF SPECIES INVASIONS. (3) (Winter) (3 hours lecture) (Prerequisite: BIOL 308 or permission of instructor.) (Restrictions: Not open to U1 or U2 students. Not open to students who are taking or have taken BIOL 540.) Causes and consequences of biological invasion, as well as risk assessment methods and management strategies for dealing with invasive species.

ENVR 544 ENVIRONMENTAL MEASUREMENT AND MODELLING. (3) (Prerequisites: NRSC 430 or GEOG201 or URBP 505 or permission of instructor) (Restriction: Students registered in Environment Option (or permission of instructor).) Utility of geographic information systems, remote sensing and spatially-explicit modelling for environmental planning in conjunction with analytical frameworks used in the decision-making process (e.g., cost-benefit analysis, life-cycle analysis and multi-criteria decision making).

ENVR 580 TOPICS IN ENVIRONMENT 3. (3) (Prerequisite: Permission of instructor.) Advanced-level seminars and discussion of interdisciplinary aspects of current problems in environment led by staff and/or special guests. This course is offered on an irregular basis.

ENVR 585 READINGS IN ENVIRONMENT 2. (3) (Prerequisites: ENVR 400 and ENVR 401, or permission of instructor.) Interdisciplinary literature project/essays related to environment, enabling advanced-level study under guidance of qualified MSE staff in areas outside the scope of individual departments. Proposed topic and method of evaluation must be approved by the Associate Director one month before the beginning of term. Contact the Program Coordinator for information.

ENVR 610 FOUNDATIONS OF ENVIRONMENTAL POLICY. (3) (Restriction: Enrolment in the Graduate Environment Option or enrolment in the Neotropical Environment Option (NEO) or permission of the instructor.) Analysis of current environmental policies to reveal implicit and explicit assumptions regarding scientific methods, hypothesis testing, subject/object, causality, certainty, deities, health, development, North-South concerns for resources, commons, national sovereignty, equity. Discussion of implications of such assumptions for building future environmental policies.

ENVR 612 TROPICAL ENVIRONMENTAL ISSUES. (3) (Course will only be offered if enrolment is five students or more. Enrolment in the Neotropical Environment Option (NEO) or permission of the instructor.) Interdisciplinary seminar presenting and comparing a variety of perspectives on environmental issues in Latin America. The course focuses on how different disciplines work collaboratively toward the resolution of environmental problems. Some issues include watershed management, bioprospecting and drug discovery, indigenous knowledge and the role of Institutions in protecting biodiversity.

ENVR 620 ENVIRONMENT AND HEALTH OF SPECIES. (3) (Restriction: Open to students in the Environment Option (available to other students with permission of instructor).) How major environmental problems affect the health of human and non-human species, and how environment and health interact at different spatial and temporal scales and with different components of the ecosystem. Immediate, chronic and evolutionary consequences on health. Uncertainty and causation.

ENVR 622 SUSTAINABLE LANDSCAPES. (3) (Restriction: Students registered in Environment Option, or permission of instructor.) (Note: An understanding of ecological principles is required to take this course. Comparative case studies will be used.) Tools and knowledge needed to evaluate landscapes for sustainable management. Processes that shape landscapes, consequences of alternate landscape patterns on ecological flows, implications of management choices on biodiversity and sustainability, and need for social innovations.

ENVR 630 CIVILIZATION AND ENVIRONMENT 1. (3) (Restriction: Not open to students who have taken ENVR 680 in Fall 2004 or Fall 2005.) (Note: This course is given jointly between McGill University, UQAM and Université de Montréal. Some lectures and

readings will be in French. Therefore, students should be able to read and preferably understand spoken French.)

Civilization and its relation to life and the world, the nature of civilization and the responsibilities of citizenship. Landscape design, economic development, science and citizen experts, governance and environment, beauty.

ENVR 631 CIVILIZATION AND ENVIRONMENT 2. (3) (Prerequisite: ENVR 630 or permission of the instructor.) (Restriction: Not open to students who have taken ENVR 680 in Winter 2005 or Winter 2006.) (Note: This course is given jointly between McGill University, UQAM and Université de Montréal. Some lectures and readings will be in French. Therefore, students should be able to read and preferably understand spoken French.) Civilization and its relation to life and the world, the nature of civilization and the responsibilities of citizenship. Commercial redesign of life, power and respect, the status of civilization in alternative cosmologies, urban environmental duties, and an economy of stewardship.

ENVR 650 ENVIRONMENTAL SEMINAR 1. (1) (Restriction: Open to students registered in Environment Option.) Interdisciplinary environmental research seminars with the goals of appreciating both the breadth and interconnectedness of environmental research questions.

ENVR 651 ENVIRONMENTAL SEMINAR 2. (1) (Restriction: Open to students registered in the Environment Option.) Environmental seminars and workshops focused on critical thinking, critical review of articles, team work, effective public speaking, grantmanship.

ENVR 652 ENVIRONMENTAL SEMINAR 3. (1) (Prerequisite: ENVR 650.) (Restriction: Open to students registered in Environment Option.) Final research seminar.

ENVR 680 TOPICS IN ENVIRONMENT 4. (3) (Restriction: students taking the Neotropical Environment Option.) (Prerequisite: Permission of Instructor.) Seminars and discussion of advanced, interdisciplinary aspects of current of current problems in environment led by staff and/or special guests.

30 Epidemiology and Biostatistics

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Chair — R.Fuhrer

30.1 Staff

Emeritus Professors

M.R. Becklake; M.B.B.Ch., M.D.(Witw.), F.R.C.P.
J.C. McDonald; M.B. B.S., M.D.(Lond.), M.Sc.(Harv.),
M.R.C.P.(Lond.), F.R.C.P.(C)

Professors

M. Abrahamowicz; Ph.D.(Cracow) (*James McGill Professor*)
J.F. Boivin; M.D.(Laval), S.M., Sc.D.(Harv.) (*on leave*)
E.L.F. Franco; M.P.H., Dr.P.H.(Chapel Hill) (*James McGill Professor*)
R. Fuhrer; B.A. (CUNY (Brooklyn College)), M.Sc., Ph.D.(UCSF)
(*Canada Research Chair*)
T.W. Gyorkos; B.Sc.(McG.), M.Sc.(Bishop's), Ph.D.(McG.)
J.A. Hanley; B.Sc., M.Sc.(N.U.I.), Ph.D.(Wat.)
J. Heymann; B.A. (Yale), M.P.H., M.D., Ph.D. (Harv.) (*joint appt. with Political Science*) (*Canada Research Chair*)
C. Infante-Rivard; M.D.(Montr.), M.P.H.(Calif.-LA), Ph.D.(McG.),
F.R.C.P.(C) (*James McGill Professor*)

L. Joseph; M.Sc., Ph.D.(McG.)
 M.S. Kramer; B.A.(Chic.), M.D.(Yale) (*joint appt. with Pediatrics*)
(James McGill Professor)
 A. Lippman; B.A.(C'nell) Ph.D.(McG.)
 J. McCusker; M.D., C.M.(McG.), M.P.H., Ph.D.(Col.)
 R. Menzies; M.D., C.M., M.Sc.(McG.) (*joint appt. with Medicine*)
 O.S. Miettinen; M.D.(Helsinki), M.P.H., M.S., Ph.D.(Minn.)
 G. Paradis; M.D., M.Sc.(McG.)
 I.B. Pless; B.A., M.D.(W.Ont.) (*joint appt. with Pediatrics*)
 S.H. Shapiro B.S.(Bucknell), M.S., Ph.D.(Stan.)
 S. Suissa; M.Sc.(McG.), Ph.D.(Flor.) (*joint appt. with Medicine*)
(James McGill Professor)
 R. Tamblyn; M.Sc.(McM.), Ph.D.(McG.) (*joint appt. with Medicine*)
(James McGill Professor)
 G. Thériault; M.D.(Laval), M.I.H., Dr.P.H.(Harv.)
 C. Wolfson; B.Sc., M.Sc., Ph.D.(McG.) (*joint appt. with Medicine*)
 S. Wood-Dauphinee; B.Sc.(Phys.Ther.), Dip. Ed., M.Sc.A.,
 Ph.D.(McG.) (*joint appt. with Physical and Occupational
 Therapy*)

Associate Professors

A. Ciampi; M.Sc., Ph.D.(Qu.), Ph.D.(Rome)
 A. Dufresne; B.Sc., M.Sc.,(Que.), Ph.D.(McG.)
 P. Héroux; B.Sc.(Laval), M.Sc., Ph.D.(I.N.R.S.)
 J. Pickering; B.A.(Tor.), M.D., M.Sc.(McG.) (*joint appt. with
 Medicine*)
 R.W. Platt; M.Sc.(Man.), Ph.D.(Wash.) (*joint appt. with Pediatrics*)
 M. Rossignol; B.Sc., M.D.(Sher.), M.Sc.(McG.)
 N. Steinmetz; B.Sc., M.D., C.M.(McG.), M.P.H.(Mich.), F.R.C.P.(C)
 P. Tousignant; B.A., M.D.(Laval), M.Sc.(McG.), F.R.C.P.(C) (PT)

Assistant Professors

A. Adrien; M.D., M.Sc.(McG.)
 J. Atherton; M.Sc.(MIT), Ph.D.(McG.)
 A. Benedetti; B.Sc., M.Sc., Ph.D.(McG.) (*joint appt. with Medicine*)
 D. Buckeridge; M.D.(Qu.), M.Sc.(Tor.), Ph.D.(Stan.) (*Canada
 Research Chair*)
 J. Cox; M.D.(Dal.), M.Sc.(McG.) (*joint appt. with Family Medicine*)
 N. Dendukuri; M.Sc.(IIT), Ph.D.(McG.) (PT)
 E. Loucks; B.Sc., Ph.D.(Br. Col.) (*joint appt. with Psychiatry*)
 A. Manges, B.A.(Col.), M.P.H., Ph.D.(Calif., Berk.)
 E.E.M. Moodie; B.A.(Winn.); MPhil(Camb.), Ph.D.(Wash.)
 M. Pai; MBBS(Stanley Medical College), M.D.(Christian Medical
 College), Ph.D.(Calif., Berk.)
 L. Patry; B.Sc., M.D.(Laval), F.R.C.P.(C) (PT)
 A. Quesnel-Vallée; B.A., M.Sc.(Montr.), M.A., Ph.D.(Duke) (*joint
 appt. with Sociology*)
 E. Strumpf; B.A.(Smith), Ph.D.(Harv) (*joint appt. with Economics*)
 G. Tan; D.Phil.(Oxf.) (PT)

Associate Members

Dentistry: P. Allison, J. Feine; *Pediatrics:* G. Dougherty, F. Ducharme, B. Foster, G. Pekeles, C. Quach-Thanh; *Family Medicine:* T. Tannenbaum; *Dietetics and Human Nutrition:* K. Gray-Donald; *Geography:* N. Ross; *Medicine:* A. Barkun, M. Behr, S. Bernatsky, T. Brewer, J. Bourbeau, P. Brassard, J. Brophy, A. Clarke, K. Dasgupta, P. Dobkin, M. Eisenberg, P. Ernst, M. Goldberg, S. Kahn, M. Klein, E. Latimer, J.D. MacLean, N. Mayo, L. Pilote, E. Rahme, K. Schwartzman, M. Sewitch, I. Shrier, V. Tagalakis; *Pathology:* B. Case; *Psychiatry:* N. Schmitz, B. Thombs

Lecturers

J.P. Gauvin, M. Malowany, B. Pathak, W. Wood

Instructors

P. Dubé

Adjunct Professors

Direction régionale de la santé publique: R. Allard, M. Baillargeon, Y. Bonnier-Viger, R. Lessard, E. Robinson; *Hôpital Hôtel-Dieu:* J. Leloirier; *Hôpital Sacré-Coeur:* D. Gautrin; *Statistics Canada:* J. Berthelot; *U. de Montréal:* J. Siemiatycki; *IRSST:* C. Dion; *Cree Council of Quebec:* F. Richer, *Caro Research:* J. Caro; *Alcan:* I. Arnold, S. Martin; *Stablis:* P. Simon; *Mount Sinai:* M. Baltzan; *INSPQ:* R. Masse, P. Robillard, S. Stock; *Univ. of Sherbrooke:*

E. Roy; *Univ. of Br. Col.:* J.P. Collet; *Independent:* L. Arnold, J. Lemke, M. Schweigert, L. Scott

30.2 Programs Offered

The Department of Epidemiology and Biostatistics offers four programs of study: Diploma, M.Sc. (Thesis), M.Sc. (Non-Thesis) and Ph.D.

Students in M.Sc. and Ph.D. degree programs may choose to follow a program of study in either of two streams: epidemiology or biostatistics. The differences between the streams are in the specific course requirements and the focus of the thesis research.

30.3 Admission Requirements

Graduate Diploma in Epidemiology and Biostatistics

Applications to the Diploma program will not be accepted for the 2009-2010 academic year.

Epidemiology Stream

Applicants to the M.Sc. program must hold a Bachelor's degree in a related area, possess a reasonable level of mathematical competency and have a good knowledge of differential and integral calculus at the level of a CEGEP or first year undergraduate course.

Applicants to the Ph.D. program who hold a Master's in Epidemiology are eligible for admission to the core year. Applicants with other graduate level degrees or exceptional students without a Master's degree are also eligible and will be considered for admission to a preparatory year. Complete details on the Ph.D. program are available on our Departmental Website at www.mcgill.ca/epi-biostat-occh/grad/epidemiology/requirements.

Biostatistics Stream

General: An undergraduate degree in mathematics or statistics or its equivalent (an honours degree is preferred but not required). At least three semesters of calculus, two of linear algebra, at least one but preferably two semesters of real analysis, and a full year course/sequence in mathematical statistics preferably at an honours level, e.g. MATH-356/357. Exposure to data analysis is an asset.

M.Sc.: Students admitted into the M.Sc. program will, in general, meet the requirements above.

Ph.D.: Exceptional students without a Master's degree but with the above qualifications will be considered for Ph.D. admission starting with a qualifying year.

Both Streams

Minimum TOEFL scores required, when applicable, 100 on the internet based test, 600 on the paper based test, or 250 on the older computer-based test. Minimum score for IELTS: 6.5.

30.4 Application Procedures

Completed applications, with all supporting documents, must reach the Department by February 1st of the year to which candidate is applying.

Please download required documents from our Website: www.mcgill.ca/epi-biostat-occh, then select the Graduate Studies tab to link to the appropriate degree program.

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate. Students who wish to apply for fellowships are advised to apply earlier than the February 1st deadline. Fellowship information is available at www.mcgill.ca/gps/fellowships.

30.5 Program Requirements

Graduate Diploma in Epidemiology and Biostatistics

(30 credits)

(Applications to the Diploma program will not be accepted for the 2009-2010 academic year.)

Required Courses (17 credits)

EPIB 601* (4) Fundamentals of Epidemiology 1
EPIB 607* (4) Inferential Statistics
EPIB 650 (9) Diploma Dissertation

* Students exempted from either of these courses must replace them with additional Complementary Course credits.

Complementary Courses (13 credits)

13 credits of course work, at the 500-level or higher, chosen in consultation with the student's academic advisor.

M.Sc. Degrees

The Department offers two programs of study towards a M.Sc. degree, the M.Sc. (thesis) and the M.Sc. (non-thesis). Both require completion of a minimum of 48 credits. The same courses are available to students in both programs; only the breadth and depth of knowledge acquired differs.

Students in either program can choose to pursue an epidemiology stream or a biostatistics stream that includes MATH courses described in the entry.

M.Sc. in Epidemiology and Biostatistics (Thesis) – Epidemiology Stream (48 credits)

Required Courses (21 credits)

EPIB 601 (4) Fundamentals of Epidemiology 1
EPIB 602 (3) Fundamentals of Epidemiology 2
EPIB 603 (3) Intermediate Epidemiology
EPIB 605 (1) Practicum
EPIB 607 (4) Inferential Statistics
EPIB 613 (1) Introduction to Statistical Software
EPIB 621 (4) Data Analysis in Health Sciences
EPIB 634 (1) Data Analysis Computer Lab

Students exempted from any of the courses listed above must replace them with additional Complementary Course credits.

Complementary Courses (3 credits)

3 credits of course work, at the 500-level or higher, chosen in consultation with the student's academic advisor or supervisor

Thesis Component – Required (24 credits)

EPIB 690 (24) M.Sc. Thesis

Biostatistics Stream (48 credits)

Required Courses (24 credits)

BIOS 601 (4) Epidemiology: Introduction and statistical models
BIOS 602 (4) Epidemiology: Regression Models
MATH 523 (4) Generalized Linear Models
MATH 533 (4) Honours Regression and Analysis of Variance
MATH 556 (4) Mathematical Statistics 1
MATH 557 (4) Mathematical Statistics 2

Students exempted from any of the courses listed above must replace them with additional Complementary Course credits.

Thesis Component – Required (24 credits)

BIOS 690 (24) M.Sc. Thesis

M.Sc. in Epidemiology and Biostatistics (Non-Thesis) – Epidemiology Stream (48 credits)

Required Courses (21 credits)

EPIB 601 (4) Fundamentals of Epidemiology 1
EPIB 602 (3) Fundamentals of Epidemiology 2
EPIB 603 (3) Intermediate Epidemiology
EPIB 605 (1) Practicum
EPIB 607 (4) Inferential Statistics
EPIB 613 (1) Introduction to Statistical Software
EPIB 621 (4) Data Analysis in Health Sciences

EPIB 634 (1) Data Analysis Computer Lab

Students exempted from any of the courses listed above must replace them with additional Complementary Course credits.

Complementary Courses (21 credits)

21 credits of course work, at the 500-level or higher, chosen in consultation with the student's academic advisor or supervisor

Project Component – Required (6 credits)

EPIB 630 (6) Research Project/Practicum in Epidemiology

Biostatistics Stream (48 credits)

Required Courses (24 credits)

BIOS 601 (4) Epidemiology: Introduction and statistical models
BIOS 602 (4) Epidemiology: Regression Models
MATH 523 (4) Generalized Linear Models
MATH 533 (4) Honours Regression and Analysis of Variance
MATH 556 (4) Mathematical Statistics 1
MATH 557 (4) Mathematical Statistics 2

Students exempted from any of the courses listed above must replace them with additional Complementary Course credits.

Complementary Courses (18 credits)

18 credits of course work, at the 500-level or higher, chosen in consultation with the student's academic advisor or supervisor

Project Component – Required (6 credits)

BIOS 630 (6) Research Project/Practicum in Biostatistics

Ph.D. Degree in Epidemiology and Biostatistics

Students in the Ph.D. program choose between two streams, Epidemiology or Biostatistics. The program trains students in the Epidemiology stream to become independent scientists able to conduct clinical, population-based, environmental, policy and methodological health-related research and make original contributions to the theoretical and scientific foundations of these disciplines. Graduates will be prepared to conduct independent and collaborative research with professionals in other disciplines, to communicate and translate research findings to diverse broad audiences, and to teach epidemiology to students and professionals in health-related disciplines in academic and other settings. Biostatistics students will study theoretical and applied statistics and related fields; the program will train them to become independent scientists able to develop and apply statistical methods in medicine and biology. Graduates will be prepared to develop new statistical methods as needed, apply new and existing methods in a range of collaborative projects, communicate methods and results to collaborators, and teach biostatistics to biostatistics students, students in related fields, and professionals in academic or other settings.

Students in both streams

Required Courses (0 credits)

EPIB 701 (0) Ph.D. Comprehensive Examination or BIOS 701 (0) PhD Comprehensive Examination
EPIB 702 (0) PhD Proposal
or BIOS 702 (0) PhD Proposal

Complementary Courses (45 - 46 credits)

Students in the Epidemiology stream:

21 credits* from the following:

EPIB 601 (4) Fundamentals of Epidemiology 1
EPIB 602 (3) Fundamentals of Epidemiology 2
EPIB 603 (3) Intermediate Epidemiology
EPIB 605 (1) Practicum
EPIB 607 (4) Inferential Statistics
EPIB 613 (1) Introduction to Statistical Software
EPIB 621 (4) Data Analysis in Health Sciences
EPIB 634 (1) Data Analysis Computer Lab

* If a student has not already successfully completed them or their equivalent.

12 credits from the following:

EPIB 608 (3) Advanced Epidemiology

EPIB 609 (3) Seminar on Advanced Methods in Epidemiology
 EPIB 622 (3) Scientific Communication
 EPIB 623 (3) Research Design in Health Sciences

AND **12 credits** of course work, at the 500-level or higher, of which a minimum of 3 credits in biostatistics, 3 credits in substantive topics and 3 credits in epidemiology. Courses must be chosen and approved in consultation with the student's academic advisor.

Students in the Biostatistics stream:

28 credits** from the following:

BIOS 601 (4) Epidemiology: Introduction and statistical models
 BIOS 602 (4) Epidemiology: Regression Models
 BIOS 624 (4) Data Analysis & Report Writing
 MATH 523 (4) Generalized Linear Models
 MATH 533 (4) Honours Regression and Analysis of Variance
 MATH 556 (4) Mathematical Statistics 1
 MATH 557 (4) Mathematical Statistics 2

** If a student has not already successfully completed them or their equivalent.

AND **12 credits**, at the 500-level or higher, in statistics/biostatistics, AND **6 credits**, at the 500 level or higher, in related fields (e.g. epidemiology, social, biomedical sciences). Courses must be chosen and approved in consultation with the student's academic advisor.

THESIS

Students in both streams:

Submit a thesis judged to be an original contribution to knowledge.

30.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Information is also available on the Departmental Website: www.mcgill.ca/epi-biostat-occh, select: graduate studies, then Courses & Timetables under the program of your choice.

Courses with numbers ending D1 and D2 are taught in two consecutive terms (most commonly Fall and Winter). Students must register for both the D1 and D2 components. No credit will be given unless both components (D1 and D2) are successfully completed in consecutive terms.

Note: Special students and students from other departments or universities require the permission of the course instructor.

The course credit weight is given in parenthesis after the title.

EPIDEMIOLOGY

EPIB 525 HEALTH CARE SYSTEMS IN COMPARATIVE PERSPECTIVE. (3) (Prerequisite: Permission of instructor.) (Restriction: Not open to students who are taking or have taken SOCI 525.) (Note: This course is cross-listed in Epidemiology, Biostatistics and Occupational Health and in Sociology) Comparative perspective to illustrate processes involved in the development and evolution of health care systems around the world. Countries examined will represent different welfare state regimes, health care system typologies, levels of development and wealth.

EPIB 527 ECONOMICS FOR HEALTH SERVICES RESEARCH AND POLICY. (3) (NOTE: This course is open to graduate students and advanced undergraduates from all departments, with the permission of the instructor. A background in introductory economics is useful, though not required.) Key health policy topics in developed economies using analytic frameworks and tools from economics. Major topics include health insurance, health care financing, and

the roles of individuals and public and private institutions in the health care system.

EPIB 591 SPECIAL TOPICS IN EPIDEMIOLOGY. (3) (Prerequisite: Permission of the instructor.) (Note: This course is open to graduate students and advanced undergraduates from all departments, with the permission of the instructor.) Special topics in epidemiology.

EPIB 601 FUNDAMENTALS OF EPIDEMIOLOGY 1. (4) (Corequisite: EPIB 607.) (New restriction: Not open to students who have taken EPIB 606.) This course aims to provide a comprehensive introduction to epidemiologic concepts and corresponding terms. After an introduction to the history, definition, and purposes of epidemiology, "core" concepts that are relevant in several areas of investigation (e.g. etiologic research, health care research, and community medicine practice) will be presented.

EPIB 602 FUNDAMENTALS OF EPIDEMIOLOGY 2. (3) Principles of measurement of exposures, covariates, and outcomes in epidemiological research, including design and conduct of surveys; chronic and infectious disease surveillance; screening and diagnostic tests; and qualitative methods.

EPIB 603 INTERMEDIATE EPIDEMIOLOGY. (3) (Prerequisites: EPIB 601, EPIB 602, and EPIB 607.) Concepts and methods for epidemiology at the intermediate level, including causation, measures of disease occurrence and effect, study designs, biases in epidemiologic research, and interaction.

EPIB 605 PRACTICUM. (1) (Prerequisites: EPIB 601 and EPIB 607.) This course gives students the opportunity to integrate knowledge from and apply principles covered in courses EPIB 601 and EPIB 607.

EPIB 607 INFERENCE IN STATISTICS. (4) (Prerequisite (Undergraduate): A first year course in undergraduate differential and integral calculus.) Introduction to the basic principles of statistical inference used in clinical and epidemiologic research. Topics include variability; methods of processing and describing data; sampling and sampling distributions; inferences regarding means and proportions, non-parametric methods, regression and correlation.

EPIB 608 ADVANCED EPIDEMIOLOGY. (3) (Prerequisite: Ph.D. candidates or permission of instructor.) Discussion of methodologic issues in the recent literature, including causal inference, measures of disease frequency, measures of effect, epidemiologic study designs, biases, statistics in epidemiology, and special topics. Discussion of day to day practice of epidemiology. Offered in alternate years or yearly depending on demand.

EPIB 609 SEMINAR ON ADVANCED METHODS IN EPIDEMIOLOGY. (3) (Prerequisites: EPIB 603 and EPIB 608 or equivalent courses or permission of instructor.) (Note: Enrolment in Epidemiology or Permission of Instructor.) A seminar course on selected topics in advanced epidemiological methods, such as concepts of causation, casual inference and residual confounding.

EPIB 613 INTRODUCTION TO STATISTICAL SOFTWARE. (1) (Prerequisite: Enrolment in Epidemiology stream program or permission of instructor.) Introduction to statistical software and data management; including basics of entering, manipulating data and elementary statistical analysis, SAS software, with reference to other packages of potential interest to students (R, Strata, SPSS).

EPIB 615 INTRODUCTION TO INFECTIOUS DISEASE EPIDEMIOLOGY. (3) (Prerequisite: EPIB 601 or Permission of Instructor.) (Note: An undergraduate level biology course is highly recommended.) Introduction to the field of infectious disease epidemiology taught from a public health perspective. Topics include analytic methods, study design, outbreak investigations, surveillance, vaccine development and evaluations, screening, modeling, and infectious causes of cancer or chronic diseases.

EPIB 621 DATA ANALYSIS IN HEALTH SCIENCES. (4) (Prerequisites: EPIB 606, and EPIB 607 or permission of instructor.) Univariate and multivariate statistical techniques for continuous categorical and survival data. Topics include generalized linear models, multiple linear and logistic regression, introductory

survival analysis, model selection. Maximum likelihood and Bayesian approaches will be presented.

EPIB 622 SCIENTIFIC COMMUNICATION. (3) (Note: Enrolment in Epidemiology PhD program or permission of instructor.) This course considers principles of scientific writing and or oral communications. The components of a scientific paper are reviewed, as well as elements of style. Basic elements of oral presentation to scientific audiences will also be addressed.

EPIB 623 RESEARCH DESIGN IN HEALTH SCIENCES. (3) (Prerequisite: EPIB 606.) (Restrictions: Diploma/Degree students in Epidemiology and Biostatistics) Lectures and discussions plus oral and written presentations by students, to provide guidance and experience in the development of objectives, for the formulation and constructive peer criticism of designs for research in the health sciences, including etiologic and evaluative, cross-sectional, case-reference and cohort studies.

EPIB 626 RISKS AND HAZARDS IN EPIDEMIOLOGY. (3) (Prerequisites: EPIB 621 and EPIB 681) Classical and modern methods of analysis for survival, cohort, and case-control studies. Emphasis on the similarity of models used in the analyses of these studies. Hazard functions. Relative-risk functions. Regression modelling. Likelihood function. Interpretation of statistical parameters.

EPIB 627 ANALYSIS OF CORRELATED DATA. (3) (Prerequisites: EPIB 603, EPIB 621, EPIB 634 or permission of instructor.) This course will provide a basic introduction to methods for analysis of correlated, or dependent, data. These data arise when observations are not gathered independently; examples are longitudinal data, household data, cluster samples, etc. Basic descriptive methods and introduction to regression methods for both continuous and discrete outcomes.

EPIB 628 MEASUREMENT IN EPIDEMIOLOGY. (3) (Prerequisites: EPIB 603 and EPIB 621 or Permission of Instructor.) This course will focus on methodological issues related to measures of health status, determinants of health status, and other relevant covariates encountered in clinical and epidemiologic research. Topics to be covered include instrument development, assessment of reliability and validity, item response theory, and latent variable-based measurement models.

EPIB 630 RESEARCH PROJECT/PRACTICUM IN EPIDEMIOLOGY. (6) (Restriction: non-thesis M.Sc. students who have completed requirements) Students will critically assess research and summarize the findings in a research paper on a health related topic from an epidemiologic perspective. Topic to be approved by faculty member who will direct student and evaluate the paper.

EPIB 631 PHARMACOEPIDEMIOLGY 2. (2) (Offered only in Summer term.) (Prerequisites: EPIB 633, or instructor's permission, and basic knowledge of epidemiology and biostatistics) An advanced course on the methodology to be used when confronted with an alleged adverse or beneficial event related to a drug, a vaccine or a biological product. It includes four parts: i) designs for etiological research; ii) surveillance (modelling, statistical appraisal); iii) hazard functions in pharmacoepidemiology; iv) exposure assessment.

EPIB 633 PHARMACOEPIDEMIOLGY 1. (2) (Offered only in Summer Term) This course is an introduction to epidemiological thinking as it applies to the evaluation of the effects of drugs on the health of populations. It is composed of four parts: i) assessment of adverse event reports; ii) basic designs for pharmacoepidemiologic investigations; iii) data gathering in pharmacoepidemiology; iv) introduction to the use of epidemiologic methods for the assessment of benefits and economic impacts of drug.

EPIB 634 DATA ANALYSIS COMPUTER LAB. (1) (Prerequisites: EPIB 606, EPIB 607, and EPIB 613.) (Corequisite: EPIB 621.) Computer lab for the multivariable regression analyses, using statistical software packages such as SAS.

EPIB 635 CLINICAL TRIALS. (3) (Prerequisites: EPIB 606, EPIB 607) Lectures and discussions on issues, approaches and techniques of clinical trials including assessment of feasibility, ethics, randomization, strengths and weaknesses of alternative designs,

sample size requirements, protocol development, trial management and analysis, reporting and interpretation of trial results.

EPIB 637 INFECTIOUS AND PARASITIC DISEASE EPIDEMIOLOGY. (3) (Offered only in Summer term.) (Prerequisite: EPIB 606 or equivalent) This course provides in-depth review of principles of infectious disease epidemiology and illustrates these using local and global infections of current importance. Students will gain an understanding of principles of infectious disease epidemiology and how they apply to infections in both temperate and tropical areas.

EPIB 638 GLOBAL HEALTH & SOCIAL POLICY. (3) (Restriction: Enrolment limit 25; not open to students who are taking or have taken POLI 638.) Formal methods used in policy analysis, role of politics and conditions under which research on global health and social policy is used by decision makers.

EPIB 641 SUBSTANTIVE EPIDEMIOLOGY 1. (1) Designed to give students an overview of a major disease or health problem. Students will develop their knowledge of a topic regarding 1) key definitions, concepts and indicators useful in study of the problem; 2) epidemiology of problem, 3) major studies of interventions designed to address the problem. Topics currently offered include cancer, injury prevention and heart disease but not all are offered in each semester.

EPIB 642 SUBSTANTIVE EPIDEMIOLOGY 2. (1) Designed to give students an overview of a major disease or health problem. Students will develop their knowledge of a topic regarding 1) key definitions, concepts and indicators useful in study of the problem; 2) epidemiology of problem, 3) major studies of interventions designed to address the problem. Topics currently offered include cancer, injury prevention and heart disease but not all are offered in each semester.

EPIB 643 SUBSTANTIVE EPIDEMIOLOGY 3. (1) Designed to give students an overview of a major disease or health problem. Students will develop their knowledge of a topic regarding 1) key definitions, concepts and indicators useful in study of the problem; 2) epidemiology of problem, 3) major studies of interventions designed to address the problem. Topics currently offered include cancer, injury prevention and heart disease but not all are offered in each semester.

EPIB 644 SUBSTANTIVE EPIDEMIOLOGY 4. (1) Designed to give students an overview of a major disease or health problem. Students will develop their knowledge of a topic regarding 1) key definitions, concepts and indicators useful in study of the problem; 2) epidemiology of problem, 3) major studies of interventions designed to address the problem. Topics currently offered include cancer, injury prevention and heart disease but not all are offered in each semester.

EPIB 645 SUBSTANTIVE EPIDEMIOLOGY 5. (1) Designed to give students an overview of a major disease or health problem. Students will develop their knowledge of a topic regarding 1) key definitions, concepts and indicators useful in study of the problem; 2) epidemiology of problem, 3) major studies of interventions designed to address the problem. Topics currently offered include cancer, injury prevention and heart disease but not all are offered in each semester.

EPIB 646 EVALUATION OF HEALTH SERVICES. (3) (Course offered only in some years) (Prerequisites: EPIB 606, EPIB 607) This course will present methodologies for the evaluation of health services, and illustrate these approaches with a variety of clinical and community services. Topics will include: levels of evaluation, evaluation design, identification and measurement of key variables, and practical aspects of evaluation.

EPIB 647 ANALYSIS TEMPORAL & SPATIAL DATA. (3) (Prerequisites: EPIB 603 and EPIB 621 or permission of instructor.) This course focuses on the computational management and analysis of large data sets in epidemiology. We will consider data storage and retrieval, prospective temporal and spatial analysis, and the evaluation of pattern detection.

EPIB 650 DIPLOMA DISSERTATION. (9) A scholarly paper tailored to the student's interests and approved by the student's supervisor.

EPIB 651 SELECTED TOPICS IN BIostatISTICS 1. (1) The purpose of this 1-credit course is to cover specific methodologic topics in more detail than is given in the main courses on statistical methods. The topics to be offered may vary from year to year. Topics currently offered include "Biometric Methods in Occupational Epidemiology" and "Practical Considerations of Statistical Power".

EPIB 652 SELECTED TOPICS IN BIostatISTICS 2. (1) The purpose of this 1-credit course is to cover specific methodologic topics in more detail than is given in the main courses on statistical methods. The topics to be offered may vary from year to year. Topics currently offered include "Biometric Methods in Occupational Epidemiology" and "Practical Considerations of Statistical Power".

EPIB 654 PHARMACOEPIDEMIOLoGY 4. (2) (Offered only in Summer term.) (Prerequisites: EPIB 606, EPIB 607 or permission of instructor) The utility of epidemiological techniques for the assessment of drug benefits after their marketing is presented. The course is composed of four parts: (i) methodology of Phase IV studies (efficacy and effectiveness studies); (ii) measurement of quality of life; (iii) evaluation of the economic impact of drugs; (iv) assessment of the effects of drugs and vaccines on the public health system.

EPIB 655 EPIDEMIOLOGY IN PUBLIC HEALTH. (3) (Prerequisites: EPIB 606, EPIB 607) The course is structured around a model of the cycle of public health research, including the surveillance of the health status, identification of modifiable risk factors and the evaluation of public health interventions. The course demonstrates the specific contribution of various disciplines to public health research, including statistics, demography, sociology and epidemiology.

EPIB 656 HEALTH CARE TECHNOLOGY ASSESSMENT. (3) The objectives, principles, and methods of health care technology assessment will be examined and related to the policy process accompanying the diffusion of health care technology.

EPIB 658 TOPICS IN BIostatISTICS 1. (1) The purpose of this 1-credit course is to cover specific methodologic topics in more detail than is given in the main courses on statistical methods. The topics to be offered may vary from year to year.

EPIB 659 TOPICS IN BIostatISTICS 2. (1) The purpose of this 1-credit course is to cover specific methodologic topics in more detail than is given in the main courses on statistical methods. The topics to be offered may vary from year to year.

EPIB 660 PRACTICAL ASPECTS: PROTOCOL DEVELOPMENT. (3) (Offered only in Summer term.) (Prerequisites: EPIB 606, EPIB 607 or permission of instructor.) The course is designed to give students working in groups the opportunity to develop, under guidance and criticism from instructors and fellow students, a protocol addressing a research question in their field of interest.

EPIB 661 PHARMACOEPIDEMIOLoGY 3. (2) (Offered only in Summer term.) (Prerequisites: EPIB 631, EPIB 633 or permission of instructor) In this course, students are confronted with real examples of pharmaco-epidemiologic problems. Flagship studies in pharmacoepidemiology are reviewed in terms of protocol, design issues, data collection, statistical analysis and interpretation of results.

EPIB 662 HEALTH IN DEVELOPING COUNTRIES. (3) (Offered only in Summer term.) (Prerequisites: EPIB 606 or equivalent.) This course will provide an introduction to health issues in developing countries, including major health problems, health determinants and strategies to improve health status. Due emphasis will be given to the primary health care strategy and to the impact of other sectors of development on health. Examples of the work of communities, ministries, non-government organizations and international agencies will be presented and discussed with particular references to issues of burden of disease, effectiveness and efficiency, feasibility, priority setting, sustainability and management.

EPIB 663 SUBSTANTIVE EPIDEMIOLOGY 6. (1) Designed to give students an overview of major disease or health problem, disease or substantive area. The students will develop their knowledge of the topic regarding 1) The key definition, concepts and indicators useful in the study of the problem; 2) The epidemiology of the problem,

and 3) Major studies of interventions designed to address the problems.

EPIB 665 SUBSTANTIVE EPIDEMIOLOGY 8. (1) Designed to give students an overview of major disease or health problem, disease or substantive area. The students will develop their knowledge of the topic regarding 1) The key definition, concepts and indicators useful in the study of the problem; 2) The epidemiology of the problem, and 3) Major studies of interventions designed to address the problems.

EPIB 666 SUBSTANTIVE EPIDEMIOLOGY 9. (1) Designed to give students an overview of major disease or health problem, disease or substantive area. The students will develop their knowledge of the topic regarding 1) The key definition, concepts and indicators useful in the study of the problem; 2) The epidemiology of the problem, and 3) Major studies of interventions designed to address the problems.

EPIB 668 SPECIAL TOPICS 1. (2) Study, through lectures, guided reading, practicals, assignments etc., of an elected and approved topic of epidemiologic importance.

EPIB 669 SPECIAL TOPICS 2. (2) Study, through lectures, guided reading, practicals, assignments etc., of an elected and approved topic of epidemiologic importance.

EPIB 669D1 (1), EPIB 669D2 (1) SPECIAL TOPICS 2. (Students must register for both EPIB 669D1 and EPIB 669D2) Study, through lectures, guided reading, practicals, assignments etc., of an elected and approved topic of epidemiologic importance.

EPIB 670 SPECIAL TOPICS 3. (2) Study, through lectures, guided reading, practicals, assignments etc., of an elected and approved topic of epidemiologic importance.

EPIB 671 SPECIAL TOPICS 4. (2) Study, through lectures, guided reading, practicals, assignments etc., of an elected and approved topic of epidemiologic importance.

EPIB 672 SPECIAL TOPICS 5. (2) Study, through lectures, guided reading, practicals, assignments etc., of an elected and approved topic of epidemiologic importance.

EPIB 675 SPECIAL TOPICS 6. (3) Study, through lectures, guided reading, practicals, assignments etc., of an elected and approved topic of epidemiologic importance.

EPIB 676 SPECIAL TOPICS 7. (3) Study, through lectures, guided reading, practicals, assignments etc., of an elected and approved topic of epidemiologic importance.

EPIB 677 SPECIAL TOPICS 8. (3) Study, through lectures, guided reading, practicals, assignments etc., of an elected and approved topic of epidemiologic importance.

EPIB 678 SPECIAL TOPICS 9. (3) Study, through lectures, guided reading, practicals, assignments etc., of an elected and approved topic of epidemiologic importance.

EPIB 679 SPECIAL TOPICS 10. (3) Study, through lectures, guided reading, practicals, assignments etc., of an elected and approved topic of epidemiologic importance.

EPIB 690 M.Sc. THESIS. (24)

EPIB 701 Ph.D. COMPREHENSIVE EXAMINATION. (0) The comprehensive examination is a written examination. The objective is to assess the degree to which students have been able to assimilate and apply the principles of epidemiologic research. Examinations held twice yearly.

EPIB 702 PHD PROPOSAL. (0) (Note: Required for PhD students.) Essential skills for thesis writing and defence, including essential elements of research protocols, formulation of research objectives, the design, and strategies.

BIostatISTICS (for Biostatistics stream)

BIOS 601 EPIDEMIOLOGY: INTRODUCTION AND STATISTICAL MODELS. (4) (Prerequisites: Permission of instructor. Undergraduate course in mathematical statistics at level of MATH 324.) Examples of applications of statistics and probability in epidemiologic research. Source of epidemiologic data (surveys, experimental

and non-experimental studies). Elementary data analysis for single and comparative epidemiologic parameters.

BIOS 602 EPIDEMIOLOGY: REGRESSION MODELS. (4) (Prerequisites: Permission of instructor. MATH 556 and BIOS 601, or their equivalents.) Multivariable regression models for proportions, rates and their differences/ratios; Conditional logistic regression; Proportional hazards and other parametric/semi-parametric models; unmatched, nested, and self-matched case-control studies; links to cox's method; Rate ratio estimation when "time-dependent" membership in contrasted categories.

BIOS 612 ADVANCED GENERALIZED LINEAR MODELS. (4) (Prerequisites: BIOS 611 or MATH 533; and MATH 523, or equivalents.) Statistical methods for multinomial outcomes, overdispersion, and continuous and categorical correlated data; approaches to inference (estimating equations, likelihood-based methods, semi-parametric methods); analysis of longitudinal data; theoretical content and applications.

BIOS 624 DATA ANALYSIS & REPORT WRITING. (4) (Prerequisites: MATH 533 Analysis of Variance and Regression. MATH 523 Generalized Linear Models.) Common data-analytic problems. Practical approaches to complex data. Graphical and tabular presentation of results. Writing reports for scientific journals, research collaborators, consulting clients.

BIOS 630 RESEARCH PROJECT/PRACTICUM IN BIostatISTICS. (6) (Restriction: Limited to non-thesis M.Sc. students who have completed requirements.) Critical appraisal of the biostatistical literature related to a specific statistical methodology. Topic to be approved by faculty member who will direct student and evaluate the paper.

BIOS 690 M.Sc. THESIS. (24) A review, appraisal of the performance, or application of, selected biostatistical methods, carried out under supervision.

BIOS 691 SPECIAL TOPICS IN BIostatISTICS 1. (4) (Prerequisite: Permission of the instructor.) Special topics in biostatistics.

BIOS 692 SPECIAL TOPICS IN BIostatISTICS 2. (4) (Prerequisite: Permission of the instructor.) Special topics in biostatistics.

BIOS 693 SPECIAL TOPICS IN BIostatISTICS 3. (4) (Prerequisite: Permission of the instructor.) Special topics in biostatistics.

BIOS 694 SPECIAL TOPICS IN BIostatISTICS 4. (4) (Prerequisite: Permission of the instructor.) Special topics in biostatistics.

BIOS 695 SPECIAL TOPICS IN BIostatISTICS 5. (1) (Prerequisite: Permission of the instructor.) Special topics in biostatistics.

BIOS 696 SPECIAL TOPICS IN BIostatISTICS 6. (1) (Prerequisite: Permission of the instructor.) Special topics in biostatistics.

BIOS 701 PHD COMPREHENSIVE EXAMINATION. (0) The comprehensive exam is given in two parts. The objective is to assess the degree to which students have been able to assimilate and apply statistical theory and methods for biostatistics. The first part (written exam) is held twice yearly and addresses statistical theory. The second part (take-home exam) is held once yearly and addresses applied biostatistics.

BIOS 702 PHD PROPOSAL. (0) (Note: Required for PhD students) Essential skills for thesis writing and defence, including essential elements of research proposals, methodological development and application, and presentation.

31 Food Science and Agricultural Chemistry

Department of Food Science and Agricultural Chemistry
Macdonald Campus
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Sainte-Anne-de-Bellevue, QC H9X 3V9
Canada

Telephone: (514) 398-7898

Fax: (514) 398-7977

E-mail: foodscience@mcgill.ca

Website: www.mcgill.ca/foodscience

Chair — S. Kermasha

Chair of Graduate Program — S. Kermasha

31.1 Staff

Professors

I. Alli; B.Sc.(Guy.), M.Sc., Ph.D.(McG.)

W.D. Marshall; B.Sc.(New Br.), Ph.D.(McM.)

H. Ramaswamy; B.Sc.(B'lore), M.Sc., Ph.D.(Br. Col.)

F.R. van de Voort; B.Sc., M.Sc., Ph.D.(Br. Col.)

Associate Professors

A.A. Ismail; B.Sc., Ph.D.(McG.)

S. Kermasha; B.Sc.(Baghdad), C.E.S, D.E.A, D.Sc.(Nancy)

B.K. Simpson; B.Sc.(Ghana), Ph.D.(Nfld.)

V. Yaylayan; B.Sc.(Beirut), M.Sc., Ph.D.(Alta.)

Assistant Professor

M. Chénier; B.Sc.(Laval), M.Sc.(AFI), Ph.D.(McG.)

Adjunct Professors

J.W. Austin, M. Marcotte, J.R.J. Pare

31.2 Programs Offered

M.Sc. (Non-Thesis), M.Sc. (Thesis) and Ph.D.

The Department has laboratory and research facilities required for research leading to the degree of Master of Science and Doctor of Philosophy in the field of food science, specifically in the chemical, biochemical and analytical aspects thereof.

31.3 Admission Requirements

Applicants to the M.Sc. programs must be graduates of a university of recognized reputation and hold a B.Sc. in Food Science or a related discipline such as Chemistry, Biochemistry, or Microbiology with a minimum cumulative grade point average (CGPA) of 3.0/4.0 (second class-upper division) and 3.2/4.0 during the last two years of full-time university study. Applicants to the Ph.D. program must hold a M.Sc. degree in Food Science or related areas with a minimum CGPA of 3.4 in their M.Sc. and 3.2 for the last two years of their B.Sc. degree. High grades are expected in courses considered by the academic unit to be preparatory to the graduate program.

31.4 Application Procedures

Applicants for graduate studies must forward supporting documents to:

Department of Food Science and Agricultural Chemistry
Macdonald Campus of McGill University
21,111 Lakeshore
Sainte-Anne-de-Bellevue, QC H9X 3V9
Canada

Telephone: (514) 398-7898

Fax: (514) 398-7977

E-mail: foodscience.macdonald@mcgill.ca

Applications will be considered upon receipt of a completed application form, \$80 application fee, and the following supporting documents:

Transcripts - Two official copies of all university level transcripts with proof of degree(s) granted. Transcripts written in a language other than English or French must be accompanied by a certified translation. An explanation of the grading system used by the applicant's university is essential. It is the applicant's responsibility to arrange for transcripts to be sent.

It is desirable to submit a list of the titles of courses taken in the major subject, since transcripts often give code numbers only. Applicants must be graduates of a university of recognized reputation and hold a Bachelor's degree equivalent to a McGill Honours degree in a subject closely related to the one selected for graduate work. This implies that about one-third of all undergraduate

courses should have been devoted to the subject itself and another third to cognate subjects.

Letters of Recommendation - Two letters of recommendation on letterhead (official paper) of originating institution or bearing the university seal and with original signatures from two instructors familiar with the applicant's work, preferably in the applicant's area of specialization. It is the applicant's responsibility to arrange for these letters to be sent.

Competency in English - Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English, by appropriate exams, e.g., TOEFL (minimum score 550 on the paper-based test, 213 on the computer-based test or 86 on the Internet-based test with each component not less than 20) or IELTS (minimum overall band 6.5). The MCHE is not considered equivalent. Results must be submitted as part of the application. The University code is 0935 (McGill University, Montreal); please use Department code 31(Graduate Schools), Biological Sciences- Agriculture, to ensure that your TOEFL reaches this office without delay.

Graduate Record Exam (GRE) - The GRE is not required, but it is highly recommended.

DOCUMENTS SUBMITTED WILL NOT BE RETURNED.

Application Fee (non-refundable) - A fee of \$80 Canadian must accompany each application (including McGill students), otherwise it cannot be considered. This sum must be remitted using one of the following methods:

1. Credit card (by completing the appropriate section of the application form). NB: online applications must be paid for by credit card.
2. Certified cheque in Cdn.\$ drawn on a Canadian bank.
3. Certified cheque in U.S.\$ drawn on a U.S. bank.
4. Canadian Money order in Cdn.\$.
5. U.S. Money Order in U.S.\$.
6. An international draft in Canadian funds drawn on a Canadian bank requested from the applicant's bank in his/her own country.

Deadlines – Applications must be submitted by June 1 and all supporting documents must reach the Department no later than June 15 (March 1 for International) for the *Fall Term (September)*; October 15 (July 1 for International) for the *Winter Term (January)*; February 15 (December 15 for International) for the *Summer Term (May)*. It may be necessary to delay review of the applicant's file until the following admittance period if application materials including supporting documents are received after these dates. International applicants are advised to apply well in advance of the deadline because immigration procedures may be lengthy. Applicants are encouraged to make use of the online application form available on the Web at www.mcgill.ca/applying/graduate.

Financial aid is very limited and highly competitive. It is suggested that students give serious consideration to their financial planning before submitting an application.

Acceptance to all programs depends on a staff member agreeing to serve as the student's supervisor and the student obtaining financial support. Normally, a student will not be accepted unless adequate financial support can be provided by the student and/or the student's supervisor. Academic units cannot guarantee financial support via teaching assistantships or other funds.

Qualifying Students – Some applicants whose academic degrees and standing entitle them to serious consideration for admission to graduate studies, but who are considered inadequately prepared in the subject selected may be admitted to a *Qualifying Program* if they have met the Graduate and Postdoctoral Studies Office minimum CGPA of 3.0/4.0. The course(s) to be taken in a *Qualifying Program* will be prescribed by the academic unit concerned. *Qualifying students* are registered in graduate studies, **but not as candidates for a degree**. Only one

qualifying year is permitted. **Successful completion of a qualifying program does not guarantee admission to a degree program.**

31.5 Program Requirements

M.Sc. in Food Science and Agricultural Chemistry (Non Thesis) (45 credits)

This 45-credit program is offered to candidates who seek further training in Food Science but do not wish to pursue independent research. These credits are obtained through a combination of graduate courses.

The residence time for a M.Sc. degree (Non-Thesis) is three academic terms.

Required Courses (15 credits)

FDSC 695	(3)	Graduate Seminar 1
FDSC 696	(3)	Graduate Seminar 2
FDSC 697	(4.5)	M.Sc. Project Part 1
FDSC 698	(4.5)	M.Sc. Project Part 2

Complementary Courses (30 credits)

A minimum of five courses (15 credits) must be selected from the following list. The remaining credits (at the 500/600 level) are chosen in consultation with the academic adviser.

AGRI 510	(3)	Professional Practice
FDSC 515	(3)	Enzyme Thermodynamics/Kinetics
FDSC 519	(3)	Advanced Food Processing
FDSC 520	(3)	Biophysical Chemistry of Food
FDSC 530	(3)	Advanced Analytical Chemistry
FDSC 535	(3)	Food Biotechnology
FDSC 536	(3)	Food Traceability
FDSC 537	(3)	Nutraceutical Chemistry
FDSC 538	(3)	Food Science in Perspective
FDSC 634	(3)	Food Toxins & Toxicants
FDSC 651	(3)	Principles of Food Analysis 2
FDSC 652	(3)	Separation Techniques in Food Analysis 2

M.Sc. in Food Science and Agricultural Chemistry (Thesis) (45 credits)

For candidates entering the M.Sc. program without restrictions, i.e., those not requiring a qualifying term/year, the M.Sc. degree consists of 45 graduate credits. These credits are obtained through a combination of graduate courses and a research thesis.

The residence time for a M.Sc. degree is three academic terms based on unqualified entry into the M.Sc. program and students are encouraged to complete their studies within this time frame.

Required Courses (6 credits)

FDSC 695	(3)	Graduate Seminar 1
FDSC 696	(3)	Graduate Seminar 2

Complementary Courses (9 credits)

At least 9 credits, normally from 500- or 600-level Departmental courses.

Thesis Component – Required (30 credits)

FDSC 690	(8)	M.Sc. Literature Review
FDSC 691	(7)	M.Sc. Research Protocol
FDSC 692	(15)	M.Sc. Thesis

Ph.D. in Food Science and Agricultural Chemistry

Candidates will be judged principally on their ability in research. Course work will be arranged in consultation with the departmental graduate advisory committee. Candidates should be prepared to take the Comprehensive Preliminary Examination by the end of the second year in which they are candidates for the Ph.D. degree.

Required Courses (9 credits)

FDSC 725	(3)	Advanced Topics in Food Science
FDSC 797	(3)	Graduate Seminar 3
FDSC 798	(3)	Graduate Seminar 4

Comprehensive

FDSC 700 (0) Comprehensive Preliminary Examination

Thesis**31.6 Courses**

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click **Class Schedule**) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. **Class Schedule lists courses by term and includes days, times, locations, and names of instructors.**

The course credit weight is given in parentheses after the title.

★ Denotes courses taught only in alternate years.

★ **FDSC 515 ENZYME THERMODYNAMICS/KINETICS.** (3) (Winter) (Prerequisites: FDSC 211 and FDSC 233 or instructor's permission) (Course offered in even years. Check with Graduate adviser.) Selected advanced topics on the biophysical and kinetic aspects of enzymatic reactions, particularly the fundamentals and applications of laws of biothermodynamics, biochemical equilibrium, electrochemistry and biochemical kinetics as related to the enzymatic reactions.

★ **FDSC 519 ADVANCED FOOD PROCESSING.** (3) (Winter) (3 lectures) (Prerequisite: FDSC 330) (Course offered in even years (check with Graduate Advisor)) Advanced technologies associated with food processing studied in more detail. Topics include food irradiation, reverse osmosis, super critical fluid extraction and extrusion.

★ **FDSC 520 BIOPHYSICAL CHEMISTRY OF FOOD.** (3) (Fall) (3 lectures) (Prerequisite: FDSC 233) (Course offered in odd years. Check with Graduate Advisor.) This course will cover recent advances in the application of spectroscopic techniques, including infrared, Raman, near-infrared, circular dichroism, and fluorescence spectroscopy, to the study of biomolecules of relevance to food. Particular emphasis will be placed on the molecular basis of structure-function and structure-functionality relationships.

★ **FDSC 530 ADVANCED ANALYTICAL CHEMISTRY.** (3) (Fall) (3 lectures) (Prerequisite: FDSC 213) (Course offered in odd years (check with Graduate Advisor.) Selected instrumental methodologies including advances in automated chromatography, wide band NMR, chemical sensors, and the application of other spectroscopic techniques to the analysis of food constituents.

★ **FDSC 535 FOOD BIOTECHNOLOGY.** (3) ((Fall) (3 lectures) (Prerequisite: MICR 230) (Course offered in odd years.) Developments in biotechnology as it relates to food production and processing concerning traditional food fermentations as well as novel food biotechnology enzymes, ingredients, genetic engineering, plant tissue culture and developments for microbiological and food analysis.

★ **FDSC 536 FOOD TRACEABILITY.** (3)(Winter) (Prerequisite: FDSC 425 or by Instructor's permission.) (Course offered in odd years.) Concepts and processes associated with the identification, tracking and tracing food forward and backward through the food continuum.

★ **FDSC 537 NUTRACEUTICAL CHEMISTRY.** (3) (Fall) (Prerequisites: FDSC 230, FDSC 233, FDSC 211 or by Instructor's permission.) (Course offered in even years.) The origin, classification, mechanism of action and chemical properties of potential and established nutraceutical compounds and their applications in functional foods.

FDSC 538 FOOD SCIENCE IN PERSPECTIVE. (3) (Restriction: Not open to students with an undergraduate degree in Food Science or currently majoring in Food Science. Open to U3 students and above.) Food industry, food properties, nutritive aspects, quality factors, and key preservation processes, with self-study linking these elements directly to specific commodities and product groups, their characteristics, chemistry and distinct manufacturing processes.

FDSC 634 FOOD TOXINS & TOXICANTS. (3) (Winter) (Prerequisite: FDSC 213 or permission of instructor.) Toxins and toxicant residues in food are explored from an analytical perspective. New techniques of analysis and strategies are emphasized.

FDSC 651 PRINCIPLES OF FOOD ANALYSIS 2. (3) (Fall) (3 lectures; one 3-hour lab) (Prerequisite: Permission of instructor.) The fundamentals of food analysis are presented with the emphasis on the major food components. Topics include: sampling, method selection, official methods, proximate analysis, moisture, protein, fat, ash, fiber, carbohydrates, vitamins, nutraceutical compounds and infra-red analyses.

FDSC 652 SEPARATION TECHNIQUES IN FOOD ANALYSIS 2. (3) (Winter) (3 lectures; one 3-hour lab) (Prerequisite: Permission of instructor.) Advanced detailed treatment of the principal chromatographic and electrophoretic techniques associated with the analysis of carbohydrate, lipid and protein constituents of food.

FDSC 690 M.Sc. LITERATURE REVIEW. (8) Master of Science literature review.

FDSC 691 M.Sc. RESEARCH PROTOCOL. (7) Master of Science research protocol.

FDSC 692 M.Sc. THESIS. (15) Master of Science research portion of the M.Sc. thesis based on results obtained from the research phase of the M.Sc. thesis. Satisfactory completion of the M.Sc. Thesis, its approval by reviewers and acceptance by the Graduate and Postdoctoral Studies Office is required to pass the course.

FDSC 695 GRADUATE SEMINAR 1. (3) Presentation on a selected topic, research proposal or research results based on progress in degree work (M.Sc.1).

FDSC 696 GRADUATE SEMINAR 2. (3) Presentation on a selected topic, research proposal or research results based on progress in degree work (M.Sc.2).

FDSC 697 M.Sc. PROJECT PART 1. (4.5) (Restriction: Must be registered in the M.Sc. in Food Science and Agricultural Chemistry; Non-Thesis-Food Science.) A critical review of the current state of knowledge of some aspect of Food Science or Technology.

FDSC 698 M.Sc. PROJECT PART 2. (4.5) (Prerequisite: FDSC 697.) (Restriction: Must be registered in the M.Sc. in Food Science and Agricultural Chemistry; Non-Thesis-Food Science.) A critical review of the current state of knowledge of some aspects of Food Science or Technology.

FDSC 700 COMPREHENSIVE PRELIMINARY EXAMINATION. (0) (See Faculty Regulations)

FDSC 725 ADVANCED TOPICS IN FOOD SCIENCE. (3) (Restrictions: Restricted to Ph.D. students in Food Science. Not open to students who have taken FDSC 625.) Selected subjects related to advancements taking place in the discipline of Food Science will be studied to gain an in-depth understanding of their principles, application and potential impact.

FDSC 797 GRADUATE SEMINAR 3. (3) Presentation on a selected topic, research proposal or research results based on progress in degree work (Ph.D.).

FDSC 798 GRADUATE SEMINAR 4. (3) Presentation on a selected topic, research proposal or research results based on progress in degree work (Ph.D.).

32 French Language and Literature

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Pavillon des Arts

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Directrice — Professeure Gillian Lane-Mercier

Directeur des études de 2^e et 3^e cycles et de la recherche — Professeur Michel Biron

32.1 Staff

Professeur émérite

J.-P. Duquette; L. ès L.(Montr.), Dr. 3e Cy.(Paris X - Nanterre)

Professeurs

M. Angenot; L. Phil. Romane, Dr. Phil. & Lettres (Bruxelles), M.S.R.C. (*James McGill Professor*)

D. Desrosiers-Bonin; M.A., Ph.D.(Montr.) (*William Dawson Scholar*)

Y. Lamonde; M.A.(Montr.), M.A., Ph.D.(Laval) (*James McGill Professor*)

F. Ricard; M.A.(McG.), Dr. 3e Cy.(Aix-Marseille), M.S.R.C. (*James McGill Professor*)

Y. Rivard; M.A.(McG.), Dr. 3e Cy.(Aix-Marseille)

Professeurs agrégés

M. Biron; M.A.(Montr.), Dr.Phil & Lettres(Liège) (*Chaire de recherche du Canada en littérature québécoise et littératures francophones*)

C. Bouchard; M.A.(Montr.), Dr. 3e Cy.(Paris VII - Jussieu)

A. Chapdelaine; M.A., Dr. 3^e Cy.(Paris VII - Jussieu)

F. Charbonneau; M.A., Ph.D.(Montr.) (*William Dawson Scholar*)

I. Daunais; M.A., Ph.D. (McG.)

N. Doiron; M.A., Ph.D.(Montr.)

J. Everett; M.A.(Carl.), Ph.D.(McG.)

G. Lane-Mercier; M.A.(Montpellier), Ph.D.(McG.)

Professeurs adjoints

I. Arseneau; M.A.(W. Ont.), Ph.D.(Montr.)

P. Brissette; M.A.(Montr.), Ph.D.(McG.)

C. Leclerc; M.A.(UQAM), Ph.D.(C'dia)

32.2 Programmes

M.A. avec mémoire et sans mémoire, et Ph.D.

32.3 Conditions d'admission

Propédeutique

Peuvent être admis en Propédeutique les étudiants titulaires d'un B.A. avec concentration en littérature française, québécoise ou francophone ("Major"), qui sont alors tenus de s'inscrire à temps complet à un programme de 8 cours de premier cycle, établi lors de leur inscription.

M.A.

Pour être admis directement en M.A. I, le candidat doit être titulaire d'un B.A. avec spécialisation en littérature française, québécoise ou francophone, ou en traduction ("Honours"), ou d'un B.A. avec double spécialisation ("Joint Honours"). Le candidat doit également présenter un très bon dossier académique, soit une moyenne d'au moins 70%; le B.A. ne donne pas automatiquement droit à l'admission.

Ph.D.

Pour être admis au programme de Ph.D. le candidat doit satisfaire aux conditions suivantes:

- 1) Être titulaire d'un M.A. en littérature française, québécoise ou francophone, ou l'équivalent; avoir obtenu au cours de sa scolarité de maîtrise une moyenne d'au moins 75 %.
- 2) Présenter un projet d'étude, en français, indiquant avec une certaine précision le domaine et la méthodologie de la recherche qu'il envisage de poursuivre pour sa thèse de doctorat et le nom du professeur sous la direction duquel il souhaite travailler. La Commission des admissions sera mieux à même de juger, d'après ce projet, du sérieux du candidat et de ses aptitudes à la recherche littéraire avancée.

32.4 Demande d'admission

En plus de deux lettres de recommandation et des relevés de notes officiels, les étudiants de l'extérieur du Département doivent fournir un échantillon de travail écrit, en français.

Le formulaire de demande d'admission par le Web est disponible pour tous les candidats aux études supérieures à l'adresse suivante: www.mcgill.ca/applying/graduate. Pour obtenir un formulaire papier, s'adresser au Secrétariat des études de 2e et 3e cycles et de la recherche du Département.

32.5 Programme d'études

Maîtrise

Le programme de maîtrise est à la fois un programme complet en soi et une première étape vers le Ph.D. Il vise deux buts également importants:

- 1) Permettre à l'étudiant de compléter et d'approfondir ses connaissances dans le domaine littéraire grâce à un programme d'enseignement portant sur les littératures française et québécoise de même que sur une variété de sujets connexes: théorie littéraire, histoire de la langue, civilisation, etc.
- 2) Favoriser l'apprentissage de la recherche et un début de spécialisation de la part de l'étudiant qui suit des séminaires d'initiation à la recherche littéraire et, soit rédige un mémoire, soit exécute d'autres travaux de recherche sous la direction des professeurs du Département.

La durée des études de maîtrise est normalement de deux ans. Dans le cas de la maîtrise avec mémoire, elle comprend deux trimestres pour la scolarité (M.A. I), suivis de la rédaction du mémoire. Dans le cas de la maîtrise sans mémoire, la scolarité s'étend sur trois trimestres, suivis de la rédaction de trois travaux rédigés dans le cadre du FREN 698.

Le choix des séminaires que fait l'étudiant doit être approuvé par le Directeur des études au moment de l'inscription. La Commission des admissions du Département peut accorder des dérogations au règlement des inscriptions à la Maîtrise en fonction du dossier de chaque étudiant.

Une partie de la scolarité (maximum de 6 crédits) peut être suivie dans un autre département de McGill qui offre des cours dans le domaine des Humanités de l'annuaire des Études supérieures et postdoctorales, ou dans une autre université, pourvu que les cours et séminaires y soient de même niveau que les cours 600 ou 700 offerts par le Département. Dans tous les cas, l'étudiant doit obtenir l'autorisation du Directeur des études de 2e et 3e cycles et de la recherche, qui ne sera accordée que si les cours en question cadrent avec le programme d'études du candidat.

La note de passage est B- (65 %).

Maîtrise avec mémoire (48 crédits)

Les deux premières sessions du programme de maîtrise sont consacrées à la scolarité, pour les étudiants inscrits à temps complet; ils doivent alors suivre 6 séminaires de 3 crédits (dont le FREN 697) et préparer leur sujet de mémoire (FREN 696: 6 crédits). Les étudiants inscrits à mi-temps doivent s'inscrire à un minimum de deux séminaires par session.

L'étudiant peut présenter un mémoire de critique littéraire ou un mémoire d'écriture littéraire.

Cours obligatoires (9 crédits)

FREN 696 (6) Élaboration projet de mémoire

FREN 697 (3) Méthodologie et théorie littéraires

Cours complémentaires (15 crédits)

15 crédits, 5 séminaires; un maximum de 6 crédits peuvent être suivis dans un autre département de McGill qui offre des cours dans le domaine des Humanités de l'annuaire des Études supérieures et postdoctorales, ou dans une autre université. (Les séminaires FREN 609 et FREN 611 – Création littéraire 1 et 2 – sont fortement recommandés aux étudiants qui ont l'intention de présenter un mémoire d'écriture littéraire.)

Mémoire - obligatoire (24 crédits)

FREN 699 (24) M.A. Thesis

Maîtrise avec mémoire; Option en études sur les femmes et le genre (48 crédits)

L'Option en études sur les femmes et le genre (" Graduate Option in Gender and Women's Studies ") est un programme pluridisciplinaire offert aux étudiants qui remplissent en même temps toutes les exigences du programme de maîtrise avec mémoire du Département de langue et littérature françaises. En plus des deux cours obligatoires suivis au Département, les étudiants doivent suivre un cours de 3 crédits réservé aux étudiants de cette Option. Parmi les cours au choix, les étudiants doivent suivre deux cours de 3 crédits chacun qui ont été approuvés par l'Option et qui portent sur des questions reliées au genre et aux recherches et méthodologies féministes. Leur mémoire doit porter sur un sujet explicitement lié au genre ou aux études sur les femmes.

Les deux premières sessions du programme de maîtrise sont consacrées à la scolarité, pour les étudiants inscrits à temps complet; ils doivent alors suivre 6 séminaires de 3 crédits (dont le FREN 697) et préparer leur sujet de mémoire (FREN 696: 6 crédits). Les étudiants inscrits à mi-temps doivent s'inscrire à un minimum de deux séminaires par session.

L'étudiant peut présenter un mémoire de critique littéraire ou un mémoire d'écriture littéraire.

Cours obligatoires (12 crédits)

FREN 696 (6) Élaboration projet de mémoire
FREN 697 (3) Méthodologie et théorie littéraires
WMST 601 (3) Feminist Theories and Methods

Cours complémentaires (12 crédits) - 500 niveau ou plus

Six crédits de séminaires au choix parmi les séminaires du Département ou à l'extérieur du Département qui ont été approuvés par l'option.

Six crédits de séminaires au choix, dont un peut être suivi à l'extérieur du Département.

Mémoire - obligatoire (24 crédits)

FREN 699 (24) M.A. Thesis

Maîtrise sans mémoire (48 crédits)

Les deux premières sessions du programme sont consacrées à la scolarité, pour les étudiants inscrits à temps complet; ils doivent suivre 8 séminaires de trois crédits, soit 4 par session. Les cours FREN 697 et FREN 600 sont obligatoires. Les étudiants inscrits à mi-temps doivent s'inscrire à un minimum de deux séminaires par session.

Cours obligatoires (6 crédits)

FREN 600 (3) Travaux dirigés 1
FREN 697 (3) Méthodologie et théorie littéraires

Cours complémentaires (24 crédits)

24 crédits, 8 cours; un maximum de 6 crédits peuvent être suivis dans un autre département de McGill qui offre des cours dans le domaine des Humanités de l'annuaire des Études supérieures et postdoctorales, ou dans une autre université.

Projet - obligatoire (18 crédits)

FREN 698 (18) Master's Seminar

Les étudiants complètent le programme de maîtrise en rédigeant trois travaux de recherche.

Ph.D.**Épreuve d'anglais**

Tous les étudiants de Ph.D. doivent réussir, avant le dépôt de leur thèse, une épreuve destinée à vérifier leur connaissance de la langue anglaise (FREN 790).

Peuvent être dispensés de cette épreuve les traducteurs professionnels et les étudiants qui ont fait des études antérieures dans des collèges ou des universités anglophones, à condition que leur programme ait comporté des cours donnés en anglais. Le fait d'avoir suivi un ou plusieurs cours de traduction ne suffit pas.

Aucune dispense n'est automatique. Les demandes de dispense doivent être soumises par écrit au Comité des études de 2e et 3e cycles et de la recherche.

Programme

Le programme de Ph.D. comporte trois parties:

- Scolarité
- Élaboration du sujet de thèse et Examen préliminaire
- Thèse

Scolarité

L'admission se fait normalement au niveau de Ph.D. II. Lorsqu'un candidat, par exception, est admis en Ph.D. I, sa scolarité pendant cette année est la même que pour l'année de M.A. I (voir ci-dessus).

Ph.D. II

Trois séminaires au choix, ainsi que les Séminaires de doctorat 1 et 2 (FREN 710 et FREN 711) qui sont obligatoires.

Ph.D. III

Élaboration du sujet de thèse (FREN 706, 0 crédit) et Examen préliminaire (FREN 707, 0 crédit).

Après l'élaboration du projet de thèse, celui-ci est soumis au Comité des études de 2e et 3e cycles et de la recherche; puis l'Examen préliminaire, qui consiste en la rédaction et la défense orale d'un document d'une cinquantaine de pages, a lieu à une date convenue entre les intéressés, devant un jury constitué de trois professeurs.

Ph.D. IV Thèse

Au moment de l'Examen préliminaire, un comité-conseil est constitué, comprenant le directeur de thèse et deux autres professeurs. Le rôle de ce comité-conseil est de suivre d'aussi près que possible le travail du candidat et de discuter avec lui de l'orientation de ses recherches.

La soutenance de la thèse a lieu devant un jury d'au moins six personnes, présidé par un représentant du Doyen; font partie du jury le comité-conseil de l'étudiant et deux autres professeurs, dont le Directeur du Département et au moins un universitaire extérieur au Département ou à l'Université McGill.

Ph.D. – Option en études sur les femmes et le genre

L'Option en études sur les femmes et le genre (" Graduate Option in Gender and Women's Studies ") est un programme pluridisciplinaire offert aux étudiants qui remplissent en même temps toutes les exigences du programme de doctorat du Département de langue et littérature françaises. En plus les cours obligatoires suivis au Département, les étudiants doivent suivre trois cours de 3 crédits chacun qui ont été approuvés par l'Option et qui portent sur des questions reliées au genre et aux recherches et méthodologies féministes. Leur thèse doit porter sur un sujet explicitement lié au genre ou aux études sur les femmes.

Épreuve d'anglais

Tous les étudiants de Ph.D. doivent réussir, avant le dépôt de leur thèse, une épreuve destinée à vérifier leur connaissance de la langue anglaise (FREN 790).

Peuvent être dispensés de cette épreuve les traducteurs professionnels et les étudiants qui ont fait des études antérieures dans des collèges ou des universités anglophones, à condition que leur programme ait comporté des cours donnés en anglais. Le fait d'avoir suivi un ou plusieurs cours de traduction ne suffit pas.

Aucune dispense n'est automatique. Les demandes de dispense doivent être soumises par écrit au Comité des études de 2e et 3e cycles et de la recherche.

Programme

Le programme de Ph.D. comporte trois parties:

- Scolarité
- Élaboration du sujet de thèse et Examen préliminaire
- Thèse

Scolarité

L'admission se fait normalement au niveau de Ph.D. II. Lorsqu'un candidat, par exception, est admis en Ph.D. I, sa scolarité pendant cette année est la même que pour l'année de M.A. I (voir ci-dessus).

Ph.D. II

Cours obligatoires 99 crédits

FREN 710	(1.5)	Séminaire de doctorat 1
FREN 711	(1.5)	Séminaire de doctorat 2
FREN 790	(0)	Language Requirement
WMST 601	(3)	Feminist Theories and Methods
WMST 602	(3)	Feminist Research Symposium

Cours complémentaires (3 crédits)

Un séminaire (3 crédits) au choix de niveau 500 ou plus parmi les séminaires du Département qui ont été approuvés par l'Option et qui portent sur les femmes et le genre. Ce cours ne peut pas être suivi à l'extérieur du Département.

Ph.D. III

Élaboration du sujet de thèse (FREN 706, 0 crédit) et Examen préliminaire (FREN 707, 0 crédit).

Après l'élaboration du projet de thèse, celui-ci est soumis au Comité des études de 2e et 3e cycles et de la recherche; puis l'Examen préliminaire, qui consiste en la rédaction et la défense orale d'un document d'une cinquantaine de pages, a lieu à une date convenue entre les intéressés, devant un jury constitué de trois professeurs.

Ph.D. IV Thèse

Au moment de l'Examen préliminaire, un comité-conseil est constitué, comprenant le directeur de thèse et deux autres professeurs. Le rôle de ce comité-conseil est de suivre d'aussi près que possible le travail du candidat et de discuter avec lui de l'orientation de ses recherches.

La soutenance de la thèse a lieu devant un jury d'au moins six personnes, présidé par un représentant du Doyen; font partie du jury le comité-conseil de l'étudiant et deux autres professeurs, dont le Directeur du Département et au moins un universitaire extérieur au Département ou à l'Université McGill.

de stage précisant quelle sera l'institution hôte et en quoi consistera le stage; présentation par l'étudiant d'un compte rendu de son stage approuvé par un superviseur de l'institution hôte; et rédaction d'un travail universitaire sur un sujet relié au stage.) Stage en milieu de travail dans une institution ou organisation approuvée.

FREN 600 TRAVAUX DIRIGÉS 1. (3)

FREN 609 CRÉATION LITTÉRAIRE 1. (3)

FREN 611 CRÉATION LITTÉRAIRE 2. (3)

FREN 612 SÉMINAIRE DE RECHERCHE 1. (3)

FREN 613 SÉMINAIRE DE RECHERCHE 2. (3)

FREN 615 LITTÉRATURE ET SOCIÉTÉ 1. (3)

FREN 616 LITTÉRATURE ET LINGUISTIQUE. (3)

FREN 620 ÉVOLUTION - LANGUE FRANÇAISE AU CANADA. (3)

FREN 621 PROBLÈMES D'ESTHÉTIQUE 1. (3)

FREN 624 QUESTIONS DE GENRE 1. (3)

FREN 626 QUESTIONS DE GENRE 2. (3) Poétique du récit de voyage.

FREN 628 PROBLÈMES DE THÉORIE LITTÉRAIRE. (3)

FREN 629 HISTOIRE DES IDÉES. (3)

FREN 635 THÈME DE LITTÉRATURE FRANÇAISE 1. (3)

FREN 637 LITTÉRATURE ET AUTRES ARTS 1. (3) Roman et cinéma.

FREN 638 LITTÉRATURE ET AUTRES ARTS 2. (3)

FREN 682 L'ESSAI QUÉBÉCOIS. (3)

FREN 696 ÉLABORATION PROJET DE MÉMOIRE. (6)

FREN 697 MÉTHODOLOGIE ET THÉORIE LITTÉRAIRES. (3) Ce séminaire présente annuellement un courant théorique dans le domaine des études littéraires de la langue française. Il intègre la présentation par les étudiants de leurs sujets de mémoire, de leurs approches et de leurs méthodologies.

FREN 698 MASTER'S SEMINAR. (18)

FREN 699 M.A. THESIS. (24)

FREN 706 ÉLABORATION DU SUJET DE THÈSE. (0) Après consultation avec le Directeur de thèse, soumission d'un travail qui précise le sujet, la problématique, la méthode et la bibliographie de la thèse.

FREN 707 EXAMEN PRÉLIMINAIRE. (0) (Préalable: FREN 706.)

Épreuve qui consiste en la préparation d'un texte écrit suivie d'une interrogation orale par un jury.

FREN 710 SÉMINAIRE DE DOCTORAT 1. (1.5) (Restriction: Réservé aux étudiants de Ph.D. du Département.) Ce séminaire porte sur les aspects théoriques et méthodologiques du projet de thèse des candidats. Il se veut un lieu privilégié d'échanges et de réflexions où l'on discutera principalement des nouvelles problématiques textuelles, des enjeux théoriques contemporains et des questions d'actualité littéraire.

FREN 711 SÉMINAIRE DE DOCTORAT 2. (1.5) (Préalable: FREN 710) (Restriction: Réservé aux étudiants de Ph.D. du Département.) Ce séminaire prolonge la réflexion amorcée au sein du Séminaire de doctorat 1.

FREN 712 SÉMINAIRE DE RECHERCHE 3. (3)

FREN 713 SÉMINAIRE DE RECHERCHE 4. (3) Histoire du livre et de l'imprimé.

FREN 720 MOYEN ÂGE 1. (3)

FREN 721 MOYEN ÂGE 2. (3) Le Roman de la Rose.

FREN 723 16E SIÈCLE 1. (3)

FREN 727 17E SIÈCLE 2. (3)

FREN 728 17E SIÈCLE 3. (3)

FREN 729 18E SIÈCLE 1. (3) La littérature et la table au XVIIIe siècle.

FREN 730 18E SIÈCLE 2. (3)

32.6 Cours de 2e et 3e cycles

Comme des changements dans l'offre des cours ont pu survenir depuis la publication de cet annuaire, il est fortement recommandé aux étudiants de consulter le site Web www.mcgill.ca/minerva (cliquer sur le lien Horaire des cours) avant de s'inscrire. On y trouvera une liste à jour des cours offerts par trimestre ainsi que les horaires, les locaux et les noms des professeurs.

L'étudiant trouvera, dans la section "Études de 2^e et 3^e cycles" accessible sur le site Web du Département, la description détaillée des séminaires offerts ainsi que tous les renseignements pertinents sur les programmes.

Cours offerts en 2008-2009. Le nombre de crédits est indiqué entre parenthèses, après le titre du cours.

FREN 599 STAGE EN MILIEU DE TRAVAIL. (3) (Ouvert aux étudiants de U3 avec une moyenne de 3,3 pour l'ensemble du programme, dans un programme de Spécialisation ou de Concentration majeure du Département; les trois crédits comptent parmi les crédits libres ("electives"); permission du comité des études requise. Pour les étudiants de M.A. ou de Ph.D., permission du comité des études de 2e et 3e cycles; à noter que ces crédits ne peuvent pas compter comme crédits de programme de M.A. ou de Ph.D. Une description complète des exigences et des modalités du stage sera affichée sur le site web du Département. Ces exigences sont les suivantes: présentation par l'étudiant d'un Projet

- FREN 731 18E SIÈCLE 3. (3)
 FREN 732 19E SIÈCLE 1. (3)
 FREN 734 19E SIÈCLE 3. (3)
 FREN 735 19E SIÈCLE 4. (3)
 FREN 736 19E SIÈCLE 5. (3)
 FREN 737 20E SIÈCLE 1. (3) Nouveau Roman et autobiographie.
 FREN 738 20E SIÈCLE 2. (3)
 FREN 739 20E SIÈCLE 3. (3)
 FREN 740 20E SIÈCLE 4. (3)
 FREN 741 20E SIÈCLE 5. (3)
 FREN 750 ROMAN QUÉBÉCOIS 1. (3)
 FREN 761 THÈME DE LITTÉRATURE QUÉBÉCOISE 1. (3)
 FREN 762 THÈME DE LITTÉRATURE QUÉBÉCOISE 2. (3)
 FREN 790 LANGUAGE REQUIREMENT. (0)

33 Geography

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Chair — T.R. Moore

33.1 Staff

Emeritus Professor

B.J. Garnier; M.A.(Cant.)

Post-Retirement

S.H. Olson; M.A., Ph.D.(Johns Hop.)

Professors

P.G. Brown; M.A., Ph.D.(Col.) (*joint appt. with McGill School of Environment*)

T.R. Moore; Ph.D.(Aberd.)

N.T. Roulet; M.Sc.(Trent), Ph.D.(McM.) (*James McGill Professor*)

G. Wenzel; M.A.(Man.), Ph.D.(McG.)

Associate Professors

G.L. Chmura; M.Sc.(Rhode I.), Ph.D.(Louis. St.)

O.T. Coomes; M.A.(Tor.), Ph.D.(Wis. Mad.)

B. Forest; A.B.(Chic), Ph.D.(Calif.-LA)

M.F. Lapointe; M.Sc.(McG.), Ph.D.(Br. Col.)

T.C. Meredith; M.Sc., Dip. Cons.(Lond.), Ph.D.(Cant.)

L. Müller-Wille; Dr.phil.(Münster)

W.H. Pollard; M.A.(Guelph), Ph.D.(Ott.)

N.A. Ross; M.A.(Qu.); Ph.D.(McM.) (on leave 2008)

R. Sieber; MPA(W. Mich.), Ph.D.(Rutg.) (*joint appt. with McGill School of Environment*)

I.B. Strachan; B.Sc.(Tor.), M.Sc., Ph.D.(Qu.) (*cross appt. with Natural Resource Sciences*)

J. Unruh; MS(Wisc.), Ph.D.(Ariz.)

Assistant Professors

L. Barrang-Ford; M.A.(Oxf.), Ph.D.(Guelph)

S. Breau; M.A.(Laval), Ph.D.(Calif.-LA)

B. Lehner; Ph.D.(Frankfurt)

N. Oswin; M.A.(Dal.), Ph.D.(Br. Col.)

G. Peterson; M.Sc., Ph.D.(Flor.)

N. Ramankutty; M.Sc.(Ill.), Ph.D.(Wisc.)

R. Sengupta; M.Sc., Ph.D.(Ill.)

S. Turner; M.Soc.Sc.(Waikato, N.Z.), Ph.D.(Hull, U.K.)

Adjunct Professors

R. Cooke, E. Levac

Research Associate

G. Akman

33.2 Programs Offered

M.A., M.Sc. and Ph.D.

McGill Northern Research Stations

The McGill Subarctic Research Station is located at Schefferville, in the centre of Quebec-Labrador. Facilities exist for research in most areas of physical and some areas of human geography in the subarctic.

McGill University also operates a field station at Expedition Fiord on Axel Heiberg in the High Arctic. Facilities are limited to a small lab and dorm building and cookhouse. Research activities focus on the glacial and geological. For additional information on these stations, contact the Scientific Director, Wayne Pollard, Department of Geography.

Centre for Climate and Global Change Research

The Department of Geography, with the McGill Departments of Atmospheric and Oceanic Sciences, Economics, Natural Resource Sciences; and several departments from the Université du Québec à Montréal and Université de Montréal developed a collaborative research centre that examines climate and global change. Through this Centre there are graduate opportunities.

For more information contact Professor Nigel Roulet, Director, Centre for Climate and Global Change, McGill University.

33.3 Admission Requirements

M.A. and M.Sc. Degrees

Attention is directed to the Graduate and Postdoctoral Studies Office admission regulations outlined in the General Information section of the Calendar, headed "Admission".

Applicants not satisfying these conditions, but with primary undergraduate specialization in a cognate field, may be admitted to the M.A. or M.Sc. degree in Geography in certain circumstances. In general, they, and others who have deficiencies in their preparation but are otherwise judged to be acceptable, will be required to register for a qualifying program or to undertake additional courses.

Ph.D. Degree

Students who have completed a Master's degree in Geography (with high standing) may be admitted at Ph.D.2 level.

On rare occasions, a student may be admitted to the Ph.D. degree without having first taken the Master's degree. They, and others who have deficiencies in their preparation but are otherwise acceptable, will be required to register for a year of course-work and/or be required to take extra courses. The normal duration of a program, including field work where required, is three years.

Normally, the Department will restrict admission to the Ph.D. program to students prepared to work in one of the fields of human or physical geography in which specialized supervision is offered. These, which cover a wide range of systematic areas, are listed in documents available from the Department.

33.4 Application Procedures

Applications will be considered upon receipt of:

1. application form;
2. transcripts;
3. two letters of reference for Master's; three for Ph.D.;
4. \$80 application fee;
5. statement of proposed research;
6. official TOEFL or IELTS score (when necessary).

Deadline for applications February 1 (for September admission) and October 1 (for January admission).

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

33.5 Program Requirements

Master's Programs

Students must pass the courses specified for their program, attend such additional courses as the Chair and the student's thesis supervisor think fit, and submit a thesis in an appropriate area of geographical inquiry approved by the advisor.

M.A. in Geography (Thesis) (48 credits)

or

M.Sc. in Geography (Thesis) (48 credits)

Required Course (6 credits)

GEOG 631 (6) Methods of Geographical Research

Complementary Courses (12 credits)

12 credits, four 3-credit courses at the 500-level or above selected according to guidelines of the Department.

Thesis Component – Required (30 credits)

GEOG 698 (6) Thesis Proposal

GEOG 699 (24) Thesis Research

M.A. in Geography (Thesis) – Environment

Option/Concentration (48 credits)

or

M.Sc. in Geography (Thesis) – Environment

Option/Concentration (48 credits)

Required Courses (12 credits)

ENVR 610 (3) Foundations of Environmental Policy

ENVR 650 (1) Environmental Seminar 1

ENVR 651 (1) Environmental Seminar 2

ENVR 652 (1) Environmental Seminar 3

GEOG 631 (6) Methods of Geographical Research

Complementary Courses (12 credits)

9 credits of courses at the 500-level or higher selected according to guidelines of the Department.

3 credits, one of the following courses:

ENVR 519 (3) Global Environmental Politics

ENVR 544 (3) Environmental Measurement and Modelling

ENVR 580 (3) Topics in Environment 3

ENVR 611 (3) The Economy of Nature

ENVR 620 (3) Environment and Health of Species

ENVR 622 (3) Sustainable Landscapes

ENVR 630 (3) Civilization and Environment 1

ENVR 680 (3) Topics in Environment 4

or another course at the 500-level or higher recommended by the advisory committee and approved by the Environment Option Committee

Thesis Component – Required (24 credits)

GEOG 698 (6) Thesis Proposal

GEOG 697 (18) Thesis Research (Environment Option)

M.A. in Geography (Thesis) – Neotropical Environment

Option/Concentration (48 credits)

or

M.Sc. in Geography (Thesis) – Neotropical Environment

Option/Concentration (48 credits)

Required Courses (12 credits)

BIOL 640 (3) Tropical Biology and Conservation

ENVR 610 (3) Foundations of Environmental Policy

GEOG 631 (6) Methods of Geographical Research

Complementary Courses (6 credits)

3 credits, one Geography graduate course, and

3 credits, one of the following courses:

AGRI 550 (3) Sustained Tropical Agriculture

BIOL 553 (3) Neotropical Environments

BIOL 641 (3) Issues in Tropical Biology

ENVR 611 (3) The Economy of Nature

ENVR 612 (3) Tropical Environmental Issues

ENVR 680 (3) Topics in Environment 4

POLI 644 (3) Tropical Environmental Politics

SOCI 565 (3) Social Change in Panama

Thesis Component – Required (30 credits)

GEOG 698 (6) Thesis Proposal

GEOG 699 (24) Thesis Research

Participation in the MSE-Panama Symposium presentation in Montreal is also required.

M.A. in Geography (Thesis) – Development Studies

Option/Concentration (48 credits)

The Development Studies Option (DSO) is a cross-disciplinary M.A. program offered as an option within existing M.A. programs in the departments of Geography, History, Political Science, Anthropology, Economics, and Sociology. This thesis option is open to master's students specializing in development studies. Students enter through one of the participating departments and must meet the M.A. requirements of that unit. Students will take an interdisciplinary seminar and a variety of graduate level courses on international development issues. The M.A. thesis must be on a topic relating to development studies, approved by the DSO coordinating committee.

Required Courses (9 credits)

GEOG 631 (6) Methods of Geographical Research

INTD 657 (3) Development Studies Seminar

Complementary Courses (9 credits)

9 credits of courses at the 500 level or higher related to geography and international development studies to be chosen in consultation with an advisor.

Thesis Component - Required (30 credits)

GEOG 698 (6) Thesis Proposal

GEOG 699 (24) Thesis Research

M.A. in Geography (Thesis) – Gender and Women's Studies

Option/Concentration (48 credits)

The Graduate option in Gender and Women's Studies is an interdisciplinary program for students who meet the degree requirements in Geography who wish to earn 6 credits of approved coursework focusing on gender and women's studies, and issues in feminist research and methods. The student's M.A. thesis must be on a topic centrally relating to issues of gender and/or women's studies.

Required Courses (9 credits)

GEOG 631 (6) Methods of Geographical Research

WMST 601 (3) Feminist Theories and Methods

Complementary Courses (9 credits)

Two complementary substantive courses at the 500 level or above in Geography and

WMST 602 (3) Feminist Research Symposium or one 3-credit graduate course on gender/women's issues

Thesis Component - Required (30 credits)

GEOG 698 (6) Thesis Proposal

GEOG 699 (24) Thesis Research

Note: Candidates for the M.A. degree follow an individual program approved by the Department.

M.A. in Geography (Thesis) – Social Statistics

Option/Concentration (48 credits)

Required Courses (9 credits)

GEOG 631 (6) Methods of Geographical Research

GEOG 634 (3) Quantitative Methods in Geography

Complementary Courses (9 credits)

3 credits, one of the following courses:

ECON 668	(3)	Seminar on Social Statistics
GEOG 668	(3)	Seminar on Social Statistics
POLI 668	(3)	Seminar on Social Statistics
SOCI 668	(3)	Social Statistics 1

6 credits, two 3-credit graduate-level courses selected according to guidelines of the Department.

Thesis Component – Required (30 credits)

GEOG 698	(6)	Thesis Proposal
GEOG 699	(24)	Thesis Research

Ph.D. Programs

Students must pass the courses specified for their program, attend such additional courses as the Chair and the student's thesis supervisor think fit, and submit a thesis based on original research in an appropriate area.

Ph.D. in Geography**Required Course** (6 credits)

GEOG 631	(6)	Methods of Geographical Research
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Complementary Courses (minimum 6 credits)

6 credits, two 3-credit graduate-level courses selected according to guidelines of the Department.

Comprehensives

GEOG 700	(0)	Comprehensive Examination 1
GEOG 701	(0)	Comprehensive Examination 2
GEOG 702	(0)	Comprehensive Examination 3

Thesis**Ph.D. in Geography – Environment Option/Concentration****Required Courses** (12 credits)

ENVR 610	(3)	Foundations of Environmental Policy
ENVR 650	(1)	Environmental Seminar 1
ENVR 651	(1)	Environmental Seminar 2
ENVR 652	(1)	Environmental Seminar 3
GEOG 631	(6)	Methods of Geographical Research

Complementary Courses (9 credits)

6 credits of courses at the 500-level or higher selected according to guidelines of the Department.

3 credits, one of the following courses:

ENVR 519	(3)	Global Environmental Politics
ENVR 544	(3)	Environmental Measurement and Modelling
ENVR 580	(3)	Topics in Environment 3
ENVR 611	(3)	The Economy of Nature
ENVR 620	(3)	Environment and Health of Species
ENVR 622	(3)	Sustainable Landscapes
ENVR 630	(3)	Civilization and Environment 1
ENVR 680	(3)	Topics in Environment 4

or another course at the 500-level or higher recommended by the advisory committee and approved by the Environment Option Committee

Comprehensives

GEOG 700	(0)	Comprehensive Examination 1
GEOG 701	(0)	Comprehensive Examination 2
GEOG 702	(0)	Comprehensive Examination 3

Thesis**Ph.D. in Geography – Gender and Women's Studies Option/Concentration**

The Graduate option in Gender and Women's Studies is an interdisciplinary program for students who meet the degree requirements in Geography who wish to earn 9 credits of approved coursework focusing on gender and women's studies, and issues in feminist research and methods. The student's doctoral thesis

must be on a topic centrally relating to issues of gender and/or women's studies.

Required Courses (12 credits)

GEOG 631	(6)	Methods of Geographical Research
WMST 601	(3)	Feminist Theories and Methods
WMST 602	(3)	Feminist Research Symposium or

Complementary Courses (6 credits)

Two complementary substantive courses.

One of these two courses must be taken within the Department of Geography at the 500 level or above; one of the two courses must be on gender/women's issues at the 500, 600 or 700 level.

Comprehensives

GEOG 700	(0)	Comprehensive Examination 1
GEOG 701	(0)	Comprehensive Examination 2
GEOG 702	(0)	Comprehensive Examination 3

Thesis

The topic must be centrally related to issues of gender and/or women's studies.

Ph.D. in Geography – Neotropical Environment Option/Concentration**Required Courses** (12 credits)

BIOL 640	(3)	Tropical Biology and Conservation
ENVR 610	(3)	Foundations of Environmental Policy
GEOG 631	(6)	Methods of Geographical Research

Complementary Courses (3 credits)

3 credits, one of the following courses:

AGRI 550	(3)	Sustained Tropical Agriculture
BIOL 553	(3)	Neotropical Environments
BIOL 641	(3)	Issues in Tropical Biology
ENVR 611	(3)	The Economy of Nature
ENVR 612	(3)	Tropical Environmental Issues
ENVR 680	(3)	Topics in Environment 4
POLI 644	(3)	Tropical Environmental Politics
SOCI 565	(3)	Social Change in Panama

Comprehensives

GEOG 700	(0)	Comprehensive Examination 1
GEOG 701	(0)	Comprehensive Examination 2
GEOG 702	(0)	Comprehensive Examination 3

Thesis

Participation in the MSE-Panama Symposium presentation in Montreal is also required.

33.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Term(s) offered (Fall, Winter, Summer) may appear after the credit weight to indicate when a course would normally be taught. Please check Class Schedule to confirm this information.

Note: All undergraduate courses administered by the Faculty of Science (courses at the 100- to 500-level) have limited enrolment.

The course credit weight is given in parentheses after the title.

GEOG 500 GEOGRAPHY OF REGIONAL IDENTITY. (3) (Fall) (3 hours) (Restriction: Graduate students and final year undergraduates and/or those who have taken GEOG 408) The response of diverse regional groups in Europe to the centripetal tendencies of national institutions. The course draws upon examples from a variety of European regions. Contemporary regional issues will be contextualised within a spatial framework of historical geography.

GEOG 501 MODELLING ENVIRONMENTAL SYSTEMS. (3) (Fall) (1.15 hours lecture, 0.58 hours seminar, 0.69 hours project, 0.58 hours

laboratory) (Restriction: open only to U2 or U3 students who have completed six or more credits from courses at the 300 level of Atmospheric and Oceanic Sciences, Biology, Chemistry, Earth and Planetary Sciences, Geography, Natural Resource Sciences, or a McGill School of Environment domain, or permission of the instructor) (Prerequisites: MATH 139 or MATH 140, MATH 141, and MATH 203, or equivalent) (Enrolment limited to 20 students by availability of workstations) Most problems in environmental science deal with weak relationships and poorly defined systems. Model development and simulation will be used in this course to help improve understanding of environmental systems. Simulation of environmental systems is examined, focusing on problem definition, model development and model validation.

GEOG 502 GEOGRAPHY OF NORTHERN DEVELOPMENT. (3) (Fall) (3 hours) (Prerequisite (Undergraduate): GEOG 301 or GEOG 436, or permission of instructor) Analysis of the evolution of development policies and their spatial implications in circumpolar areas with an emphasis on the application of geographical concepts. Special attention is given to indigenous peoples and new immigrant populations in northern North America.

GEOG 503 LOCATION & SPATIAL DEVELOPMENT. (3) (Winter) (3 hours) (Prerequisites: GEOG 216 and GEOG 202, OR one course in each of microeconomics and macroeconomics, OR permission of instructor.) Patterns of regional economic growth or decline explained in terms of the competitive behaviour of profit-maximizing firms and utility-maximizing households. Ideas, models and evidence developed in competitive location theory.

GEOG 505 GLOBAL BIOGEOCHEMISTRY. (3) (Winter) (2 hours and research) (Prerequisite: GEOG 305 or GEOG 322 and permission of instructor) An examination of the storage, transfers and cycling of major elements and substances, with an emphasis on the global scale and the linkages between the atmosphere, hydrosphere, lithosphere and biosphere.

GEOG 506 ADVANCED GEOGRAPHIC INFORMATION SCIENCE. (3) (Winter) (2 hours and laboratory) (Prerequisite (Undergraduate): GEOG 201 and GEOG 307 and permission of instructor.) Critically analyse major themes in geographic information science and draw out the practical ramifications for spatial technologies and research. Topics such as spatial interoperability, data quality, scale, visualization, location based services and ontologies are covered.

GEOG 507 ADVANCED SOCIAL GEOGRAPHY. (3) (Prerequisite: GEOG 331 or equivalent, and permission of instructor.) Current theories and themes in social geography, such as relations between society and space, social and spatial relations of inequality, difference and diversity, situated and embodied identities, social issues and problems, connections between society and nature, all within a spatial framework.

GEOG 508 RESOURCES, PEOPLE AND POWER. (3) (Fall) (3 hours) (Prerequisite: GEOG 408 or GEOG 410 or permission of instructor) Addresses how different groups of people struggle over natural resources and environmental change. Politics of conservation in resource-dependent local communities, struggles over resource access and character, questions of power, resistance, class, and gender, and to "nature" as a socially-constructed yet active player.

GEOG 509 QUALITATIVE METHODS. (3) (Winter) (Prerequisite: Permission of instructor.) Qualitative methods that geographers use and the debates surrounding their use; epistemological underpinnings of methodological choices.

GEOG 510 HUMID TROPICAL ENVIRONMENTS. (3) (Winter) (3 hours) (Prerequisite: GEOG 203 or equivalent and written permission of the instructor) Focus on the environmental and human spatial relationships in tropical rain forest and savanna landscapes. Human adaptation to variations within these landscapes through time and space. Biophysical constraints upon "development" in the modern era.

GEOG 513 BEHAVIOURAL GEOGRAPHY. (3) (3 hours) (Prerequisite (Undergraduate): a course in introductory statistics) The development of behavioural approaches in geography. A survey of methods and findings in the area of environmental and spatial cognition,

preference and choice behaviour. Models of disaggregate and aggregate travel demand.

GEOG 522 ADVANCED ENVIRONMENTAL HYDROLOGY. (3) (2 hours and 1 tutorial) (Prerequisite: GEOG 322, or permission of instructor) (Cross-listed with CASN 300) Surface and shallow ground water determine the availability of moisture and many chemical elements at the Earth's surface. This course discusses the link between surface water and ground water flow systems and the role this link plays in stream flow production and biogeochemical cycling in lake, riparian and terrestrial ecosystems.

GEOG 523 ADVANCED CLIMATOLOGY. (3) (Fall) (3 hours) (Prerequisite: a previous course in climatology or meteorology, and written permission of the instructor) Principles of physical climatology involving a detailed examination of energy and mass exchange at or near the Earth's surface, emphasizing radiative heat, moisture and momentum transfers. Methods of measurement based on energy balance, water balance, and turbulent transport theory. Models of potential and actual evaporation and their use in predicting soil moisture and plant productivity. Examples drawn from natural, agricultural, and urban environments.

GEOG 535 REMOTE SENSING AND INTERPRETATION. (3) (Winter) (3 hours) (Prerequisite: GEOG 308 and written permission of instructor) Basic photogrammetry and interpretation procedures for aircraft and space craft photography and imagery.

GEOG 536 GEOCRYOLOGY. (3) (Fall) (3 hours) (Prerequisite: GEOG 272 and any 300-level geomorphology course approved by instructor) Study of the unique geomorphic aspects of periglacial and permafrost environments. The focus will be on processes in cold climates, the impact of human activity on permafrost landscapes and potential impacts of climatic change.

GEOG 537 ADVANCED FLUVIAL GEOMORPHOLOGY. (3) (Winter) (Prerequisite (Undergraduate): permission of instructor) An examination of current advances in fluvial geomorphology: sediment entrainment and transport, alluviation and river channel evolution.

GEOG 540 TOPICS IN GEOGRAPHY 1. (3) (Fall) (Prerequisite: Permission of instructor.) (Note: This course is offered on an irregular basis. See Geography Website (www.geog.mcgill.ca) for current status.) In-depth review of a current topic in physical geography.

GEOG 541 TOPICS IN GEOGRAPHY 2. (3) (Prerequisite: Permission of instructor.) (Note: This course is offered on an irregular basis. See Geography Website (www.geog.mcgill.ca) for current status.) In-depth review of a current topic in human geography.

GEOG 542 ADVANCED STUDIES IN GEOGRAPHY 1. (1) (Prerequisite: Permission of instructor.) (Note: This course is offered on an irregular basis. See Geography Website (www.geog.mcgill.ca) for current status.) Intensive review of a current topic or technique in physical geography.

GEOG 543 ADVANCED STUDIES IN GEOGRAPHY 2. (1) (Prerequisite: Permission of instructor.) (Note: This course is offered on an irregular basis. See Geography Website (www.geog.mcgill.ca) for current status.) Intensive review of a current topic or technique in human geography.

GEOG 550 HISTORICAL ECOLOGY TECHNIQUES. (3) (Fall) (2 hours, laboratory and seminar) (Prerequisite: GEOG 350 or BIOL 215 or PLNT 460 or permission of instructor.) Principles and methods of Quaternary paleoecology and vegetation reconstruction. Examination of ecosystem response to human disturbance and environmental change.

GEOG 551 ENVIRONMENTAL DECISIONS. (3) (Fall) (2 hours seminar, 1 hour tutorial) (Prerequisites: GEOG 302, GEOG 306 or equivalents) This course deals with the role of geographic information, paradigms and modes of analysis - including but not restricted to GIS - in environmental impact assessment and decision making. The focus will be on community-based decision making, particularly where conservation issues are involved. Cross-cultural situations, developing areas and the role of non-government organizations.

GEOG 555 ECOLOGICAL RESTORATION. (3) (Prerequisites: GEOG 350 or BIOL 308 or PLNT 460 and permission of instructor.) (Note: Requires participation in a field trip over reading week. Offered in alternate years.) A broad overview of ecological restoration. Considers causes of environmental degradation, why and what we restore, how restoration goals are set, and standards in restoration practice, as well as critiques and philosophies of ecological restoration, such as "ecocultural" restoration.

GEOG 602 URBAN GEOGRAPHY: SELECTED TOPICS. (3) Social and historical aspects of the urban environment.

GEOG 608 CULTURAL GEOGRAPHY PART 1. (3) Cultural ecology with particular reference to changing peasant/plantation relations; space needs of native peoples in relation to land claims.

GEOG 610 SOCIAL GEOGRAPHY: SELECTED TOPICS. (3) Approaches to the study of human-constructed landscapes, including issues of ethnicity, social networks and social metaphors/tropes.

GEOG 613 ADVANCED BIOGEOGRAPHY. (3)

GEOG 625 SPECIAL TOPICS IN HUMAN GEOGRAPHY. (3) An examination of recent advances in human geography.

GEOG 626 SPECIAL TOPICS IN PHYSICAL GEOGRAPHY. (3) An examination of recent advances in physical geography.

GEOG 631 METHODS OF GEOGRAPHICAL RESEARCH. (6) General research seminar in human and physical geography.

GEOG 631D1 (3), GEOG 631D2 (3) METHODS OF GEOGRAPHICAL RESEARCH. (Students must register for both GEOG 631D1 and GEOG 631D2) (No credit will be given for this course unless both GEOG 631D1 and GEOG 631D2 are successfully completed in consecutive terms) General research seminar in human and physical geography.

GEOG 631N1 METHODS OF GEOGRAPHICAL RESEARCH. (3) (Students must also register for GEOG 631N2) (No credit will be given for this course unless both GEOG 631N1 and GEOG 631N2 are successfully completed in a twelve month period) (GEOG 631N1 and GEOG 631N2 together are equivalent to GEOG 631) General research seminar in human and physical geography.

GEOG 631N2 METHODS OF GEOGRAPHICAL RESEARCH. (3) (Prerequisite: GEOG 631N1) (No credit will be given for this course unless both GEOG 631N1 and GEOG 631N2 are successfully completed in a twelve month period) (GEOG 631N1 and GEOG 631N2 together are equivalent to GEOG 631) See GEOG 631N1 for course description.

GEOG 697 THESIS RESEARCH (ENVIRONMENT OPTION). (18) Independent research under the supervision of a research director.

GEOG 698 THESIS PROPOSAL. (6) Preparation and evaluation of thesis proposal.

GEOG 698D1 (3), GEOG 698D2 (3) THESIS PROPOSAL. (Students must register for both GEOG 698D1 and GEOG 698D2) (No credit will be given for this course unless both GEOG 698D1 and GEOG 698D2 are successfully completed in consecutive terms) (GEOG 698D1 and GEOG 698D2 together are equivalent to GEOG 698) Preparation and evaluation of thesis proposal.

GEOG 698N1 THESIS PROPOSAL. (3) (Students must also register for GEOG 698N2) (No credit will be given for this course unless both GEOG 698N1 and GEOG 698N2 are successfully completed in a twelve month period) (GEOG 698N1 and GEOG 698N2 together are equivalent to GEOG 698) Preparation and evaluation of thesis proposal.

GEOG 698N2 THESIS PROPOSAL. (3) (Prerequisite: GEOG 698N1) (No credit will be given for this course unless both GEOG 698N1 and GEOG 698N2 are successfully completed in a twelve month period) (GEOG 698N1 and GEOG 698N2 together are equivalent to GEOG 698) See GEOG 698N1 for course description.

GEOG 699 THESIS RESEARCH. (24) Independent research under the supervision of a research director.

GEOG 699D1 (12), GEOG 699D2 (12) THESIS RESEARCH. (Students must register for both GEOG 699D1 and GEOG 699D2) (No credit will be given for this course unless both GEOG 699D1 and GEOG 699D2 are successfully completed in consecutive terms) (GEOG 699D1 and GEOG 699D2 together are equivalent to GEOG 699) Independent research under the supervision of a research director.

GEOG 699N1 THESIS RESEARCH. (12) (Students must also register for GEOG 699N2) (No credit will be given for this course unless both GEOG 699N1 and GEOG 699N2 are successfully completed in a twelve month period) (GEOG 699N1 and GEOG 699N2 together are equivalent to GEOG 699) Independent research under the supervision of a research director.

GEOG 699N2 THESIS RESEARCH. (12) (Prerequisite: GEOG 699N1) (No credit will be given for this course unless both GEOG 699N1 and GEOG 699N2 are successfully completed in a twelve month period) (GEOG 699N1 and GEOG 699N2 together are equivalent to GEOG 699) See GEOG 699N1 for course description.

GEOG 700 COMPREHENSIVE EXAMINATION 1. (0)

GEOG 700D1 (0), GEOG 700D2 (0) COMPREHENSIVE EXAMINATION 1. (Students must register for both GEOG 700D1 and GEOG 700D2) (No credit will be given for this course unless both GEOG 700D1 and GEOG 700D2 are successfully completed in consecutive terms) (GEOG 700D1 and GEOG 700D2 together are equivalent to GEOG 700)

GEOG 701 COMPREHENSIVE EXAMINATION 2. (0)

GEOG 701D1 (0), GEOG 701D2 (0) COMPREHENSIVE EXAMINATION 2. (Students must register for both GEOG 701D1 and GEOG 701D2) (No credit will be given for this course unless both GEOG 701D1 and GEOG 701D2 are successfully completed in consecutive terms) (GEOG 701D1 and GEOG 701D2 together are equivalent to GEOG 701)

GEOG 702 COMPREHENSIVE EXAMINATION 3. (0)

GEOG 702D1 (0), GEOG 702D2 (0) COMPREHENSIVE EXAMINATION 3. (Students must register for both GEOG 702D1 and GEOG 702D2) (No credit will be given for this course unless both GEOG 702D1 and GEOG 702D2 are successfully completed in consecutive terms) (GEOG 702D1 and GEOG 702D2 together are equivalent to GEOG 702)

ENVR 540 ECOLOGY OF SPECIES INVASIONS. (3) (Winter) (3 hours lecture) (Prerequisite: BIOL 308 or permission of instructor.) (Restrictions: Not open to U1 or U2 students. Not open to students who are taking or have taken BIOL 540.) Causes and consequences of biological invasion, as well as risk assessment methods and management strategies for dealing with invasive species.

ENVR 580 TOPICS IN ENVIRONMENT 3. (3) (Prerequisite: Permission of instructor) Advanced-level seminars and discussion of interdisciplinary aspects of current problems in environment led by staff and/or special guests. This course is offered on an irregular basis.

ENVR 585 READINGS IN ENVIRONMENT 2. (3) (Prerequisites: ENVR 400 and ENVR 401, or permission of instructor) Interdisciplinary literature project/essays related to environment, enabling advanced-level study under guidance of qualified MSE staff in areas outside the scope of individual departments. Proposed topic and method of evaluation must be approved by the Associate Director one month before the beginning of term. Contact the Program Coordinator for information.

ENVR 610 FOUNDATIONS OF ENVIRONMENTAL POLICY. (3) (Restriction: Enrolment in the Graduate Environment Option or enrolment in the Neotropical Environment Option (NEO) or permission of the instructor.) Analysis of current environmental policies to reveal implicit and explicit assumptions regarding scientific methods, hypothesis testing, subject/object, causality, certainty, deities, health, development, North-South concerns for resources, commons, national sovereignty, equity. Discussion of implications of such assumptions for building future environmental policies.

ENVR 612 TROPICAL ENVIRONMENTAL ISSUES. (3) (Course will only be offered if enrolment is five students or more. Enrolment in the Neotropical Environment Option (NEO) or permission of the instructor) Interdisciplinary seminar presenting and comparing a variety of perspectives on environmental issues in Latin America. The course focuses on how different disciplines work collaboratively toward the resolution of environmental problems. Some issues include watershed management, bioprospecting and drug discovery, indigenous knowledge and the role of Institutions in protecting biodiversity.

ENVR 680 TOPICS IN ENVIRONMENT 4. (3) (Restriction: students taking the Neotropical Environment Option.) (Prerequisite: Permission of Instructor) Seminars and discussion of advanced, interdisciplinary aspects of current of current problems in environment led by staff and/or special guests.

34 German Studies

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Website: www.mcgill.ca/german

Chair — K. Bauer

Director of Graduate Studies — A. Piper

34.1 Staff

Emeritus Professor

P.M. Daly; B.A.(Brist.), Ph.D.(Zür.)

Associate Professors

K. Bauer; M.A., Ph.D.(Wash.)

P. Peters; Ph.D.(Free Univ., Berlin)

Assistant Professors

M. Cowan; B.A., Ph.D.(Calif., Berk.)

A. Piper; B.A.(Princ.), Ph.D.(Col.)

34.2 Programs Offered

M.A. (thesis or non-thesis) and Ph.D. degrees in German.

Ph.D. Language Tests

Ph.D. candidates in other disciplines who are required to pass a reading test in German may prepare themselves by taking GERM 200, GERM 202 or GERM 203D1/D2.

34.3 Admission Requirements

Master's

In order to be admitted to the M.A. program in German Studies, candidates must have at least a B.A. degree in German from McGill University or an equivalent degree from another college or university of recognized standing.

Applicants with joint degrees or Majors degrees may be admitted on individual merit but they may be required to take additional courses. They may also be able to enter the program as qualifying students for the purpose of completing these preliminary studies.

In order to pursue graduate studies in German, all candidates must have considerable fluency in German, as all courses are given in German.

Graduate students holding a Language Instructorship or who are otherwise employed will normally not be allowed to take more than four courses a year. Students may be required to attend an approved course in English if their knowledge of that language is

judged inadequate. All graduate students are expected to attend the staff-student colloquium.

Ph.D.

M.A. or equivalent.

34.4 Application Procedures

1. Application form;
2. Two certified copies of all university transcripts; (all transcripts not in English or French must be accompanied by a certified English or French translation);
3. Two letters of recommendation (in English or French);
4. \$80 application fee;
5. Test results (GRE recommended, TOEFL required of all applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone). Minimum score of 86, with each component score not less than 20, required on the internet-based TOEFL examination. Proof of TOEFL must be presented at time of application or shortly thereafter);
6. Writing sample;
7. Statement of academic intent.

All information is to be submitted directly to the Graduate Coordinator in the Department of German Studies.

Deadline: February 1st.

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

34.5 Program Requirements

M.A. in German (Thesis) (48 credits)

Complementary Courses (18 credits)

Six 3-credit courses chosen from any graduate seminar listed as offered in the Department of German Studies. With the approval of the Graduate Studies Committee, students are normally permitted to take a maximum of 3 credits in another department.

Thesis Component – Required (30 credits)

GERM 690 (9) Thesis Research 1

GERM 691 (9) Thesis Research 2

GERM 692 (12) Thesis Research 3

Originality of research is not required for the thesis, but the student must show a critical understanding of the subject as demonstrated by the logical development of an argument which is supported by adequate documentation.

Students are expected to complete degree requirements in two years. They are expected to begin work on their thesis before the end of the first session. The thesis should demonstrate ability to organize the material under discussion, and should be succinct and relevant.

M.A. in German (Non-Thesis) (45 credits)

Required Courses (18 credits)

GERM 680 (6) Research Paper 1

GERM 681 (6) Research Paper 2

GERM 682 (6) Research Paper 3

Complementary Courses (27 credits)

Nine 3-credit courses chosen from any graduate seminar listed as offered in the Department of German Studies. With the approval of the Graduate Studies Committee, students are permitted to take a maximum of 3 credits in another department.

Ph.D.**Requirements:**

Coursework – 8 three-credit courses (24 credits); with the approval of the Graduate Studies Committee, students are permitted to take a maximum of 6 credits in another department. Comprehensive examinations (oral and written) (GERM 701). French Language examination or Latin (if specializing in German Literature before 1600).

Thesis.

Thesis Defence.

Original research leading to new insights is a prerequisite for the acceptance of a Ph.D. thesis.

As a rule, it will take a candidate at least three years after the M.A. degree to complete the requirements for the Ph.D. degree. Students who have not spent an appreciable length of time in a German-speaking country are advised to spend one year at a university in such a country, for which credit may be given in the above program.

34.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

The course credit weight is given in parentheses after the title.

- GERM 680 RESEARCH PAPER 1.** (6)
- GERM 681 RESEARCH PAPER 2.** (6)
- GERM 682 RESEARCH PAPER 3.** (6)
- GERM 690 THESIS RESEARCH 1.** (9)
- GERM 691 THESIS RESEARCH 2.** (9)
- GERM 692 THESIS RESEARCH 3.** (12)
- GERM 701 PH.D. COMPREHENSIVE EXAMINATION.** (0)
- GERM 790 PH.D. LANGUAGE REQUIREMENT.** (0)

35 Hispanic Studies

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E-mail: hispanic.studies@mcgill.ca

Website: www.arts.mcgill.ca/programs/hispanic

Chair — A. Holmes

Chair of Graduate Program — J. Pérez-Magallón

35.1 Staff*Professors*

J. Pérez-Magallón; Lic.Fil.(Barcelona), Ph.D.(Penn.)
K. Sibbald; M.A.(Cant.), M.A.(Liv.), Ph.D.(McG.) (*on sabbatical*
2008-2009)

Associate Professor

D.A. Boruchoff; A.B., A.M., Ph.D.(Harv.)
A. Holmes; B.A.(McG.), M.A., Ph.D.(Oregon)

Assistant Professors

J.R. Jouvé-Martin; Lic.Fil.(Madrid), Ph.D.(G'town)
F. Macchi; Lic.Lit.(Buenos Aires), M.A.(Ore.), Ph.D.(Yale)

35.2 Programs Offered

M.A. and Ph.D. in Hispanic Studies.

The Department of Hispanic Studies is committed to the disciplined study of all aspects of the literature, intellectual history and culture of Spain and Latin America, as well as the Spanish and Portuguese languages.

Research interests focus on both the cluster of Golden Age, Viceregal America and Enlightenment studies, as well as specializations in contemporary Spain and Hispanic America.

A limited number of language instructorships are available each year and those interested should apply c/o the Graduate Coordinator.

35.3 Admission Requirements**M.A. Degree (Thesis or Non-Thesis)**

In order to be admitted to graduate work in Hispanic Studies, candidates must fulfill the following prerequisites:

- a) Candidates must possess a B.A. degree with Honours or, in certain cases, Joint Honours in Hispanic Studies from McGill University, or an equivalent degree from another college or university of recognized standing.
- b) Candidates who do not possess the above prerequisites may, with special permission, enter the Department as Qualifying students for the purpose of completing these preliminary studies. They may have to take, among other courses, HISP 550, Comprehensive Examination.

Students may be required to attend an approved course in English or French if their knowledge of either language is deemed inadequate.

Prospective candidates may certainly express their preference but should note that the Graduate Committee of the Department of Hispanic Studies reserves the right to determine which of the two options (thesis/non-thesis) students admitted to the M.A. program will be permitted to pursue and/or continue to completion.

Ph.D. Degree

Applicants must normally possess an M.A. in Hispanic Studies, or in a related discipline, from a university of recognized standing. These applicants will be admitted to Ph.D.2 and follow the program requirements listed below. Exceptionally qualified candidates may apply to enter into Ph.D.1 directly from the B.A. Honours, and will be required to complete an additional 6 three-credit courses above those listed below.

Applicants must demonstrate proficiency in Spanish, and when appropriate in Portuguese, plus a working knowledge of either French or English.

Applicants should submit samples of research papers that they have completed during the course of their previous studies. Submission of the results of the Graduate Record Examination is also encouraged.

35.4 Application Procedures

Applications will be considered upon receipt of:

1. duly completed application form;
2. two certified copies of all university transcripts (all transcripts not in English or French must be accompanied by a certified English or French translation);
3. two letters of recommendation (in English or French);
4. \$80 application fee;
5. Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit TOEFL scores. Minimum score of 86, with each component score not less than 20, required on the internet-based TOEFL examination. Proof of TOEFL must be presented at time of application or shortly thereafter);

6. a sample of recent written work;
7. statement of academic intent.

All information should be submitted directly to the Graduate Coordinator.

Deadlines

For admission in the Fall Term: February 1.
For admission in the Winter Term: October 1 (Canadian/Permanent Residents); September 1 (International).

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

35.5 Program Requirements

Master's Programs

The Graduate Committee of the Department of Hispanic Studies reserves the right to determine which of the two options (thesis and non-thesis) students admitted to the M.A. will be permitted to pursue and/or continue to completion.

All general regulations of the Graduate and Postdoctoral Studies Office shall apply regarding the M.A. degree.

M.A. in Hispanic Studies (Thesis) (48 credits)

Students pursuing the M.A. with thesis are expected to complete their degree requirements within 18 months. Ideally, students admitted to this option will pursue their studies on a full-time basis. The combination of three courses and one Thesis Preparation course will permit these students the 12 credits per term average that is required for most fellowships.

Complementary Courses (18 credits)

Six 3-credit graduate-level HISP courses, with a maximum of 6 credits from Special Topics courses: HISP 690 to 694.

Thesis Component – Required (30 credits)

- HISP 695 (3) Thesis Preparation 1
HISP 696 (3) Thesis Preparation 2
HISP 697 (24) M.A. Thesis

M.A. in Hispanic Studies (Non-Thesis) (48 credits)

All candidates pursuing the M.A. without thesis, both full and part-time, are expected to complete their degree requirements within 18 months, and must successfully complete at least one of their Guided Research projects during the first 12 months.

All candidates pursuing the M.A. without thesis must complete HISP 615. Candidates choosing to focus their research on the literature of Spain will take HISP 616. Those wishing to specialize in the literature of Spanish America will take HISP 617.

At the conclusion of each Research Project, students will be required to produce an extended essay, or series of essays, during a 48-hour period with full access to critical material. Each of these essays will focus upon themes and issues central to the particular field of research and will be examined by at least two faculty members. Normally, the examinations for each of these projects will be offered only once during the academic year and always in the same rotation: HISP 615 in December, and both HISP 616 and HISP 617 in April.

In accordance with the regulations established by the Graduate and Postdoctoral Studies Office, students in non-thesis programs who do not take at least 12 credits per term for the duration of the program are considered to proceed toward their degree on a part-time basis.

Required Courses (6 credits)

- HISP 603 (3) Hispanic Bibliography 1
HISP 604 (3) Hispanic Bibliography 2

Complementary Courses (24 credits)

Eight 3-credit graduate-level HISP courses.

Project (18 credits)

- HISP 615 (9) Medieval and Golden Age Literature: Grp
HISP 616 (9) Modern and Contemporary Spanish Literature: Grp

or HISP 617 (9) Modern and Contemporary Spanish-American Literature: Grp

Ph.D. Degree Requirements

1. Six 3-credit courses.
2. Proficiency in Spanish, and when appropriate in Portuguese, as well as a functional ability in French and English. A reading knowledge of a fourth language will be determined according to the needs of the candidate's research program.
3. HISP 701 PhD Comprehensive Examination, Oral and Written.
4. HISP 713 Research Seminar in Hispanic Studies.
5. Doctoral dissertation on an appropriate area of original research.

All courses, comprehensive examinations and language requirements will normally be completed before the dissertation topic is formally approved. A dissertation proposal should be submitted to the Graduate Committee of the Department of Hispanic Studies for approval no later than the end of the second year of full-time doctoral studies.

All general regulations of the Graduate and Postdoctoral Studies Office regarding the Ph.D. degree shall apply.

Required Academic Activities: All candidates preparing their dissertation are required to give an annual formal presentation of their research to the Department, normally beginning in their third year of full-time doctoral studies.

35.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Note: All undergraduate courses administered by the Faculty of Arts (courses at the 100- to 500-level) have limited enrolment.

The course credit weight is given in parentheses after the title.

HISP 603 HISPANIC BIBLIOGRAPHY 1. (3)

HISP 604 HISPANIC BIBLIOGRAPHY 2. (3)

HISP 615 MEDIEVAL AND GOLDEN AGE LITERATURE: GRP. (9) An investigation of the principal themes and critical issues in medieval and Golden-Age Spanish literature. Attention will also focus on a comparison with similar problems in colonial Spanish-American literature. Project.

HISP 616 MODERN AND CONTEMPORARY SPANISH LITERATURE: GRP. (9) An investigation of the principal themes and critical issues in nineteenth- and twentieth-century Spanish literature. Project.

HISP 617 MODERN AND CONTEMPORARY SPANISH-AMERICAN LITERATURE: GRP. (9) An investigation of the principal themes and critical issues in nineteenth- and twentieth-century Spanish-American literature. Project.

HISP 695 THESIS PREPARATION 1. (3)

HISP 696 THESIS PREPARATION 2. (3)

HISP 697 M.A. THESIS. (24)

HISP 701 PHD COMPREHENSIVE EXAMINATION. (0) (Restriction: Ph.D. students in the Department of Hispanic Studies only) Ph.D. Comprehensive examinations, both oral and written.

HISP 713 RESEARCH SEMINAR. (3) Doctoral-level research seminar exploring a variety of research topics.

HISP 790 PH.D. LANGUAGE REQUIREMENT. (0) (Restriction: For students in other departments).

36 History

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E-mail: graduate.history@mcgill.ca

Website: www.mcgill.ca/history

Chair — Catherine LeGrand

Chair of Graduate Programs — Carman Miller

36.1 Staff

Emeritus Professors

Michael P. Maxwell; B.A.(Sir G.Wms.), M.A., Ph.D.(McG.)

Desmond Morton; B.A.(R.M.C.), B.A. M.A.(Oxf.), Ph.D.(Lond.)

(*Hiram Mills Professor of History*)

Albert Schachter; B.A.(McG.), D.Phil.(Oxf.) (*Hiram Mills Emeritus Professor of Classics*)

Professors

Hans Beck; Ph.D.(Erlangen) (*John MacNaughton Professor of Classics*)

Valentin J. Boss; B.A.(Cant.), Ph.D.(Harv.)

Gwyn Campbell; B.Soc.Sc., M.Soc.Sc.(Birm.), Ph.D.(Wales)
(*Canada Research Chair*)

Myron J. Echenberg; M.A.(McG.), Ph.D.(Wisc.)

John W. Hellman; B.A.(Marq.), M.A., Ph.D.(Harv.)

Peter Hoffmann; Ph.D.(Munich), F.R.S.C.(*William Kingsford Professor of History*)

Gershon D. Hundert; B.A., M.A.(Ohio St.), Ph.D.(Col.) (*Leonor Segal Professor of Jewish Studies*) (*joint appt. with Jewish Studies*)

Carman I. Miller; B.A. B.ED.(Acadia), M.A.(Dal.), Ph.D.(Lond.)

Suzanne Morton; B.A.(Trent), M.A., Ph.D.(Dal.)

Yuzo Ota; B.A., M.A., Ph.D.(Tokyo)

Nancy F. Partner; B.A., M.A., Ph.D.(Calif.)

T. Wade Richardson; B.A.(McG.), M.A., Ph.D.(Harv.)

Andrea Tone; B.A.(Qu.), M.A., Ph.D.(Emory) (*Canada Research Chair*) (*joint appt. with Social Studies of Medicine*)

Gil E. Troy; A.B., A.M., Ph.D.(Harv.)

Robin D.S. Yates; B.A., M.A.(Oxf.), M.A.(Calif.), Ph.D.(Harv.)

(*James McGill Professor*) (*joint appt. with East Asian Studies*)

Brian J. Young; B.A.(Tor.), M.A., Ph.D.(Qu.) (*James McGill Professor*)

John E. Zucchi; B.A. M.A. Ph.D.(Tor.)

Associate Professors

Paula Clarke; B.A.(Mem.), B.A.(Oxf.), M.A.(Tor.), Ph.D.(Lond.)

Brian Cowan; B.A.(Reed), M.A., Ph.D.(Princ.) (*Canada Research Chair*)

Catherine Desbarats; B.A.(Qu.), D.Phil.(Oxf.), Ph.D.(McG.)

Elizabeth Elbourne; B.A., M.A.(Tor.), D.Phil.(Oxf.)

Elsbeth Heaman; B.A., M.A.(McG.), Ph.D.(Tor.) (*Canada Research Chair*)

Catherine LeGrand; B.A.(Reed), M.A., Ph.D.(Stan.)

Brian Lewis; B.A., M.A.(Oxf.), A.M., Ph.D.(Harv.)

Leonard Moore; A.B., M.A., Ph.D.(Calif.)

Laila Parsons; B.A.(Exe.), D.Phil.(Oxf.) (*joint appt. with Institute of Islamic Studies*)

Griet Vankeerberghen; License(Louvin), Ph.D.(Princ.) (*joint appt. with East Asian Studies*)

Faith Wallis; B.A., M.A.(McG.), Ph.D.(Tor.) (*joint appt. with Social Studies of Medicine*)

Assistant Professors

Malek H. Abisaab; B.A.(Lebanese U.), M.A.(CUNY),

Ph.D.(Binghamton) (*joint appt. with Institute of Islamic Studies*)

James Delbourgo; B.A.(East Anglia), M.Phil.(Cant.), Ph.D.(Col.)

Nicolas Dew; B.A., M.Sc., D.Phil.(Oxf.)

Michael P. Fronda; B.A.(C'nell), M.A., Ph.D.(Ohio St.)

Renaud Gagné; B.A., M.A.(Montr.), Ph.D.(Harv.)

James Krapfl; A.B.(Stan.), M.A.(CEU); Ph.D.(Calif.)

Margaret Kuo; B.A., Ph.D.(Calif.-LA), J.D.(G'town)

Lorenz Lüthi; Lic.Phil.(Zürich), M.A., M.Phil., Ph.D.(Yale)

R. Jarrett Rudy; B.A., M.A.(Ott.), Ph.D.(McG.)

Daviken Studnicki-Gizbert; B.A.(Montr.), M.Phil., Ph.D.(Yale)

36.2 Programs Offered

Refer to the Department of History Website for detailed information (www.mcgill.ca/history).

M.A. Degree in History – Thesis.

M.A. Degree in History – Non-Thesis.

M.A. Degree in History of Medicine – Non-Thesis (in cooperation with the Department of Social Studies of Medicine; application is made directly to the History Department.)

Ph.D. Degree in History.

36.3 Admission Requirements

General: CGPA minimum: 3.3 on 4.0; TOEFL minimum: 550 on the paper-based test (213 on the computer-based test, or 86 on the Internet-based test, with each component score no less than 20).

Master in History

Normally, candidates are required to possess a B.A. (Honours) in History consisting of 60 credits in history. Students with other undergraduate history degrees (normally including serious research components) may be considered eligible. Applicants not satisfying these conditions, but otherwise judged worthy of serious consideration, will be asked to register in a Qualifying Program in which they undertake advanced undergraduate work.

Master in History – Development Studies Option

Students have the same admission requirements as above.

Master in History – European Studies Option

Students have the same admission requirements as above.

Master in History – Gender and Women's Studies Option

Students have the same admission requirements as above.

Master in the History of Medicine

Candidates must have a background in either History – B.A. (Honours) or equivalent – or a degree in one of the health professions with some background in history or a willingness to do preparatory work in history are also encouraged to apply.

Ph.D. in History

Normally, M.A. in History. (Students choosing the field of History of Medicine normally enter with an M.A. in History of Medicine.)

36.4 Application Procedures

Completed applications and supporting material must be submitted directly to the Graduate Coordinator by the deadline dates mentioned below. Refer to the Department of History Website for detailed information (www.mcgill.ca/history).

Deadline for admission in September:

Ph.D. applications – January 6

M.A. applications – February 1

Note: There are no January admissions.

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

36.5 Program Requirements

M.A. Degree in History (45 credits)

The Department offers two options towards the M.A. degree, one with a thesis and the other without a thesis. Both options consist of 45 credits. The thesis option, composed of graduate seminars, plus a thesis, is normally completed within 2 years. The non-thesis option, composed of required courses, graduate seminars, plus a major research paper, is normally completed in three terms, or one calendar year (Fall, Winter and Summer).

M.A. in History (Thesis) (45 credits)

Complementary Courses (12 credits)

12 credits at the 500-level or higher.

No more than 6 credits may be taken outside the department.

Candidates for the M.A. degree follow an individual program approved by the Department.

Thesis Component – Required (33 credits)

HIST 696 (9) Thesis Research 1
HIST 697 (12) Thesis Research 2
HIST 698 (12) Thesis Research 3

M.A. in History (Non-Thesis) (45 credits)

Required Courses (12 credits)

HIST 684 (3) Research Proposal
HIST 685 (3) Directed Research
HIST 686 (6) Bibliography Tutorial

Complementary Courses (18 credits)

18 credits at the 500-level or higher.

No more than 6 credits may be taken outside the department.

Candidates for the M.A. degree follow an individual program approved by the Department.

Research Paper – Required (15 credits)

HIST 687 (9) MA Paper 1
HIST 688 (6) MA Paper 2

M.A. Degree in History of Medicine

(45 credits normally completed in one year)

The program requires the completion of 45 credits, composed of required courses, graduate seminars, plus a major research paper. The program is normally completed in three terms, or one calendar year (Fall, Winter and Summer).

M.A. in History of Medicine (Non-Thesis) (45 credits)]

Required Courses (27 credits)

HIST 684 (3) Research Proposal
HIST 685 (3) Directed Research
HIST 686 (6) Bibliography Tutorial
HIST 687 (9) MA Paper 1
HIST 688 (6) MA Paper 2

Complementary Courses (18 credits)

18 credits at the 500-level or higher comprised of the following:

6 - 12 credits in History of Medicine courses below:

HIST 619 (3) Ancient Medicine Seminar 1
HIST 620 (3) Ancient Medicine Seminar 2
HIST 636 (3) Medieval Medicine Seminar 1
HIST 637 (3) Medieval Medicine Seminar 2
HIST 640 (3) Modern Medicine Seminar 1
HIST 641 (3) Modern Medicine Seminar 2
HSSM 604 (3) History of Medicine

6 - 12 credits in History (non-Medicine) courses

0 - 6 credits may be taken outside the department

Candidates for the M.A. degree follow an individual program approved by the Department.

Master in History – Development Studies

The Development Studies Option is a cross-disciplinary M.A. program offered as an option within existing M.A. programs in the departments of Anthropology, Economics, Geography, History, Political Science, and Sociology. The Department of History offers the option as either a Thesis or a Non-Thesis program. Both programs are open to M.A. students specializing in development studies. Students will take an interdisciplinary seminar and a variety of graduate level courses on international development issues. For both the M.A. Thesis and the Non-Thesis programs, the M.A. thesis or research essay must be on a topic relating to development studies, approved by the DSO coordinating committee.

M.A. in History (Thesis) – Development Studies Option (45 credits)

Required Course (3 credits)

INTD 657 (3) Development Studies Seminar

Complementary Courses (9 credits)

9 credits at the 500-level or higher selected as follows:

6 credits relating to development studies

3 credits relating to the student's program of study.

No more than 3 credits may be taken outside the department.

Candidates for the M.A. degree follow an individual program approved by the Department.

Thesis Component – Required (33 credits)

HIST 696 (9) Thesis Research 1
HIST 697 (12) Thesis Research 2
HIST 698 (12) Thesis Research 3

M.A. in History (Non-Thesis) – Development Studies Option (45 credits)

Required Courses (15 credits)

HIST 684 (3) Research Proposal
HIST 685 (3) Directed Research
HIST 686 (6) Bibliography Tutorial
INTD 657 (3) Development Studies Seminar

Complementary Courses (15 credits)

15 credits at the 500-level or higher selected as follows:

6 credits relating to development studies

9 credits relating to the student's program of study.

No more than 3 credits may be taken outside the department.

Candidates for the M.A. degree follow an individual program approved by the Department.

Research Paper – Required (15 credits)

HIST 687 (9) MA Paper 1
HIST 688 (6) MA Paper 2

Master in History – European Studies

The European Studies Option is a cross-disciplinary M.A. program offered as an option within existing M.A. programs in the departments of History, Political Science, and Sociology. The Department of History offers the option as either a Thesis or a Non-Thesis program. Both programs are open to students whose work is focused on Europe, in particular on issues relating to European integration, broadly understood. Students will take an interdisciplinary seminar and a minimum of six (6) credits on European themes and issues as part of their M.A. program. For both the M.A. Thesis and the Non-Thesis programs, the M.A. thesis or research paper must be on a topic relating to European Studies, approved by the ESO coordinating committee. Knowledge of French, while not a prerequisite, is an important asset for admission and will be encouraged as part of the program, as well as knowledge of a third European language.

M.A. in History (Thesis) – European Studies Option (45 credits)**Required Course** (3 credits)

HIST 659 (3) Interdisciplinary Seminar in European Studies

Complementary Courses (9 credits)

9 credits at the 500-level or higher, selected as follows:

6 credits on European themes and issues

No more than 3 credits may be taken outside the department.

Candidates for the M.A. degree follow an individual program approved by the Department.

Thesis Component – Required (33 credits)

HIST 696 (9) Thesis Research 1

HIST 697 (12) Thesis Research 2

HIST 698 (12) Thesis Research 3

M.A. in History (Non-Thesis) – European Studies Option (45 credits)**Required Courses** (15 credits)

HIST 659 (3) Interdisciplinary Seminar in European Studies

HIST 684 (3) Research Proposal

HIST 685 (3) Directed Research

HIST 686 (6) Bibliography Tutorial

Complementary Courses (15 credits)

15 credits at the 500-level or higher selected as follows:

6 credits on European themes and issues

No more than 3 credits may be taken outside the department.

Candidates for the M.A. degree follow an individual program approved by the Department.

Research Paper – Required (15 credits)

HIST 687 (9) MA Paper 1

HIST 688 (6) MA Paper 2

Master in History – Gender and Women's Studies

The Graduate option in Gender and Women's Studies is an interdisciplinary program for students who meet the degree requirements in History who wish to earn 6 credits of approved coursework focusing on gender and women's studies, and issues in feminist research and methods. The Department of History offers the option as either a Thesis or a Non-Thesis program. The student's thesis or research paper must be on a topic centrally relating to issues of gender and/or women's studies.

M.A. in History (Thesis) – Gender and Women's Studies Option (45 credits)**Required Course** (3 credits)

WMST 601 (3) Feminist Theories and Methods

Complementary Courses (9 credits)

9 credits at the 500-level or higher, selected as follows:

3 credits on gender-related issues

No more than 3 credits may be taken outside the department.

Candidates for the M.A. degree follow an individual program approved by the Department.

Thesis Component – Required (33 credits)

HIST 696 (9) Thesis Research 1

HIST 697 (12) Thesis Research 2

HIST 698 (12) Thesis Research 3

M.A. in History (Non-Thesis) – Gender and Women Studies Option (45 credits)**Required Courses** (15 credits)

HIST 684 (3) Research Proposal

HIST 685 (3) Directed Research

HIST 686 (6) Bibliography Tutorial

WMST 601 (3) Feminist Theories and Methods

Complementary Courses (15 credits)

15 credits at the 500-level or higher selected as follows:

3 credits on gender-related issues

No more than 3 credits may be taken outside the department.

Candidates for the M.A. degree follow an individual program approved by the Department.

Research Paper – Required (15 credits)

HIST 687 (9) MA Paper 1

HIST 688 (6) MA Paper 2

Ph.D. Degree in History

Examination Requirements: Candidates are required to sit an oral comprehensive examination by May at the end of the 2nd term of the Ph.D. 2 year. The examination consists of:

HIST 702 Comprehensive Examination in Major Field.

HIST 703 Comprehensive Examination in First Minor Field.

HIST 704 Comprehensive Examination in Second Minor Field.

Candidates must consult with their Director of Studies at the beginning of their Ph.D. work in order to determine their fields.

Thesis: With the completion of the oral comprehensive examination, candidates may proceed with their doctoral dissertation. Each Ph.D. candidate will be expected to establish an advisory committee to assist in supervising the dissertation.

Language Requirements: Ph.D. Candidates must offer one foreign language for examination purposes. The Department expects that candidates will have successfully demonstrated competence in the one required language by the end of their Ph.D.3 year.

It is understood that candidates may need a reading knowledge of such other languages as are required for research purposes in their major field.

Candidates in the field of Medical History will prepare the major field for the Comprehensive Examination with a member of the Department of Social Studies of Medicine and the two minor fields with members of the Department of History. The thesis will normally be directed by the director of the major field. In all other respects, the same rules will apply to candidates in this area as apply to other Ph.D. students in History.

36.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available. Class Schedule lists courses by term and includes days, times, locations, and names of instructor. Also visit our departmental Website www.mcgill.ca/history/graduate/ma/current/seminars for seminars offered including topic information.

Courses with numbers ending D1 and D2 are taught in two consecutive terms (most commonly Fall and Winter). Students must register for both the D1 and D2 components. No credit will be given unless both components (D1 and D2) are successfully completed in consecutive terms.

Note: All undergraduate courses administered by the Faculty of Arts (courses at the 100- to 500-level) have limited enrolment.

The course credit weight is given in parentheses after the title.

HIST 525 WOMEN, WORK AND FAMILY IN GLOBAL HISTORY. (3) (Prerequisite: A 300 or 400-level course in women's history or labour history or permission of instructor.) (Restriction: Restricted to students in History and Women's Studies.) The shifting historical context of female labour and family in selected western and non-western countries; the interaction between labour and gender relations with special focus on women's experiences on the shop floor and in the family.

HIST 530 U.S. FOREIGN RELATIONS. (3) (Prerequisite: one course in U.S. history or permission of instructor.) (Restriction: Enrollment limit 25.) The history and historiography, approaches and interpretations, of American foreign relations from the pre-Revolutionary era to the present.

HIST 550 ANCIENT HISTORY: SEMINAR. (3) (Fall) (Prerequisite (Undergraduate): 6 credits at the 300 or 400-level in Ancient history or permission of instructor.) (Restriction: Honours students or advanced undergraduates who have permission of the instructor. Also open to graduate students.) Topics in ancient Mediterranean History, focusing on Greek and/or Roman society.

HIST 551 ANCIENT HISTORY: RESEARCH. (3) (Winter) (Prerequisite: HIST 550) (Restriction: Honours students or advanced undergraduates who have permission of the instructor. Also open to graduate students.) Research paper on a theme in ancient Mediterranean history.

HIST 552 INTERNATIONAL RELATIONS: SEMINAR. (3) (Prerequisite: Permission of instructor.) (Restrictions: Restricted to Graduate students and Honours students or advanced students who have permission of the instructor.) Readings on and discussion of a theme in the history of international relations.

HIST 553 INTERNATIONAL RELATIONS: RESEARCH. (3) (Prerequisite: HIST 552) (Restrictions: Open only to students who have taken HIST 552 in the previous semester.) Supervised design of, research for and writing of a substantial paper on a theme in the history of international relations.

HIST 556 COLONIAL AMERICA: SEMINAR 1. (3) (Prerequisite: Permission of instructor.) (Restrictions: Restricted to Honours students or advanced undergraduates who have permission of the instructor. Not open to students who have taken HIST 481D1/D2.) Readings in and discussion of a theme in the history of Colonial America. Topics will change from year to year.

HIST 557 COLONIAL AMERICA: SEMINAR 2. (3) (Prerequisite: HIST 556) (Restrictions: Open only to students who have taken HIST 556 in the previous semester. Not open to students who have taken HIST 481D1/D2.) Supervised design, research and writing of a substantial research paper on a theme in the history of Colonial America.

HIST 560 WORLD HISTORY: SEMINAR. (3) (Prerequisite: Permission of instructor.) (Restrictions: Restricted to Graduate students and Honours students or advanced students who have permission of the instructor) Readings on and discussion of a theme in world history.

HIST 561 WORLD HISTORY: RESEARCH. (3) (Prerequisite: HIST 560) (Restrictions: Open only to students who have taken HIST 560 in the previous semester.) Supervised design of, research for and writing of a substantial paper on a theme in world history.

HIST 565 MODERN BRITAIN: SEMINAR 1. (3) (Prerequisite: Permission of the instructor.) (Restrictions: Honours students or advanced undergraduates. Not open to students who have taken HIST 484D1/D2 and/or HIST 634D1/D2.) Readings in and discussion of a theme in Modern British history.

HIST 566 MODERN BRITAIN: SEMINAR 2. (3) (Prerequisite: HIST 565) (Restrictions: Not open to students who have taken HIST 484D1/D2 and/or HIST 634D1/D2.) Supervised design, research and writing of a substantial research paper on a theme in modern British history.

HIST 579 THE ARTS OF HEALING IN CHINA. (3) (Prerequisite (Undergraduate): At least two courses at the 300-level or above in East Asian history or permission of instructor) An historical perspective on the diverse arts of healing in China focusing on Key formations such as popular traditions, the emergence of classical medicine, the creation of Traditional Chinese medicine in modern China. Emphasis on healing as part of social, historical, intellectual, and cultural processes.

HIST 580D1 (3), HIST 580D2 (3) EUROPEAN AND NATIVE-AMERICAN ENCOUNTERS. (Prerequisite (Undergraduate): Permission of instructor. Priority is given to Graduate students) (Students must register for both HIST 580D1 and HIST 580D2.) (No credit will be

given for this course unless both HIST 580D1 and HIST 580D2 are successfully completed in consecutive terms) This seminar will examine European and Native encounters throughout the Americas, from the late 15th century to the mid-nineteenth century. The aim is to introduce students to key primary sources related to contact, and to the methods used to interpret them.

HIST 581 THE ART OF WAR IN CHINA. (3) (Prerequisite (Undergraduate): at least two 300-level or above courses in East Asian history, or permission of instructor) A study of the historical development of military theory and practice from earliest times to 1911 from a variety of perspectives, technological, scientific, social, and cultural.

HIST 582 EUROPEAN INTELLECTUAL HISTORY. (3) (Prerequisite (Undergraduate): a previous course in European History or permission of instructor) A study of selected topics in 20th century French and European intellectual and cultural history and popular culture.

HIST 590 TOPICS: THE BRITISH EMPIRE. (3) (Prerequisite (Undergraduate): permission of instructor) Topics in the history of British formal and informal imperialism and the colonial encounter from the eighteenth to the twentieth centuries.

HIST 594D1 (3), HIST 594D2 (3) SEMINAR IN EARLY MODERN BRITAIN. (Prerequisite: any university course in British history or consent of instructor) (Note: Topics will vary from year to year.) (Restriction: Undergraduate Honours students or Masters students in history.) (Students must register for both HIST 594D1 and HIST 594D2.) (No credit will be given for this course unless both HIST 594D1 and HIST 594D2 are successfully completed in consecutive terms) Topics in early modern British history.

HIST 595D1 (3), HIST 595D2 (3) SEMINAR: EARLY MODERN WESTERN EUROPE. (Prerequisite (Undergraduate): permission of instructor) (Students must register for both HIST 595D1 and HIST 595D2.) (No credit will be given for this course unless both HIST 595D1 and HIST 595D2 are successfully completed in consecutive terms) This course is intended to offer advanced analytical and research training in a selected theme in western European history during the period from the Italian Renaissance to the French Revolution.

HIST 604D1 (3), HIST 604D2 (3) COLONIAL AMERICA. (Students must register for both HIST 604D1 and HIST 604D2) (No credit will be given for this course unless both HIST 604D1 and HIST 604D2 are successfully completed in consecutive terms) .

HIST 610D1 (3), HIST 610D2 (3) SEMINAR: TOPICS - MEDIEVAL HISTORY. (Students must register for both HIST 610D1 and HIST 610D2) (No credit will be given for this course unless both HIST 610D1 and HIST 610D2 are successfully completed in consecutive terms) .

HIST 612D1 (3), HIST 612D2 (3) GERMAN NATIONAL SOCIALISM. (Students must register for both HIST 612D1 and HIST 612D2) (No credit will be given for this course unless both HIST 612D1 and HIST 612D2 are successfully completed in consecutive terms)

HIST 613D1 (3), HIST 613D2 (3) TOPICS: CANADIAN SOCIAL HISTORY. (Students must register for both HIST 613D1 and HIST 613D2) (No credit will be given for this course unless both HIST 613D1 and HIST 613D2 are successfully completed in consecutive terms) A seminar covering topics in Canadian Social History which vary from year to year.

HIST 614D1 (3), HIST 614D2 (3) TOPICS: LATIN AMERICAN HISTORY. (Topic for 2006-07: TBA) (Students must register for both HIST 614D1 and HIST 614D2) (No credit will be given for this course unless both HIST 614D1 and HIST 614D2 are successfully completed in consecutive terms)

HIST 615D1 (3), HIST 615D2 (3) TOPICS IN ITALIAN HISTORY. (Students must register for both HIST 615D1 and HIST 615D2) (No credit will be given for this course unless both HIST 615D1 and HIST 615D2 are successfully completed in consecutive terms)

HIST 618 READINGS IN EAST ASIAN HISTORY. (3)

HIST 627D1 (3), HIST 627D2 (3) SEMINAR: EASTERN EUROPE. (Students must register for both HIST 627D1 and HIST 627D2) (No credit will be given for this course unless both HIST 627D1 and HIST 627D2 are successfully completed in consecutive terms) A seminar on selected aspects of East European History.

HIST 628D1 (3), HIST 628D2 (3) TOPICS IN RUSSIAN HISTORY. (Students must register for both HIST 628D1 and HIST 628D2) (No credit will be given for this course unless both HIST 628D1 and HIST 628D2 are successfully completed in consecutive terms) A seminar covering topics in Russian History which vary from year to year.

HIST 631D1 (3), HIST 631D2 (3) TOPICS: U.S. SOCIAL HISTORY. (Students must register for both HIST 631D1 and HIST 631D2) (No credit will be given for this course unless both HIST 631D1 and HIST 631D2 are successfully completed in consecutive terms)

HIST 637 MEDIEVAL MEDICINE SEMINAR 2. (3) (Prerequisite: HIST 638.) Research paper on a theme in the history of medicine 400 to 1500.

HIST 640 MODERN MEDICINE SEMINAR 1. (3) (Fall) Reading in and discussion of a theme in the history of Western European medicine since 1700.

HIST 641 MODERN MEDICINE SEMINAR 2. (3) (Winter) (Prerequisite: HIST 640) Research paper on a theme in the history of Western European medicine since 1700.

HIST 655 TUTORIAL. (6) If a seminar is not available in a field judged necessary to complete the program, candidates may (with the consent of their Director of Studies and that of the Chair of the Graduate Committee) do tutorial work to replace a seminar.

HIST 655D1 (3), HIST 655D2 (3) TUTORIAL. (Students must register for both HIST 655D1 and HIST 655D2) (No credit will be given for this course unless both HIST 655D1 and HIST 655D2 are successfully completed in consecutive terms) (HIST 655D1 and HIST 655D2 together are equivalent to HIST 655) If a seminar is not available in a field judged necessary to complete the program, candidates may (with the consent of their Director of Studies and that of the Chair of the Graduate Committee) do tutorial work to replace a seminar.

HIST 656D1 (3), HIST 656D2 (3) TUTORIAL. (Students must register for both HIST 656D1 and HIST 656D2) (No credit will be given for this course unless both HIST 656D1 and HIST 656D2 are successfully completed in consecutive terms)

HIST 658D1 (3), HIST 658D2 (3) SEMINAR IN CHINESE HISTORY. (Students must register for both HIST 658D1 and HIST 658D2) (No credit will be given for this course unless both HIST 658D1 and HIST 658D2 are successfully completed in consecutive terms)

HIST 659 INTERDISCIPLINARY SEMINAR IN EUROPEAN STUDIES. (3) (Restriction: Only open to students in European Studies Option.) Interdisciplinary seminar on a theme relevant to the study of Europe.

HIST 668D1 (3), HIST 668D2 (3) JAPANESE INTELLECTUAL HISTORY. (Students must register for both HIST 668D1 and HIST 668D2) (No credit will be given for this course unless both HIST 668D1 and HIST 668D2 are successfully completed in consecutive terms)

HIST 673D1 (3), HIST 673D2 (3) PROBLEMS IN U.S. HISTORY. (Students must register for both HIST 673D1 and HIST 673D2) (No credit will be given for this course unless both HIST 673D1 and HIST 673D2 are successfully completed in consecutive terms)

HIST 677D1 (3), HIST 677D2 (3) SEMINAR: EUROPEAN JEWISH HISTORY. (Students must register for both HIST 677D1 and HIST 677D2) (No credit will be given for this course unless both HIST 677D1 and HIST 677D2 are successfully completed in consecutive terms) .

HIST 678 HISTORIOGRAPHY. (3) This seminar examines the fundamentals of historical theory: developing a clear understanding of exactly why history has a "theory". The philosophic language and modes of reasoning necessary to understand historical theory are introduced.

HIST 679 HISTORICAL METHODS. (3) An examination of the major approaches to historical interpretation through the reading of important works of historical scholarship.

HIST 680 GRADUATE COLLOQUIUM 1. (3) Selected topics in history and practical issues of professional development.

HIST 681 GRADUATE COLLOQUIUM 2. (3) (Prerequisite: HIST 680.) Selected topics in history and practical issues of professional development.

HIST 683D1 (3), HIST 683D2 (3) HISTORY OF MONTREAL. (Students must register for both HIST 683D1 and HIST 683D2) (No credit will be given for this course unless both HIST 683D1 and HIST 683D2 are successfully completed in consecutive terms)

HIST 684 RESEARCH PROPOSAL. (3) The development of research-related skills and the production of a research proposal under the supervision of a faculty member.

HIST 685 DIRECTED RESEARCH. (3) (Corequisite: HIST 684.) Investigation of a specialized topic under the supervision of a faculty member.

HIST 686 BIBLIOGRAPHY TUTORIAL. (6) (Prerequisite: HIST 684.) The development of research-related skills and the production of a research bibliography under the supervision of a faculty member.

HIST 687 MA PAPER 1. (9) (Corequisite: HIST 688.) Start of the production of a research paper under the supervision of a faculty member.

HIST 688 MA PAPER 2. (6) (Corequisite: HIST 687.) Completion of the production of a research paper under the supervision of a faculty member.

HIST 691 M.A. RESEARCH PAPER 1. (6)

HIST 692 M.A. RESEARCH PAPER 2. (6)

HIST 693 M.A. RESEARCH PAPER 3. (9)

HIST 694 M.A. RESEARCH PAPER 4. (9)

HIST 696 THESIS RESEARCH 1. (9)

HIST 697 THESIS RESEARCH 2. (12)

HIST 698 THESIS RESEARCH 3. (12)

HIST 699 TUTORIAL. (3)

HIST 699D1 (1.5), HIST 699D2 (1.5) TUTORIAL. (Students must register for both HIST 699D1 and HIST 699D2) (No credit will be given for this course unless both HIST 699D1 and HIST 699D2 are successfully completed in consecutive terms) (HIST 699D1 and HIST 699D2 together are equivalent to HIST 699)

HIST 702D1 (0), HIST 702D2 (0) COMPREHENSIVE EXAMINATION - MAJOR FIELD. (Students must register for both HIST 702D1 and HIST 702D2) (No credit will be given for this course unless both HIST 702D1 and HIST 702D2 are successfully completed in consecutive terms) (HIST 702D1 and HIST 702D2 together are equivalent to HIST 702)

HIST 703D1 (0), HIST 703D2 (0) COMPREHENSIVE EXAMINATION - FIRST MINOR FIELD. (Students must register for both HIST 703D1 and HIST 703D2) (No credit will be given for this course unless both HIST 703D1 and HIST 703D2 are successfully completed in consecutive terms) (HIST 703D1 and HIST 703D2 together are equivalent to HIST 703)

HIST 704D1 (0), HIST 704D2 (0) COMPREHENSIVE EXAMINATION - SECOND MINOR FIELD. (Students must register for both HIST 704D1 and HIST 704D2) (No credit will be given for this course unless both HIST 704D1 and HIST 704D2 are successfully completed in consecutive terms) (HIST 704D1 and HIST 704D2 together are equivalent to HIST 704)

37 Human Genetics

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Website: www.mcgill.ca/humangenetics

Chair — D.S. Rosenblatt

Program Directors:

M.Sc. in Genetic Counselling — J. Fitzpatrick
M.Sc. and Ph.D. in Human Genetics — E. Shoubridge

Graduate Program Coordinator — K. Springer

37.1 Staff

Professors

E. Andermann; M.Sc., Ph.D., M.D., C.M.(McG.) (*Neurology and Neurosurgery*)
V. Der Kaloustian; B.A.(Acad.), M.Sc., Ph.D., M.D., C.M.(McG.), D.Sc.(Acad.), F.R.S.C., F.R.C.P.S.(C) (*Pediatrics*)
A. Duncan; B.Sc.(Qu.), Ph.D.(Edin.) (*Pathology and Pediatrics*)
K. Glass; M.A.(Barat), B.C.L., D.C.L.(McG.) (*Pediatrics*)
F. Glorieux; M.D.(Louvain), Ph.D.(McG.) (*Surgery*)
T. Hudson; M.D.(Montr.) (*William Dawson Scholar*) (*Medicine*)
F. Kaplan; B.A.(Col.), Ph.D.(McG.) (*Pediatrics*)
D. Malo; D.U.M., M.Sc.(Montr.), Ph.D.(McG.) (*William Dawson Scholar*) (*Medicine*)
K. Morgan; B.S., M.S., Ph.D.(Mich.) (*Medicine*)
R. Palmour; B.A.(Texas W.), Ph.D.(Texas) (*Psychiatry and Biology*)
D. Radzioch; M.Sc., Ph.D.(Jagiellonian, Krakow) (*Medicine*)
D.S. Rosenblatt; M.D., C.M.(McG.) (*Medicine, Pediatrics and Biology*)
R. Rozen; B.Sc., Ph.D.(McG.) (*Pediatrics and Biology*)
R. St-Arnaud; B.Sc.(Montr.), Ph.D.(Laval) (*Surgery*)
E. Schurr; M.Sc., Ph.D.(Albert-Ludwigs, Freiburg) (*Medicine*)
C. Sriver; B.A., M.D., C.M.(McG.) (*Paediatrics and Biology*)
E. Shoubridge; B.Sc., M.Sc.(McG.), Ph.D.(Br. Col.) (*Neurogenetics*)
J. Trasler; M.D., C.M., Ph.D.(McG.) (*William Dawson Scholar*) (*Pathology and Pediatrics*)

Associate Professors

N. Braverman; B.Sc.(C'nell), M.Sc.(Sarah Lawrence), M.D.(Tulane) (*Pediatrics*)
W. Foulkes; B.Sc., MB.BS., Ph.D.(Lond.) (*Medicine*)
A. Go; M.Phil.(Jawaharlal Nehru Univ.), Ph.D.(London) (*Obs.-Gyn.*)
R. Koenekoop; B.Sc., M.Sc.(Utrecht), Ph.D.(Clark, Worcester), M.D., C.M.(McG.) (*Ophthalmology*)
R. Nadon; B.A., M.A., Ph.D.(C'dia)
L. Russell; B.A., M.D.(Indi.) (*Pediatrics*)
P. Tonin; B.Sc., M.Sc., Ph.D.(Tor.) (*Medicine*)
S. Vidal; Ph.D.(Genève) (*Medicine*)

Assistant Professors

D. Bartholdi; M.D.(Zurich)
L. Cartier; B.Sc., M.Sc.(McG.)
K. Dewar; B.Sc.(Tor.), Ph.D.(Laval)
J. Majewski; B.Sc., M.Sc.(Stanford), Ph.D.(Wesleyan)
T. Pastinen; M.D., Ph.D.(Helsinki)
R. Sladek; B.Sc., M.D., Ph.D.(Tor.)
R. Slim; M.Sc.(Lebanon), M.Sc., Ph.D.(Paris VII)

Lecturers

N. Bolduc (*Pediatrics*), S.M. Chiu (*Pediatrics*), S. Drury (*Pediatrics*), J. Fitzpatrick (*Pediatrics, Medicine*), S. Fox

(*Medicine*), L. Kasprzak (*Medicine*), M. Lalous (*Medicine*), L. Palma (*Medicine*), A. Secord (*Pediatrics*), N. Wong (*Medicine*), S. Zaor (*Medicine*)

Associate Members

Biochemistry: P. Gros; Cardiology: J. Genest; Epidemiology: A. Lippman; Endocrinology: C. Polychonakos; Medicine: D. Cournoyer, J. Galipeau; B. Gilfix, C. Haston; G.Hendy, A. Karaplis, A. Peterson, E. Skamene,
M. Trifiro; Nephrology: I. Gupta; Obs.-Gyn.: A. Ao, A. Naumova; Pediatrics: P. Goodyer; N. Jabado; L. Majewska; A. Ryan.; Surgery: P. Roughley

37.2 Programs Offered

M.Sc. Degree (Genetic Counselling)

The M.Sc. in Genetic Counselling Program provides the academic foundation and clinical training required for the contemporary practice of genetic counselling. Genetic counsellors are health professionals who provide information and support to families who have members with birth defects or genetic disorders and to families who may be at risk for a variety of inherited conditions. Genetic counsellors investigate the problem present in the family, analyze inheritance patterns and risks of recurrence and review available options with the family. Some counsellors also work in administrative and academic capacities, and many engage in research activities. The curriculum includes a variety of required courses in Human Genetics and other departments and 40 weeks of supervised clinical training spread over 4 semesters. Graduates will be eligible to sit for both the Canadian Association of Genetic Counsellors and the American Board of Genetic Counselling certification examinations.

Enrollment will be limited to 6 students.

M.Sc. and Ph.D. Degrees in Human Genetics

The Department of Human Genetics offers research training at both the M.Sc. and Ph.D. levels. Both degrees require the completion of a thesis which is the major focus of the student's effort. A minimal amount of course work is required but specific course choices are flexible and vary according to the student's previous training and current research interest. The Department also offers a Bioinformatics option.

Most of the faculty of the Human Genetics Department are located in McGill teaching hospitals, reflecting the medically learned knowledge at the core of human genetic studies.

Faculty have a wide variety of research interests which embrace; cancer genetics, cytogenetics, reproductive biology, neurogenetics, genomic and genetic basis of human diseases. Detailed information regarding faculty research interest can be found on the Department Web page at www.mcgill.ca/humangenetics.

Students accepted into the Human Genetics graduate program will be paid a minimum of \$13,000, plus tuition fees. Students who are thinking of applying for admission should realize that their chances of acceptance improve if they come with a studentship award. Deadlines for scholarship applications may be anywhere from October to February.

37.3 Admission Requirements

M.Sc. in Genetic Counselling

Prerequisites: Bachelor's degree - 3.0/4.0 or 3.2/4.0 for the last two full-time academic years. Recent (5 years or less) university-level courses in the Basic Sciences (basic biology, cell and molecular, biochemistry, principles of human genetics or basic genetics with a significant "human" component); and a *minimum* of two Social Sciences (social psychology, abnormal psychology).

Prerequisites or corequisites: Recent (5 years or less) university-level course in statistics.

Applicants must have obtained some experience (either paid or volunteer) working in a counselling or advisory capacity, ideally in a health care setting.

Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit a TOEFL score of 600 on the TOEFL paper-based test (250 on the computer-based test or 100 on the Internet-based test with each component score no less than 20 is the **minimum** standard for admission.

M.Sc. and Ph.D. in Human Genetics

Prerequisites: B.Sc. – minimum CGPA 3.0/4.0 or 3.2/4.0 for the last two full-time academic years. Applicants must have a minimum of 6 credits in cellular and molecular biology or biochemistry, 3 credits in mathematics or statistics and 3 credits in genetics. Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit a TOEFL score of 600 on the TOEFL paper-based test (250 on the computer-based test or 100 on the Internet-based test) with each component score no less than 20, or 7 on the IELTS, is the minimum standard for admission.

Admission is based on an evaluation by the Graduate Training Committee and on acceptance by a research director who has agreed to provide adequate funding for personal and research expenses. Prospective graduate students are encouraged to contact staff members with whom they wish to study before applying for admission.

37.4 Application Procedures

M.Sc. in Genetic Counselling

Applications will be considered upon receipt of:

1. on-line application form, plus fee of \$80.00
2. two original transcripts,
3. two original letters of reference,
4. statement of purpose,
5. test results for international students: TOEFL or IELTS,

Documentation must be received by February 1st, and the online application by April 1st. Interviews will be arranged during the weeks of April 15 – May 1 for the top 18 candidates. Admission to the program will be based on academic record, reference letters, statement of purpose and interview.

Application materials should be sent to Fran Langton at the Departmental address above.

M.Sc. and Ph.D. in Human Genetics

Applications will be considered upon receipt of:

1. on-line application form, plus fee of \$80.00
2. two original transcripts,
3. two original letters of reference,
4. test results for international students: TOEFL or IELTS,

Deadlines for documents are March 1 for September admission and October 1 for January admission (international applications for January admission due August 1). The deadline for on-line applications is June 1 for September admission and October 31 for January admission for Canadian students, March 1 for September admission and July 1 for January admission for International students.

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/online.

Application materials should be sent to Kandace Springer at the Departmental address above.

37.5 Program Requirements

M.Sc. in Genetic Counselling (Non-Thesis)

Students must complete 48 credits for the M.Sc. in Genetic Counselling.

Required Courses – Phase I (year 1) (24 credits)

HGEN 600D1	(3)	Genetic Counselling Practicum
HGEN 600D2	(3)	Genetic Counselling Practicum
HGEN 601	(3)	Genetic Counselling Principles
HGEN 620D1	(4.5)	Introductory Field Work Rotations
HGEN 620D2	(4.5)	Introductory Field Work Rotations
HGEN 660	(3)	Genetics and Bioethics
PATH 653	(3)	Reading and Conference

Required Courses – Phase II (year 2) (24 credits)

HGEN 610	(3)	Genetic Counselling: Independent Studies 1
HGEN 611	(3)	Genetic Counselling: Independent Studies 2
HGEN 630D1	(6)	Advanced Field Work Rotations
HGEN 630D2	(6)	Advanced Field Work Rotations
HGEN 640	(3)	Clinical Genetics 1
HGEN 641	(3)	Clinical Genetics 2

M.Sc. and Ph.D. in Human Genetics

The graduate program of each student is established and regularly evaluated by a two-member supervisory committee appointed by the Graduate Training Committee and chaired by the student's thesis supervisor.

All graduate students are required to participate regularly in the various seminar series and journal clubs offered by the Department.

M.Sc. in Human Genetics (Thesis) (45 credits)

Length of Program – Three full-time terms of resident study at McGill University is the minimum time requirement to complete the Master's degree. The normal and expected duration is 2 1/2 years.

Thesis – In Human Genetics, the M.Sc. degree is considered to be a research degree and the candidate must present a thesis which should contain original contributions to knowledge.

Transfer from M.Sc. to Ph.D. Program – The student's Supervisory Committee may recommend to the Graduate Training Committee that the student be permitted to transfer to the Ph.D. program. This is normally done at the end of the first year of the Master's program. Students who wish to transfer are required to take their Ph.D. Comprehensive Examination (HGEN 701) before doing so and must have completed HGEN 692 Human Genetics.

Required Courses (6 credits)

HGEN 662	(3)	Laboratory Research Techniques
HGEN 692	(3)	Human Genetics

Complementary Courses (6 credits)

6 credits chosen from the departmental offerings below or from 500-, 600- or 700-level courses offered in the Faculties of Medicine or Science:

HGEN 660	(3)	Genetics and Bioethics
HGEN 661	(3)	Population Genetics
HGEN 670	(3)	Advances in Human Genetics 1
HGEN 671	(3)	Advances in Human Genetics 2
HGEN 672	(3)	Advances in Human Genetics 3
HGEN 690	(3)	Inherited Cancer Syndromes
HGEN 691	(3)	Host Responses to Pathogens
HGEN 693	(3)	Using Bioinformation Resources
HGEN 694	(3)	Microarray Statistical Analysis
HGEN 695	(3)	Psychiatric Genetics

Note: The Graduate Advisory Committee may stipulate additional course work at the 500, 600, or 700 level depending on the background of the candidate.

Thesis Component – Required (33 credits)

HGEN 680	(9)	M.Sc. Thesis Research 1
HGEN 681	(12)	M.Sc. Thesis Research 2
HGEN 682	(12)	M.Sc. Thesis Research 3

M.Sc. in Human Genetics – Bioinformatics (Thesis) Option/Concentration (45 credits)**Required Courses (6 credits)**

COMP 616D1/D2	(3)	Bioinformatics Seminar
HGEN 692	(3)	Human Genetics

Complementary Courses (6 credits)

6 credits from the following courses:

BINF 621	(3)	Bioinformatics: Molecular Biology
BMDE 652	(3)	Bioinformatics: Proteomics
BTEC 555	(3)	Structural Bioinformatics
COMP 618	(3)	Bioinformatics: Functional Genomics
PHGY 603	(3)	Systems Biology and Biophysics

Note: The Graduate Advisory Committee may stipulate additional course work at the 500, 600, or 700 level depending on the background of the candidate.

Thesis Component – Required (33 credits)

HGEN 680	(9)	M.Sc. Thesis Research 1
HGEN 681	(12)	M.Sc. Thesis Research 2
HGEN 682	(12)	M.Sc. Thesis Research 3

Ph.D. Requirements

Length of Program – Candidates entering Ph.D.1 must complete at least three years of full-time resident study (6 terms). The normal and expected duration of the Ph.D. program is 4-5 years. A student who has obtained a Master's degree at McGill in a related field, or at an approved institution elsewhere, and is proceeding in the same subject towards a Ph.D. degree may, upon the recommendation of the Graduate Training Committee, enter at the Ph.D. 2 level.

Ph.D. Comprehensive Examination – The comprehensive exam is a format of evaluation of the student's ability to proceed to the attainment of the Ph.D. Students must pass the Ph.D. Comprehensive Examination (HGEN 701) no later than 15 months from the date of registration in the program. Students who transfer from the Master's program must take the exam before doing so. Students who enter the Ph.D. program after completing an M.Sc. in Human Genetics at McGill must take the exam after 12 months.

Ph.D. Program

Requirements - In addition to thesis work, students are required to successfully complete HGEN 692. This 3-credit course may count towards the minimum requirements of 18 credits (6 semester courses) or 9 credits (entering Ph.D. after completing a Master's degree in a related field, 3 semester courses) for the Ph.D. program at the 500-level or higher with a passing grade of B- and an overall average of B. The course HGEN 692 must be successfully completed before the completion of the Ph.D. comprehensive examination, HGEN 701. A graduate pass (B- or better) is mandatory for all courses required for the Ph.D. program. Ph.D. students are also required to present a formal Ph.D. seminar before submitting their thesis.

Ph.D. in Human Genetics**Required Courses (3 credits)**

HGEN 692	(3)	Human Genetics
HGEN 701	(0)	Ph.D. Comprehensive Examination

Complementary Courses (15 credits or 6 credits depending on admission status as described above)

Course are to be chosen from the list below and/or from among 500-, 600- or 700-level courses offered in the Faculties of Medicine and Science.

HGEN 660	(3)	Genetics and Bioethics
HGEN 661	(3)	Population Genetics
HGEN 690	(3)	Inherited Cancer Syndromes
HGEN 691	(3)	Host Responses to Pathogens

HGEN 693	(3)	Using Bioinformation Resources
HGEN 694	(3)	Microarray Statistical Analysis
HGEN 695	(3)	Psychiatric Genetics

Students are restricted to taking any two of the following:

HGEN 670	(3)	Advances in Human Genetics 1
HGEN 671	(3)	Advances in Human Genetics 2
HGEN 672	(3)	Advances in Human Genetics 3

Note: The Graduate Advisory Committee may stipulate additional course work depending on the background of the candidate.

Thesis**Ph.D. in Human Genetics– Bioinformatics****Option/Concentration****Required Courses (6 credits)**

COMP 616D1/D2	(3)	Bioinformatics Seminar
HGEN 692	(3)	Human Genetics
HGEN 701	(0)	Ph.D. Comprehensive Examination

Complementary Courses (6 credits*)

6 credits from the following courses:

BINF 621	(3)	Bioinformatics: Molecular Biology
BMDE 652	(3)	Bioinformatics: Proteomics
BTEC 555	(3)	Structural Bioinformatics
COMP 618	(3)	Bioinformatics: Functional Genomics
PHGY 603	(3)	Systems Biology and Biophysics

***Note:** Students who enter in Ph.D. 1 will need to take an additional 6 credits of complementary courses chosen from the departmental offerings listed for the Ph.D. in Human Genetics and/or from among 500-, 600-, or 700-level courses in the Faculties of Medicine or Science.

Thesis**37.6 Courses**

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Courses with numbers ending D1 and D2 are taught in two consecutive terms (most commonly Fall and Winter). Students must register for both the D1 and D2 components. No credit will be given unless both components (D1 and D2) are successfully completed in consecutive terms.

The course credit weight is given in parentheses after the title.

HGEN 600 GENETIC COUNSELLING PRACTICUM. (6) Designed for students enrolled in the M.Sc. in Genetic Counselling. Students will be taught how to take family histories, read pedigrees and the basic skills required for interviewing patients. Discussions with example cases. Attendance at Genetics Rounds is compulsory.

HGEN 600D1 (3), HGEN 600D2 (3) GENETIC COUNSELLING PRACTICUM. (Students must register for both HGEN 600D1 and HGEN 600D2) (No credit will be given for this course unless both HGEN 600D1 and HGEN 600D2 are successfully completed in consecutive terms) (HGEN 600D1 and HGEN 600D2 together are equivalent to HGEN 600) Designed for students enrolled in the M.Sc. in Genetic Counselling. Students will be taught how to take family histories, read pedigrees and the basic skills required for interviewing patients. Discussions with example cases. Attendance at Genetics Rounds is compulsory.

HGEN 601 GENETIC COUNSELLING PRINCIPLES. (3) (Restriction: Restricted to students in the M.Sc. in Genetic Counselling Program.) Theoretical foundations for the contemporary practice of genetic counselling and the role of the genetic counsellor in the health care delivery system. Topics include counselling theory and psychosocial counselling techniques, the clinical genetics evaluation and case management, and professional ethics, conduct and development.

HGEN 610 GENETIC COUNSELLING: INDEPENDENT STUDIES 1. (3) Students enrolled in the M.Sc. in Genetic Counselling will become involved in an Independent Studies Project with a staff member. Students will also be responsible for specific assigned readings.

HGEN 610D1 (1.5), HGEN 610D2 (1.5) GENETIC COUNSELLING: INDEPENDENT STUDIES 1. (Students must register for both HGEN 610D1 and HGEN 610D2) (No credit will be given for this course unless both HGEN 610D1 and HGEN 610D2 are successfully completed in consecutive terms) (HGEN 610D1 and HGEN 610D2 together are equivalent to HGEN 610) Students enrolled in the M.Sc. in Genetic Counselling will become involved in an Independent Studies Project with a staff member. Students will also be responsible for specific assigned readings.

HGEN 611 GENETIC COUNSELLING: INDEPENDENT STUDIES 2. (3) Students enrolled in the two-year M.Sc. in Genetic Counselling program will complete an independent studies project with a staff member. Students will also be responsible for specific assigned readings.

HGEN 620 INTRODUCTORY FIELD WORK ROTATIONS. (9) Students are required to spend a minimum of 600 hours in field work. They will rotate through the various laboratories (cytogenetics, biochemical/molecular genetics) and clinical settings (prenatal diagnosis, screening, medical genetics) at the Montreal Children's Hospital.

HGEN 620D1 (4.5), HGEN 620D2 (4.5) INTRODUCTORY FIELD WORK ROTATIONS. (Students must register for both HGEN 620D1 and HGEN 620D2) (No credit will be given for this course unless both HGEN 620D1 and HGEN 620D2 are successfully completed in consecutive terms) (HGEN 620D1 and HGEN 620D2 together are equivalent to HGEN 620) Students are required to spend a minimum of 600 hours in field work. They will rotate through the various laboratories (cytogenetics, biochemical/molecular genetics) and clinical settings (prenatal diagnosis, screening, medical genetics) at the Montreal Children's Hospital.

HGEN 630D1 (6), HGEN 630D2 (6) ADVANCED FIELD WORK ROTATIONS. (Students must register for both HGEN 630D1 and HGEN 630D2) (No credit will be given for this course unless both HGEN 630D1 and HGEN 630D2 are successfully completed in consecutive terms) Students are required to spend a minimum of 600 hours in advanced clinical work. Students will rotate through the Division of Medical Genetics at the Montreal Children's Hospital, in some of its disease-oriented clinics and screening programs; at the Neurogenetics Unit of the Montreal Neurological Hospital; and the Medical Genetics Divisions at the adult hospitals (Montreal General Hospital, Royal Victoria Hospital and the Sir Mortimer B. Davis-Jewish General Hospital).

HGEN 640 CLINICAL GENETICS 1. (3) This course is designed for students in the M.Sc. in Genetic Counselling program. The lectures will cover current topics in human/medical genetics (cytogenetics, biochemical genetics, molecular genetics, population genetics, etc.) related to clinical cases.

HGEN 640D1 (1.5), HGEN 640D2 (1.5) CLINICAL GENETICS 1. (Students must register for both HGEN 640D1 and HGEN 640D2) (No credit will be given for this course unless both HGEN 640D1 and HGEN 640D2 are successfully completed in consecutive terms) (HGEN 640D1 and HGEN 640D2 together are equivalent to HGEN 640) This course is designed for students in the M.Sc. in Genetic Counselling program. The lectures will cover current topics in human/medical genetics (cytogenetics, biochemical genetics, molecular genetics, population genetics, etc.) related to clinical cases.

HGEN 641 CLINICAL GENETICS 2. (3) This course is designed for students in the M.Sc. in Genetic Counselling program. The lectures will cover current topics in human/medical genetics (cytogenetics, biochemical genetics, molecular genetics, population genetics, etc.) related to clinical cases.

HGEN 650 GENETIC COUNSELLING: READING PROJECT. (3) Students in the M.Sc. in Genetic Counselling will be assigned a Reading/Literature Search project on various topics: Bereavement, Pregnancy Loss, etc. Students will prepare and present information in seminar/discussion format.

HGEN 660 GENETICS AND BIOETHICS. (3) This course will deal with ethical issues in the gathering, dissemination, and use of genetic information for decisions concerning reproduction, health care, and research.

HGEN 661 POPULATION GENETICS. (3) This course will deal with the quantitative analysis of factors that affect the distribution of genetic variation in defined populations. Lectures and presentations.

HGEN 662 LABORATORY RESEARCH TECHNIQUES. (3) Directed training in selected methods. Form and content are flexible to allow the department to meet specific student demands and needs.

HGEN 670 ADVANCES IN HUMAN GENETICS 1. (3) This course will deal with recent progress in human genetics, and its applications to health care, by identifying different fields including different disciplines (e.g. cancer genetics, neurogenetics), different conceptual approaches, or different methodologic approaches.

HGEN 671 ADVANCES IN HUMAN GENETICS 2. (3) This course will deal with recent progress in human genetics, and its applications to health care, by identifying different fields including different disciplines (e.g. cancer genetics, neurogenetics), different conceptual approaches, or different methodologic approaches.

HGEN 672 ADVANCES IN HUMAN GENETICS 3. (3) This course will deal with recent progress in human genetics, and its applications to health care, by identifying different fields including different disciplines (e.g. cancer genetics, neurogenetics), different conceptual approaches, or different methodologic approaches.

HGEN 680 M.Sc. THESIS RESEARCH 1. (9) Independent research work under the direction of the Thesis Supervisor and the Supervisory Committee.

HGEN 681 M.Sc. THESIS RESEARCH 2. (12) Independent research work under the direction of the Thesis Supervisor and the Supervisory Committee.

HGEN 682 M.Sc. THESIS RESEARCH 3. (12) Independent research work under the direction of the Thesis Supervisor and the Supervisory Committee.

HGEN 690 INHERITED CANCER SYNDROMES. (3) The principles and practice associated with inherited predisposition to cancer (breast and colon cancers, example) such as the methods of gene discovery, clinical characteristics of inherited predisposition, methods of mutation analysis, genetic counselling, and ethical issues of genetic testing.

HGEN 691 HOST RESPONSES TO PATHOGENS. (3) Introduction to advanced concepts of host resistance to infectious diseases as they apply to both animal models and human populations.

HGEN 692 HUMAN GENETICS. (3) (Restriction: For Department of Human Genetics graduate students.) This course will emphasize the principles and practice of human genetics, including an overview of the fundamental aspects of human genetics pertaining to chromosomes and mutations, population, cancer and development genetics, the inheritance of complex traits.

HGEN 693 USING BIOINFORMATION RESOURCES. (3) (Restriction: As the emphasis of the course instruction will be on the human genome, a preference will be given to graduate students in the Dept. of Human Genetics. Graduate students with basic knowledge of human genome from the Faculty of Medicine can apply with permission of the course coordinator.) Study of internet resources relevant to biomedical research.

HGEN 694 MICROARRAY STATISTICAL ANALYSIS. (3) (Restriction: For Department of Human Genetics and Department of Medicine graduate students.) This introductory course presents the conceptual underpinnings of statistical analysis for microarray gene expression data. Applied aspects of analysis will be emphasized, although students will be expected to become familiar with rudimentary equations.

HGEN 695 PSYCHIATRIC GENETICS. (3) (Prerequisites: BIOL 370 or HGEN 692 or an equivalent basic course in human genetics or permission of the instructor.) (Note: This course is aimed at students enrolled in the Department of Human Genetics graduate

program. This course is also open to students from the Department of Psychiatry with permission. Permission is required from other disciplines as there is an expectation that graduate students have a basic knowledge of human heredity and genetic principles of human heredity (see course prerequisites). A seminar on current knowledge in the field of complex trait genetics as it applies to psychiatric disease.

HGEN 696 ADVANCED READINGS IN GENETICS 1. (3) (Note: Course enrollment is limited to 12 students.) A review and discussion of specific topics in genetics (genetic models- population based, animal, and in vitro genetic models, genomics, and medical genetics) centred on current literature and latest advances in the field.

HGEN 697 ADVANCED READINGS IN GENETICS 2. (3) (Note: Course enrollment is limited to 12 students.) A review and discussion of specific topics in genetics (genetic models- population based, animal, and in vitro genetic models, genomics, and medical genetics) centred on current literature and latest advances in the field.

HGEN 698 ADVANCED READINGS IN GENETICS 3. (3) (Note: Course enrollment is limited to 12 students.) A review and discussion of specific topics in genetics (genetic models- population based, animal, and in vitro genetic models, genomics, and medical genetics) centred on current literature and latest advances in the field.

HGEN 699 ADVANCED READINGS IN GENETICS 4. (3) (Note: Course enrollment is limited to 12 students.) A review and discussion of specific topics in genetics (genetic models- population based, animal, and in vitro genetic models, genomics, and medical genetics) centred on current literature and latest advances in the field.

HGEN 701 PH.D. COMPREHENSIVE EXAMINATION. (0)

38 Information Studies

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Director — France Bouthillier

38.1 Academic Staff

Emeritus Professor

Effie C. Astbury; B.A., B.L.S.(McG.), M.L.S.(Tor.)

Professors

J. Andrew Large; B.Sc.(Lond.), Ph.D.(Glas.), Dip.Lib.(Lond.)
(*CN-Pratt-Grinstad Professor of Information Studies*)
Peter F. McNally; B.A.(W. Ont.), B.L.S., M.L.S., M.A.(McG.)

Associate Professors

Jamshid Beheshti; B.A.(S. Fraser), M.L.S., Ph.D.(W. Ont.)
France Bouthillier; B.Ed.(Que.), M.B.S.I.(Montr.), Ph.D.(Tor.)
John E. Leide; B.S.(MIT), M.S.(Wis.), Ph.D.(Rutg.)

Assistant Professors

Joan Bartlett; B.Sc., M.L.S., Ph.D.(Tor.)
Kimiz Dalkir; B.Sc., M.B.A.(McG.), Ph.D.(C'dia)
Eun Park; B.A.(Pusan), M.L.I.S.(Ill.), M.B.A.(Pitts.), Ph.D.(Calif.-LA)
Catherine Guastavino; B.Sc.(McG.), M.Sc.(Aix-Marseille), Ph.D.(Paris)

Adjunct Professors

Joy Bennett; B.A., M.A.(C'dia), M.L.I.S.(McG.), Ph.D.(C'dia)

Associate Members

Gordon Burr; B.A., M.L.I.S.(McG.), Senior Archivist, Records Management, McGill University Archives
Pierre Pluye; M.D.(Toulouse), M.Sc., Ph.D.(Montr.), Dept. of Family Medicine, McGill University
Richard Virr; B.A.(Tulane), M.A.(Qu.), Ph.D.(McG.), Curator of Manuscripts, Rare Books and Special Collections Division, McGill Libraries

Affiliate Member

Frances Groen; B.A., B.L.S.(Tor.), M.A.(Pitt.)

Professional Associate

Fiona Tam; B.B.A.(H.K.U.S.T.), M.L.I.S.(McG.)

Research Associate

Charles Cole; B.A.(McG.), M.L.I.S.(McG.), Ph.D.(Sheff.)

Lecturers

Leanne Bowler; B.A., M.L.I.S., M.Ed.(McG.)
Louise Carpentier; B.L.S.(Tor.), M.Bibl.(Montr.), M.P.P.PA.(C'dia), Senior Librarian, Head, Government Documents and Special Collections Services, Webster Library, Concordia University Libraries
Larry Deck; B.A.(Windsor), M.A.(Montr.), M.L.I.S.(McG.)
Danielle Dennie; B.Sc.(Laur.), M.Sc.(Inst. Armand Frappier), M.L.I.S.(McG.), Chemistry & Biochemistry and Physics Librarian, Concordia University Libraries
Jocelyn Godolphin; B.A.(Man.), M.A.(Ore.), M.L.S.(Br. Col.), Asst. Director, Collection Services, Webster Library, Concordia University Libraries
Andrea Harland; B.A.(McG.), M.A.C.(Qu.), M.L.I.S.(McG.), Management & Marketing Subject Librarian, Concordia University Libraries
Alexander Jerabek; B.A.(McG.), M.A.(C'dia), M.L.I.S.(McG.), Responsable du soutien aux opérations du Système Colombo CREPUQ
Charles-Antoine Julien; B.Eng., M.Sc.(École Poly., Montr.)
Audrey Laplante; B.Mus.(Montr.), M.B.S.I.(Montr.)
Valerie Nessel; B.A.(Qu.), M.L.I.S.(McG.)
François-Xavier Paré; B.A.A.(HEC), M.B.S.I.(Montr.)

38.2 Programs Offered

For full information on the School of Information Studies, please see our Website at www.mcgill.ca/sis.

38.2.1 Master of Library and Information Studies (M.L.I.S.)

The M.L.I.S. degree, accredited by the American Library Association, has three areas of specialization: Archival Studies, Knowledge Management and Librarianship. The degree is awarded after successful completion of the equivalent of two academic years of graduate study (48 credits). Four courses in each of the fall and winter terms constitute a full load. Although the program is normally taken full-time, it may be pursued part-time but must be completed within five years of initial registration.

38.2.2 Graduate Certificate in Library and Information Studies

The Graduate Certificate program assists library and information professionals, from this country and elsewhere, in updating their knowledge for advanced responsibility.

The 15-credit program may be completed in one or possibly two academic terms. The program may also be completed on a part-time basis to a maximum of five years.

38.2.3 Graduate Diploma in Library and Information Studies

The Graduate Diploma program provides professional librarians and information specialists with formal, for credit continuing education opportunities to update, specialize, and redirect their careers for advanced responsibility. For those considering

admission into the doctoral program, it will provide an opportunity to further develop their research interests.

The 30-credit program may be completed in one calendar year. The program may also be completed on a part-time basis to a maximum of five years.

38.2.4 Ph.D. (*Ad Hoc*)

The Ph.D. program provides an opportunity for exceptional candidates to study interdisciplinary research topics within library and information studies at the doctoral level. The candidate is attached to the School of Information Studies and develops the usual working relationships with research supervisors.

38.3 Admission Requirements

38.3.1 Master of Library and Information Studies (M.L.I.S.)

1. Applicants must have a bachelor's degree from a recognized university. Academic standing of at least B, or second class, upper division, or a CGPA of 3.0 out of 4.0 is required.

Courses in library and/or information studies taken before or as part of an undergraduate degree, or such courses taken in a school with a program not accredited by the American Library Association, cannot be accepted as credit toward the McGill M.L.I.S.

2. Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English prior to admission. Such proof normally comprises the Test of English as a Foreign Language (TOEFL) with a minimum score of 600 (paper-based test), 250 (computer-based test) with a written score of at least 5.0 for either test, 100 (IBT Internet based TOEFL) with a written score of at least 25 and a reading, speaking and listening score not less than 20, or the International English Language Testing System (IELTS) with a minimum overall band score of 7.5. Applicants whose mother tongue is not English may be asked to demonstrate English-language competency beyond the submission of the TOEFL or IELTS scores.
3. Competency in the use of computers is expected. Applicants should have a thorough knowledge of the Windows operating system, particularly file management and word processing, and presentation software such as PowerPoint.
4. Previous library work experience, while not essential, will be given consideration in assessing an application, but this experience cannot replace academic criteria.

38.3.2 Graduate Certificate in Library and Information Studies

1. Applicants should have a Master's degree in Library and Information Studies from a program accredited by the American Library Association (or equivalent). Candidates will normally have at least three years' professional experience following completion of the M.L.I.S.
2. Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English prior to admission. Such proof normally comprises the Test of English as a Foreign Language (TOEFL) with a minimum score of 600 (paper-based test), 250 (computer-based test) with a written score of at least 5.0 for either test, 100 (IBT Internet based TOEFL) with a written score of at least 25 and a reading, speaking and listening score not less than 20, or the International English Language Testing System (IELTS) with a minimum overall band score of 7.5. Applicants whose mother

tongue is not English may be asked to demonstrate English-language competency beyond the submission of the TOEFL or IELTS scores.

38.3.3 Graduate Diploma in Library and Information Studies

1. Applicants should have a Master's degree in Library and Information Studies from a program accredited by the American Library Association (or equivalent). Admission of students with overseas degrees will be guided by the M.L.I.S. equivalency standards of A.L.A. Applicants will normally have at least three years' professional experience following completion of the M.L.I.S.
2. Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English prior to admission. Such proof normally comprises the Test of English as a Foreign Language (TOEFL) with a minimum score of 600 (paper-based test), 250 (computer-based test) with a written score of at least 5.0 for either test, 100 (IBT Internet based TOEFL) with a written score of at least 25 and a reading, speaking and listening score not less than 20, or the International English Language Testing System (IELTS) with a minimum overall band score of 7.5. Applicants whose mother tongue is not English may be asked to demonstrate English-language competency beyond the submission of the TOEFL or IELTS scores.

38.3.4 Ph.D. (*Ad Hoc*)

1. Applicants should normally have a Master's degree in Library and Information Studies (or equivalent). Master's degrees in other fields will be considered in relation to the proposed research.

An applicant with a Master's degree in Library and Information Studies (or equivalent) will normally be admitted into Ph.D.2.

An applicant with a Master's degree in another field may be considered for admission as a Ph.D. 2 but will need to register for courses to upgrade background knowledge in library and information studies.

2. Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English prior to admission. Such proof normally comprises the Test of English as a Foreign Language (TOEFL) with a minimum score of 600 (paper-based test), 250 (computer-based test) with a written score of at least 5.0 for either test, 100 (IBT Internet based TOEFL) with a written score of at least 25 and a reading, speaking and listening score not less than 20, or the International English Language Testing System (IELTS) with a minimum overall band score of 7.5. Applicants whose mother tongue is not English may be asked to demonstrate English-language competency beyond the submission of the TOEFL or IELTS scores.

38.4 Application Procedures

Applicants to all programs must submit, or arrange for the submission of, the following documents, directly to the School. Additional requirements for each program are listed below.

1. A completed application form, available on the Web at www.mcgill.ca/applying/graduate. If Internet access is not possible, the application form may be obtained from the School by mail or E-mail.

2. Official transcripts of the applicant's university record showing degree(s) awarded.
3. Two academic letters of recommendation, on letterhead, or if degree was awarded more than five years ago, two employer letters of recommendation.
4. A covering letter outlining the reasons for wishing to undertake the program of study.
5. A curriculum vitae.
6. A non-refundable application fee of \$80 in Canadian funds, payable by credit card when applying online. Payment for a paper application may be made by credit card, bank draft, money order or certified cheque (payable to McGill University).

38.4.1 Master of Library and Information Studies (M.L.I.S.)

Deadline for receipt of application forms for entrance into the first year of the M.L.I.S. program is April 1 (March 1 for international students), but as enrolment is limited, early application is strongly recommended. Students expecting to be considered for fellowships or scholarships are encouraged to apply before February 1.

Applicants may be interviewed by a member of the Admissions Committee or a delegate.

The Admissions Committee will begin reviewing complete applications on December 1, and offers will be made on a rolling basis from that date.

38.4.2 Graduate Certificate in Library and Information Studies

Applicants must also provide a statement of areas of professional interest.

Application deadlines are the same as for the M.L.I.S. (see section 38.4.1 "Master of Library and Information Studies (M.L.I.S.)").

38.4.3 Graduate Diploma in Library and Information Studies

Applicants must also provide a statement of areas of academic/research interest.

Application deadlines are the same as for the M.L.I.S. (see section 38.4.1 "Master of Library and Information Studies (M.L.I.S.)").

38.4.4 Ph.D. (*Ad Hoc*)

Applicants must also provide a brief outline (2-3 pages) of the proposed research.

The applicant's file will be considered by the Advanced Studies Committee within the School. If approved, the applicant will normally enrol as a Ph.D.2 student.

A person interested in pursuing a program of study leading to the Ph.D. degree should contact the Chairperson of the Advanced Studies Committee in the School of Information Studies.

38.5 Master of Library and Information Studies (M.L.I.S.)

The M.L.I.S. degree is awarded after successful completion of the equivalent of two academic years of graduate study (48 credits). Twelve credits in each of the fall and winter terms constitute a full load. Although the program is normally taken full-time, it may be pursued part-time but must be completed within five years of initial registration.

38.5.1 Goals of the M.L.I.S. Program

1. To provide the intellectual foundation for careers in archival studies, knowledge management and librarianship.
2. To foster competencies in managing information and knowledge resources.
3. To advocate the ideal of equal access to information.
4. To promote the appropriate use of technology in meeting information needs.

5. To promote research in the field of library and information studies.
6. To foster commitment to professional service for individuals, organizations and society.

38.5.2 Objectives of the M.L.I.S. Program

Upon completion of the M.L.I.S. degree, graduates will be able to integrate their knowledge and skills to:

1. Understand the historical and theoretical foundations of archival studies, knowledge management and librarianship.
2. Articulate the issues concerning access to information, privacy, censorship, and intellectual freedom.
3. Understand research principles and techniques that are applied in the field.
4. Select, acquire, organize, store, retrieve and disseminate information and knowledge resources.
5. Design, manage and evaluate information systems and services.
6. Apply management theories, principles and techniques in libraries and other knowledge-based organizations.
7. Assume the role of information professionals as mediators between users and information resources.
8. Understand the nature of professional ethics and the role of professional associations.

38.5.3 Objectives of the Archival Studies Stream

M.L.I.S. graduates in the archival studies stream will have:

1. Expertise in archives, records management, and electronic records management to support authenticity, access, and long-term preservation of records.
2. Knowledge of theories and techniques in acquisitions, appraisal, arrangement, description, preservation, and access to records.
3. Skills to practice in settings such as archives, libraries, museums, government agencies, academic institutions, and corporate and non-profit organizations.

Graduates with this stream are prepared for professional careers as archivists, records managers, information managers, records specialists, preservation librarians, and curators.

38.5.4 Objectives of Knowledge Management Stream

M.L.I.S. graduates in the knowledge management stream will have:

1. Critical knowledge of the creation, capture, organization, sharing, dissemination and evaluation of knowledge assets for individuals, groups, and organizations.
2. Solid grounding in organizational memory, communities of practice, and taxonomies of organizational knowledge.
3. Skills to facilitate user-centred consensus-based approaches.

Graduates with this stream are prepared for professional careers as knowledge managers, online/virtual librarians, knowledge base developers and corporate taxonomists.

38.5.5 Objectives of the Librarianship Stream

M.L.I.S. graduates in the librarianship stream will have:

1. Knowledge to provide library and information services in varied settings to meet the information needs of various clientele.
2. Ability to develop information systems and resources.
3. Skills to practice in libraries and information centres in various settings (including public, academic, school, corporate, and special libraries, as well as government agencies, museums, and health organizations).

Graduates with this stream are prepared for professional careers as reference librarians, cataloguers, instructional technology librarians, information specialists, online information providers, and library and information centre managers.

38.5.6 Categories of Students

Full-time M.L.I.S. students:

Those students who are proceeding to the M.L.I.S. degree and who are registered in at least 12 credits per term.

Part-time M.L.I.S. students:

Those students who are proceeding to the M.L.I.S. degree and who are registered in fewer than 12 credits per term.

Graduate Students in other McGill programs:

Students enrolled in graduate programs at McGill other than the M.L.I.S. may register for M.L.I.S. courses with the approval of the course instructor and the School Director.

Special students:

Individuals who already hold a graduate degree in library and information studies from an accredited program and who are not proceeding to a degree may register for up to 6 credits per term to a total maximum of 12 credits, for which they fulfill the necessary prerequisites. At the discretion of the Director, work experience may be substituted for such prerequisites. Enrolment is subject to the condition that regular students have priority in cases of class size restrictions.

38.5.7 Registration – M.L.I.S.

All returning and new graduate students must register online at www.mcgill.ca/minerva, after completing a Minerva Course Selection Form and obtaining departmental approval.

Information concerning registration for incoming M.L.I.S. students will be sent to them prior to July of each year.

A non-refundable deposit of \$200 is required for the M.L.I.S. program. Applicants must access Minerva within 30 days of the specified deadline to confirm acceptance and pay the deposit. Payment is to be made by credit card, or in certain circumstances, by other means through special arrangement with the office of the School of Information Studies. This amount will be credited towards the tuition fee. If payment is not received within the specified deadline, the acceptance will be rescinded. The deposit will be forfeited if the student does not start the M.L.I.S. program.

38.5.8 Introductory Program – M.L.I.S.

All incoming M.L.I.S. students are encouraged to participate in an introductory program designed to acquaint them with the many-faceted world of information and the forward-looking leadership of the library and information professions.

The program takes place over two days in the Fall in the week prior to classes. It introduces students to the School, to the profession, to information technology and to the historical, social and cultural issues associated with library and information studies. Students have an opportunity to meet with their faculty advisors and with second-year students.

38.5.9 M.L.I.S. Program Requirements

Master of Library and Information Studies (M.L.I.S.)

(48 credits)

The M.L.I.S. offers three streams of study: Archival Studies, Knowledge Management, and Librarianship.

In consultation with the Coordinator of each stream and the Student Affairs Coordinator, before registering for courses students will select a stream based on their interests.

During their first two terms, students should aim to complete the required core and complementary courses needed for their selected stream.

Required Courses (12 credits)

GLIS 601	(3)	Information and Society
GLIS 611	(3)	Research Principles and Analysis
GLIS 617	(3)	Information System Design
GLIS 620	(3)	Information Agency Management

Complementary Courses (24-36 credits)

24-36 credits from one of the following streams: Archival Studies, Knowledge Management, or Librarianship.

Archival Studies Stream

12 credits, the following four required courses:

GLIS 641	(3)	Archival Arrangement & Description
GLIS 642	(3)	Preservation Management
GLIS 645	(3)	Archival Principles & Practice
GLIS 660	(3)	Records Management

12 - 24 credits chosen from the following complementary courses:

GLIS 609	(3)	Metadata & Access
GLIS 613	(3)	Library and Archival History
GLIS 634	(3)	Web System Design and Management
GLIS 643	(3)	Electronic Records Systems
GLIS 646	(12)	Research Project
GLIS 647	(6)	Independent Study
GLIS 657	(3)	Database Design & Development
GLIS 689	(3)	Selected Topics
GLIS 699	(3)	Practicum

0 - 12 credits chosen from the following complementary courses:

GLIS 607	(3)	Organization of Information
GLIS 616	(3)	Information Retrieval
GLIS 619	(3)	Information Services & Users
GLIS 631	(3)	Systems Thinking
GLIS 632	(3)	Library Systems
GLIS 633	(3)	Multimedia Systems
GLIS 638	(3)	Business Information
GLIS 655	(3)	Language and Information
GLIS 661	(3)	Knowledge Management
GLIS 665	(3)	Competitive Intelligence
GLIS 690	(3)	Information Policy

Knowledge Management Stream

12 credits, the following four required courses:

GLIS 661	(3)	Knowledge Management
GLIS 662	(3)	Intellectual Capital
GLIS 663	(3)	Knowledge Taxonomies
GLIS 664	(3)	Communities of Practice

12 - 24 credits chosen from the following complementary courses:

GLIS 616	(3)	Information Retrieval
GLIS 633	(3)	Multimedia Systems
GLIS 634	(3)	Web System Design and Management
GLIS 638	(3)	Business Information
GLIS 643	(3)	Electronic Records Systems
GLIS 646	(12)	Research Project
GLIS 647	(6)	Independent Study
GLIS 657	(3)	Database Design & Development
GLIS 665	(3)	Competitive Intelligence
GLIS 689	(3)	Selected Topics
GLIS 699	(3)	Practicum

0 - 12 credits chosen from the following complementary courses:

GLIS 607	(3)	Organization of Information
GLIS 619	(3)	Information Services & Users
GLIS 622	(3)	Information Service Personnel
GLIS 623	(3)	Financial Management
GLIS 624	(3)	Marketing Information Services
GLIS 631	(3)	Systems Thinking
GLIS 645	(3)	Archival Principles & Practice
GLIS 655	(3)	Language and Information
GLIS 679	(3)	Information Literacy
GLIS 690	(3)	Information Policy

Librarianship Stream

12 credits, the following four required courses:

GLIS 607	(3)	Organization of Information
GLIS 615	(3)	Bibliographic and Factual Sources
GLIS 618	(3)	Collection Development
GLIS 619	(3)	Information Services & Users

12 - 24 credits chosen from the following complementary courses:

GLIS 608	(3)	Classification and Cataloguing
GLIS 612	(3)	History of Books and Printing
GLIS 613	(3)	Library and Archival History
GLIS 614	(3)	Public Libraries
GLIS 632	(3)	Library Systems
GLIS 636	(3)	Government Information
GLIS 637	(3)	Scientific and Technical Information
GLIS 638	(3)	Business Information
GLIS 644	(3)	Descriptive Bibliography
GLIS 646	(12)	Research Project
GLIS 647	(6)	Independent Study
GLIS 651	(3)	Humanities & Social Science Information
GLIS 656	(3)	Abstracting and Indexing
GLIS 671	(3)	Health Sciences Information
GLIS 672	(3)	Law Information
GLIS 673	(3)	Bioinformatics Resources
GLIS 679	(3)	Information Literacy
GLIS 689	(3)	Selected Topics
GLIS 699	(3)	Practicum

0 - 12 credits chosen from the following complementary courses:

GLIS 609	(3)	Metadata & Access
GLIS 616	(3)	Information Retrieval
GLIS 622	(3)	Information Service Personnel
GLIS 623	(3)	Financial Management
GLIS 624	(3)	Marketing Information Services
GLIS 631	(3)	Systems Thinking
GLIS 633	(3)	Multimedia Systems
GLIS 634	(3)	Web System Design and Management
GLIS 643	(3)	Electronic Records Systems
GLIS 645	(3)	Archival Principles & Practice
GLIS 655	(3)	Language and Information
GLIS 657	(3)	Database Design & Development
GLIS 660	(3)	Records Management
GLIS 661	(3)	Knowledge Management
GLIS 665	(3)	Competitive Intelligence
GLIS 690	(3)	Information Policy

Elective Courses (0-12 credits)

0 - 12 elective credits, approved by the student's advisor, selected from the complementary courses of Streams not chosen as the student's primary focus or from other 500-level or higher courses; up to 6 credits may be from other Quebec Universities.

38.5.10 Courses outside the School

Courses in other McGill Departments

McGill University offers a large number and variety of graduate-level courses. Students interested in taking a course outside the School must complete the following steps:

- Contact the relevant instructional unit to establish any prerequisites and to ascertain how the unit handles outside registrants;
- obtain a current course outline;
- demonstrate in writing the value of the selected course within the context of an integrated program of study leading to the M.L.I.S. degree;
- gain the approval of their faculty advisor and the School's Director.

Courses in other Quebec Universities

Students may take up to six credits at any other Quebec university provided the courses are not available at McGill University. Steps a) to d) outlined above should be followed by any student wishing to pursue this option. For more information, see [section 6.1.13 "Quebec Inter-University Transfer Agreement \(IUT\)"](#).

38.5.11 Transfer Credits

Students may not normally count credit for courses taken toward another degree as credit towards the M.L.I.S. degree. In special cases, however, credit for appropriate courses previously taken outside the School from an ALA-accredited program may be transferred to the M.L.I.S. program. Any such transfer credit must be approved by the Director of the School and the Director of the Graduate and Postdoctoral Studies Office. Requests for transfer credits will only be considered at the time of admission to the M.L.I.S. program.

As a rule, no more than one-third of the McGill program course work (normally not thesis or project) can be credited with courses from another university.

In special cases, students may be excused from taking a required course if they have already completed an equivalent course. In such cases, they must obtain the permission of the instructor and the Director and will be required to substitute an additional complementary course to bring the total of their earned credits in the M.L.I.S. program to the normal 48.

38.5.12 Research Colloquia

Research Colloquia presented by Canadian and international guest speakers are open to students, as well as university staff and the Montreal information community, at various intervals throughout the year. Although not a formal part of the M.L.I.S. program, the Colloquia offer an opportunity for students to learn of current research preoccupations and developments in the field of library and information studies.

38.6 Graduate Certificate in Library and Information Studies

The program may be completed full-time in one academic term, or part-time within a maximum of five years.

Each Certificate student will be assigned a faculty advisor in conjunction with whom an individualized program of study will be designed.

Graduate Certificate in Library and Information Studies (15 credits)

Complementary Courses (15 credits)

9 - 15 credits, 3 to 5 GLIS courses chosen in consultation with the student's advisor (GLIS 646, GLIS 647, GLIS 689, GLIS 695, GLIS 696, GLIS 697 excepted).

NB: Students who wish to register for:

GLIS 694 (3) Certificate Project

must first have their research proposal approved by the Committee on Student Standing and Academic Affairs.

0 - 6 credits of non-GLIS courses, with a maximum of 3 credits from outside McGill. All such courses must be at a graduate level and receive the prior approval of the student's advisor(s) and the School's Director.

38.7 Graduate Diploma in Library and Information Studies

The program may be completed in one calendar year. The program may also be completed on a part-time basis to a maximum of five years.

Each Diploma student will be assigned a faculty advisor in conjunction with whom an individualized program of study will be designed.

Graduate Diploma in Library and Information Studies

(30 credits)

Complementary Courses (9 - 24 credits)

9 - 24 credits, 3 to 8 GLIS courses (GLIS 646, GLIS 647, GLIS 689, GLIS 694 excepted) chosen in consultation with the student's advisor.

0 - 15 credits of non-GLIS courses, a maximum of one-third of which may be from outside McGill. All such courses must be at a graduate level and receive the prior approval of the student's advisor and the School's Director.

Research Paper Component - Required (6 - 18 credits)

6 - 18 credits, at least one of the following:

- GLIS 695 (6) Research Paper 1
GLIS 696 (12) Research Paper 2

38.8 Ph.D. (Ad Hoc)

The Ph.D. program provides an opportunity to study interdisciplinary research topics within the field of library and information studies at the doctoral level. The candidate is attached to the School of Information Studies and develops the usual working relationships with research supervisors. In addition to a supervisor from the School, three faculty must sit on the Advisory Committee, one of whom must be external to the School. The designation of ad hoc in the Ph.D. program indicates that there are no required courses common to all doctoral candidates in the School of Information Studies. Instead, requirements for each student are determined by the School according to the area of research and the background of the applicant.

The residency requirement is 3 years (6 terms) if admission is at the Ph.D.1 level or 2 years (4 terms) if admission is at the Ph.D.2 level.

Admission to the Ph.D. (Ad Hoc) program involves a number of steps.

1. The applicant normally is admitted as a Ph.D.2 student.
2. The applicant must provide a brief outline of the proposed research (2-3 pages) specifying as clearly as possible the research area to be investigated.
3. The Director of the Graduate and Postdoctoral Studies Office is notified that an application to enter the Ph.D. (*Ad Hoc*) program has been completed.
4. The submission includes an application form, updated curriculum vitae, the research proposal and the report of the School's Admissions Committee. The form "Requirements for Graduation of *Ad Hoc* Ph.D. Candidates" will be completed providing information on the candidate, required courses, required examinations (comprehensive, language, etc.) and the signatures of the Admissions Committee members.
5. The Graduate and Postdoctoral Studies Office endorses or rejects the recommendation of the Admissions Committee. If the applicant is accepted for admission, an Advisory Committee will be appointed which may include members of the Admissions Committee or new members as deemed necessary.

38.9 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click on Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors. Students may also consult the School Website at www.mcgill.ca/sis/programs and check the timetables for current information.

Not all courses can be offered in any academic year. In addition, courses which have a registration of fewer than five will not normally be taught. Some courses have a maximum enrolment.

The course credit weight is given in parentheses after the title.

For more information on Multi-term Courses, Course Terminology, Class Schedule and Course Catalog, see the *General Information, Regulations and Research Guidelines, Graduate and Postdoctoral Studies Calendar for 2008-09*.

GLIS 601 INFORMATION AND SOCIETY. (3) Introduction to our world of information, documents and information agencies with historical and social approach. A look at how information is generated and at the role played by libraries of all kinds and other relevant agencies. This course should provide a broad framework within which other required or elective courses could be understood.

GLIS 607 ORGANIZATION OF INFORMATION. (3) Theory and techniques of bibliographic control for information. Basic cataloguing and indexing principles and practices incorporating the concepts of main entry, subject analysis, and classification according to standard codes. Introduction to ISBD and MARC formats for description and automated support applications. Practical assignments in the organization of materials laboratory.

GLIS 608 CLASSIFICATION AND CATALOGUING. (3) (Prerequisite: GLIS 607.) Cataloguing in depth with a view to such specialties as original cataloguing, catalogue maintenance, and administration of the cataloguing department. Investigation of alternative methods of library documentation. The study of developments in international cataloguing standards, codes, and formats. Includes laboratory sessions.

GLIS 609 METADATA & ACCESS. (3) Archival descriptive tools in metadata-based access systems. Metadata schemas (MARC, Dublin Core and EAD), markup languages (SGML, HTML, and XML), DTD, vocabulary control, and metadata management issues.

GLIS 611 RESEARCH PRINCIPLES AND ANALYSIS. (3) Fundamental aspects of reflective thinking and the methods and techniques of research appropriate to the investigation of library/information problems. Criteria helpful in evaluating published research in library/information studies by analyzing the various steps of the research process, thereby providing guidelines for planning, conducting, and reporting research.

GLIS 612 HISTORY OF BOOKS AND PRINTING. (3) (Prerequisite: GLIS 615 or consent of instructor.) Surveyed are the development of writing, alphabets, and books from their inception, and of printing from its invention in the fifteenth century. Historical bibliography dealing with the various physical elements in book production, including design.

GLIS 613 LIBRARY AND ARCHIVAL HISTORY. (3) (Prerequisite: GLIS 601 or consent of instructor.) The historical evolution of libraries & archives, from the ancient world to the present, in relation to literacy, knowledge transfer, technology, and the private and collective ownership of recorded information - manuscript, print, microform, and electronic - within various social, cultural, and chronological contexts.

GLIS 614 PUBLIC LIBRARIES. (3) A review of the Public Library Movement in English and French Canada. The development of public libraries in North America over the last twenty years with an emphasis on the library's role and responsibilities for the future. The impact of information technologies on the definition and delivery of services.

GLIS 615 BIBLIOGRAPHIC AND FACTUAL SOURCES. (3) Introduces students to the theory, principles, and practice of bibliographical control as a foundation for reference service and information retrieval. Paper-based, microform, and electronic bibliographies are introduced. The creation and use of bibliographies, within various contexts, are discussed.

GLIS 616 INFORMATION RETRIEVAL. (3) (Prerequisite: GLIS 617.) Theoretical and applied explanation of information retrieval in a variety of digital environments and in relation to both textual and multimedia data: Information retrieval capabilities, information-seeking models, interface design issues, information visualization and information system evaluation criteria.

GLIS 617 INFORMATION SYSTEM DESIGN. (3) Fundamental concepts of information storage and retrieval. Includes user requirement analysis, information structure analysis, database organizations and characteristics, bibliographic database construction, search techniques and strategies, OPACs, and hardware and software choices.

GLIS 618 COLLECTION DEVELOPMENT. (3) Theoretical and practical introduction to the principles of library and information centre collection building, management, fund accounting, and assessment, with examination of the role of both traditional and newer media in collections.

GLIS 619 INFORMATION SERVICES & USERS. (3) Information users and use; information needs and use environments. Principles and practices of information transfer; development of information services and collections to meet needs. Evaluation of information services.

GLIS 620 INFORMATION AGENCY MANAGEMENT. (3) Introduction to management theory and decision making in the context of information agencies and services. Emphasis is placed on strategic planning, organizing, quality management, organizational behaviour, human resource management, leadership and communication, management of change, legal issues in information agencies, and information use in decision making.

GLIS 624 MARKETING INFORMATION SERVICES. (3) The role and use of marketing for information brokers and library or information centres are discussed. Various aspects of the marketing process as applied to information services are analyzed. Students prepare a preliminary marketing plan for an information service of their choice and share similarities and differences in these specific applications.

GLIS 631 SYSTEMS THINKING. (3) (Prerequisite: Consent of the instructor.) Introduction to general systems thinking and the use of the systems approach as an aid to problem solving and decision making. Subjective and objective factors in modelling for the definition, analysis, design, implementation and evaluation of alternative solutions.

GLIS 632 LIBRARY SYSTEMS. (3) (Prerequisite: GLIS 617.) Focuses on applied systems analysis and project management techniques in an operational environment. Includes an in-depth examination of hardware and software installations, LANs, RFPs, automation, system selection, Internet and Intranet applications, and standards for exchanging digital information.

GLIS 633 MULTIMEDIA SYSTEMS. (3) (Prerequisites: GLIS 617 and consent of instructor) Theoretical and applied principles of multimedia systems design. Includes knowledge representation; interfaces; storage and retrieval of text, sound, still images, animation and video sequences; authoring software; hardware options; CD-ROM/DVD and Web based systems; virtual reality; testing and evaluation. Students design and develop a small-scale system.

GLIS 634 WEB SYSTEM DESIGN AND MANAGEMENT. (3) (Prerequisite: Permission of instructor.) Principles and practices of designing websites in the context of libraries and information centres. The course focuses on a conceptual approach to organizing information for the World Wide Web including design, implementation and management issues. Topics include Web development tools, markup languages, Internet security and Web server administration.

GLIS 636 GOVERNMENT INFORMATION. (3) (Prerequisites: GLIS 615 or GLIS 619, GLIS 617.) An introduction to the structure of governments, and the nature and variety of government information. Emphasis is placed on the governments of Canada, the provinces, the United States and selected international governmental organizations. Topics include the acquisition, organization, bibliographic control and use of government information.

GLIS 637 SCIENTIFIC & TECHNICAL INFORMATION. (3) (Prerequisites: GLIS 615 or GLIS 619, GLIS 617.) Examination of the process of communication and information requirements (off/in) the scientific community; study of primary, secondary, and tertiary sources of information in the physical, biological, and applied sciences. Study and application of new information technologies, and

in particular the World Wide Web, as used in scientific and technical communication.

GLIS 638 BUSINESS INFORMATION. (3) (Corequisite: GLIS 617.) A survey of the literature used in business including bibliographic and non-bibliographic data bases. Various aspects of business set the scene for a study of the literature. Students examine key publications, and learn to select a basic business bibliography and to do reference work in the field.

GLIS 641 ARCHIVAL ARRANGEMENT & DESCRIPTION. (3) (Prerequisite: GLIS 645.) Theory and practice of archival description and descriptive tools, including selection and application of appropriate descriptive standards to archival materials and the creation and dissemination of finding aids.

GLIS 642 PRESERVATION MANAGEMENT. (3) (Prerequisite: GLIS 645.) Principles, strategies, and current technologies for intellectual and physical preservation of resources in a variety of formats. Assuring their continued accessibility and extending their life.

GLIS 643 ELECTRONIC RECORDS SYSTEMS. (3) Implementation and management of electronic recordkeeping systems in different types of organizations. Assessment and evaluation procedures for the system design and analysis, functional analysis, metadata, usability, and content management of electronic recordkeeping systems.

GLIS 644 DESCRIPTIVE BIBLIOGRAPHY. (3) (Prerequisite: GLIS 615.) A practical course on the history, description and care of rare books and antiquarian material. The principles of descriptive bibliography will be presented in the context of book culture. The place of rare book collections in research libraries and the practical administration of a rare book department will be examined.

GLIS 645 ARCHIVAL PRINCIPLES & PRACTICE. (3) (Advanced work in archival science is available to a few students who do well in the introductory course.) Fundamental principles and practices of archival studies, including acquisition, appraisal, arrangement, description, preservation, public services, societal organizational structures and records keeping systems, and the history of archival institutions and profession.

GLIS 646 RESEARCH PROJECT. (12) (Prerequisites: GLIS 611 and permission of Director.) A two-term in-depth research study leading to the preparation of a research paper with potential for publication. The subject of the study will vary according to the student's interests and pre-supposes some detailed background knowledge in the area to be researched. Working with a faculty supervisor, the student will plan, conduct and document a piece of research.

GLIS 646D1 (6), GLIS 646D2 (6) RESEARCH PROJECT. (Prerequisites: GLIS 611 and permission of Director.) (Students must register for both GLIS 646D1 and GLIS 646D2.) (No credit will be given for this course unless both GLIS 646D1 and GLIS 646D2 are successfully completed in consecutive terms.) (GLIS 646D1 and GLIS 646D2 together are equivalent to GLIS 646.) A two-term in-depth research study leading to the preparation of a research paper with potential for publication. The subject of the study will vary according to the student's interests and pre-supposes some detailed background knowledge in the area to be researched. Working with a faculty supervisor, the student will plan, conduct and document a piece of research.

GLIS 647 INDEPENDENT STUDY. (6) (Prerequisites: GLIS 611 and permission of Director.) An in-depth exploration of a topic in library and information studies which is not emphasized or elaborated in any other part of the curriculum. The subject will vary according to the student's interests. It may be a work of synthesis, a research paper of limited scope, a state-of-the-art paper or a project which is an outgrowth of course work or in an area not covered in the curriculum. The student will work with a faculty supervisor to plan and pursue an individualised program of study.

GLIS 647D1 (3), GLIS 647D2 (3) INDEPENDENT STUDY. (Prerequisites: GLIS 611 and permission of Director.) (Students must register for both GLIS 647D1 and GLIS 647D2.) (No credit will be given for this course unless both GLIS 647D1 and GLIS 647D2 are successfully completed in consecutive terms.) (GLIS 647D1 and GLIS 647D2 together are equivalent to GLIS 647.) An in-depth

exploration of a topic in library and information studies which is not emphasized or elaborated in any other part of the curriculum. The subject will vary according to the student's interests. It may be a work of synthesis, a research paper of limited scope, a state-of-the-art paper or a project which is an outgrowth of course work or in an area not covered in the curriculum. The student will work with a faculty supervisor to plan and pursue an individualised program of study.

GLIS 651 HUMANITIES AND SOCIAL SCIENCE INFORMATION. (3) (Prerequisites: GLIS 615 or GLIS 619, GLIS 617.) This course investigates the structure of knowledge in the humanities and social sciences and their constituent disciplines in order to understand how information and knowledge in these fields is created, organized, communicated and retrieved.

GLIS 655 LANGUAGE AND INFORMATION. (3) (Prerequisite: GLIS 617.) An explanation of the relationship between language and information science through consideration of: document representations for information retrieval; bilingual/multilingual systems; natural language processing; language barriers to information transfer.

GLIS 656 ABSTRACTING AND INDEXING. (3) (Prerequisite: GLIS 607.) Principles and practical methods of abstracting and indexing. Topics include pre- and post-coordinate indexing, concept analysis, vocabulary control, construction and evaluation of thesauri and of indexes for books, periodicals, and series; emphasis on the role of the computer in indexing.

GLIS 657 DATABASE DESIGN & DEVELOPMENT. (3) (Prerequisite: GLIS 617 or permission of the instructor.) Theoretical and applied principles of relational database design. Includes relational theory, conceptual design, database normalization, relational database management systems, SQL queries and database management.

GLIS 660 RECORDS MANAGEMENT. (3) Management of records created by, or maintained by recordkeeping systems. Long-term preservation of records in all formats as part of organizational, research or personal activities.

GLIS 661 KNOWLEDGE MANAGEMENT. (3) (Corequisite: GLIS 601.) An introduction to knowledge management and its links to information systems and information professionals. A broad overview of the creation, capture, codification, sharing and application of knowledge in both tacit and explicit forms. Emphasis is placed on the tools and techniques as well as the role of organizational culture.

GLIS 662 INTELLECTUAL CAPITAL. (3) (Prerequisite: GLIS 661.) Understanding the strategic role of intellectual assets: how individuals, communities and organizations can identify and leverage their knowledge, experience, expertise and innovations more systematically to create value for the organization. Emphasis is placed on understanding the links between individuals and the organization in the sharing of intellectual assets.

GLIS 663 KNOWLEDGE TAXONOMIES. (3) (Prerequisite: GLIS 661.) Basic classification and categorization methods, major taxonomy tools and technologies and practice in knowledge mapping and modeling. Theory and techniques of organization of both tacit and explicit knowledge at three levels: individual, community and the organization. Emphasis will be placed on the social nature of knowledge codification.

GLIS 664 COMMUNITIES OF PRACTICE. (3) (Corequisite: GLIS 661.) Stages in the development of informal knowledge sharing groups and the roles and responsibilities of information professionals are examined. Focus is on the analysis of knowledge flow, knowledge creation and dissemination within and between different networks of knowledge.

GLIS 665 COMPETITIVE INTELLIGENCE. (3) Competitive intelligence process in for-profit and not-for-profit organizations. Principles and tools for identifying competitive intelligence needs; acquiring, organizing and storing information; creating intelligence through analytical techniques; developing and distributing intelligence products. Legal and ethical aspects, information audits, and cooperative intelligence.

GLIS 671 HEALTH SCIENCES INFORMATION. (3) (Prerequisites: GLIS 615 or GLIS 619, GLIS 617.) A survey of information services and sources (both electronic and print) for health care professionals and the general public. An exploration of the information needs of health professionals and scientists; the role of health libraries and librarians; principles of health and biomedical library practice, functions, and management.

GLIS 672 LAW INFORMATION. (3) (Prerequisites: GLIS 615 or GLIS 619, GLIS 617.) The nature and scope of law librarianship and legal information sources; examination of the organization of legal knowledge, the legal research process, law information sources both print and electronic.

GLIS 673 BIOINFORMATICS RESOURCES. (3) (Prerequisites: GLIS 617 and either GLIS 615 or GLIS 619.) Bioinformatics from a library and information science perspective: biological foundation for bioinformatics; bioinformatics information needs and behaviours; information retrieval using key bioinformatics resources; the role of biology, computer science and library and information science; ethics.

GLIS 679 INFORMATION LITERACY. (3) (Prerequisite: GLIS 619.) Definitions of human literacy; information literacy standards; theories and models of information behaviour; design and delivery of information literacy programs; library programs and services; and information literacy research.

GLIS 689 SELECTED TOPICS. (3) (Prerequisite: Permission of Director.) (Corequisite: GLIS 601.) To explore a topic in library and information studies which elaborates or augments the curriculum; to pursue an individualized program of directed study which will vary according to the student's interests.

GLIS 690 INFORMATION POLICY. (3) (Prerequisite: GLIS 601.) Information societies are examined from a global perspective, emphasising political, economic, social cultural and ethical issues including the roles of government and the private sector in providing information systems and services, transborder data flow, information access at personal, institutional and national level, censorship, copyright and data security.

GLIS 691 SPECIAL TOPICS 1. (3) Seminar to explore topics of particular interest to library and information studies. Topics vary from year to year.

GLIS 692 SPECIAL TOPICS 2. (3) Seminar to explore topics of particular interest to library and information studies. Topics vary from year to year.

GLIS 694 CERTIFICATE PROJECT. (3) This course permits a Graduate Certificate student to pursue an individualized program of directed study, in library and information studies, which will vary with personal interest but will elaborate or augment the curriculum.

GLIS 696D1 (6), GLIS 696D2 (6) RESEARCH PAPER 2. (Students must register for both GLIS 696D1 and GLIS 696D2.) (No credit will be given for this course unless both GLIS 696D1 and GLIS 696D2 are successfully completed in consecutive terms.) Explores a minor topic relevant to the Graduate Diploma student's program of study and results in a scholarly paper with potential for publication.

GLIS 699 PRACTICUM. (3) (Prerequisites: 18 credits (4 required & 2 stream required complementary courses) and approval of academic advisor and stream coordinator.) Application of theoretical knowledge in an information environment and acquisition of basic professional skills through practice.

GLIS 701 COMPREHENSIVE EXAMINATION. (0) Defence of a comprehensive research proposal.

39 Integrated Studies in Education

Department of Integrated Studies in Education
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Website: www.mcgill.ca/edu-integrated

Graduate Programs (Certificate, M.A. and Ph.D.):
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Chair — Dr. Steven Jordan

Director of M.A. and Ph.D. Programs — Dr. Mela Sarkar

Associate Director of M.A. and Ph.D. Programs — Dr. Kevin McDonough

Director of Graduate Certificates in Educational Leadership —
Dr. Lynn Butler-Kisber

Director of Graduate Certificate in Teaching English as a Second Language — Dr. Caroline Riches

The administrative office is open Monday to Friday from 09:00 to 17:00. For general information, please contact the Graduate Program Coordinators.

39.1 Staff

Emeritus Professors

Patrick X. Dias; B.A., M.A.(Karachi), B.Ed., Ph.D.(Montr.)
Margaret Gillett; B.A., Dip. Ed.(Syd.), M.A.(Russel Sage),
Ed.D.(Col.) (*William C. Macdonald Emeritus Professor of Education*)
Wayne C. Hall; B.A., M.A.(Bishop's) (*William C. Macdonald Emeritus Professor of Education*)
Norman Henchey; B.A., B.ped., Lic.Ped.(Montr.), Ph.D.(McG.)
Jacques J. Rebuffot; B.ès L., L.ès L., D.E.S.(Aix-Marseilles), Dip. I.E.P., Dr. 3rd Cy.(Stras.)
David C. Smith; B.Ed.(McG.) Ph.D.(Lond.), F.C.C.T., F.R.S.A.

Professors

David Dillon; B.A.(St. Columban's), M.S.(S. W. Texas St.), Ph.D.(Texas at Austin)
Anthony Paré; B.Ed, M.Ed., Ph.D.(McG.)
Ratna Ghosh; C.M., B.A.(Calc.), M.A., Ph.D.(Calg.) F.R.S.C., (*William C. Macdonald Professor of Education*) (*James McGill Professor*)
Joe L. Kincheloe; B.A.(Emory and Henry), M.A., M.S., Ph.D.(Tenn.)
Barry Levy; B.A., M.A., BRE(Yeshiva), Ph.D.(NYU)
Roy Lyster; B.A.(Regina), M.A.(Paris VII), B.Ed., M.Ed., Ph.D.(Tor.)
Mary H. Maguire; B.A., B.Ed., M.A.(Montr.), M.Ed., Cert. Reading(McG.) Ph.D.(Ariz.)
Denise Lussier; B.A.(Coll. Jesus Marie de Sillery), M.A.(Boston), M.Ed., Ph.D.(Laval)
Claudia A. Mitchell; B.A.(Bran.), M.A.(Mt. St. Vin.), Ph.D.(Alta.) (*James McGill Professor*)
Bernard Shapiro; B.A.(McG.), M.A.T., Ed.D.(Harv.)

Associate Professors

Helen Amorizzi; B.Sc., M.A.(Rhode Is.), Ed.D.(Boston)
Eric Caplan; B.A.(Tor.), M.A.(Hebrew), Ph.D.(McG.)
Ann J. Beer; B.A.(Oxf.), M.A.(Tor.), D.Phil.(Oxf.)
Jon G. Bradley; B.A., M.A.(Sir G. Wms.)
Lynn Butler-Kisber; B.Ed., M.Ed.(McG.), Ed.D.(Harv.)
Janet Donin; B.A.(Tor.), M.A.(Ill.), Ph.D.(Cal.) (*joint appt. with Educational and Counselling Psychology*)
Steven Jordan; B.A.(Kent), M.Sc.(Lond.), Ph.D.(McG.)
Yarema G. Kelebay; B.A., B.Ed.(Montr.), M.A.(Sir G. Wms.), Ph.D.(C'dia)

Cathrine Le Maistre; B.Sc., Dip.Ed.(Exe.), M.Ed., Ph.D.(McG.)
Kevin McDonough; B.A., B.Ed., M.Ed.(Alta.), Ph.D.(Ill.)
Christopher S. Milligan; B.A.(Sir G. Wms.), M.Ed.(McG.), Ed.D.(Tor.)
Ronald Morris; B.Ed., M.A., Ph.D.(McG.)
Joan Russell; B.Mus., L.Mus., M.Ed., Ph.D.(McG.)
Mela Sarkar; B.A., Dip.Ed.(McG.), M.A., Ph.D.(C'dia)
Gale A. Seiler; B.Sc. (Fairleigh Dickinson), M.S.(Montana), Ph.D.(Penn.)
Shirley R. Steinberg; B.Ed., M.Ed.(Leth.), Ph.D.(Penn. St.)
Carolyn E. Turner; B.A.(Ariz.), M.Ed., Ph.D.(McG.)
Boyd White; B.A.(Sir G. Wms.), B.F.A.(C'dia), M.F.A.(Inst. Allende, Guanajuato), Ph.D.(C'dia)
Lise Winer; B.A.(Pitts.), M.A.(Minn.), Cert. Ped.(C'dia), Ph.D.(WI)
Elizabeth Wood; B.F.A.(York (Can.)), B.F.A.(C'dia), Dip.Ed., M.A., Ph.D.(McG.)

Assistant Professors

Spencer Boudreau; B.A.(Don Bosco), B.A., M.A.(Sherb.), Ph.D.(C'dia)
Abdul Aziz Choudry; Grad. Dip., Ph.D.(C'dia)
Michael Doxtater; B.A.(McM.), M.Sc.Ed., Ph.D.(Cornell)
Michael Hoechsmann; B.A., M.A.(S. Fraser), Ph.D.(Tor.)
Bronwen Low; B.A.(Qu.), M.A.(Br. Col.), Ph.D. (York)
Annie Savard; B.Ed., M.A., Ph.D.(Laval)
Shaheen Shariff; B.G.S., M.A.Educ., Ph.D.(S. Fraser)
Sylvia Sklar; Dip.Ed.(McG.), B.A.(C'dia), M.Ed.(McG.)
Doreen Starke-Meyerring; B.Ed.(Potsdam), M.A.(N. Dakota), Ph.D.(Minn.)
Teresa Strong-Wilson; B.A.(Calg.), B.A.(McG.), M.A., Ph.D.(Vic. (BC))

Associate Members

Brian Alters, Richard Harris, Lynn McAlpine

Faculty Lecturers

Caroline Riches

Adjunct Professors

Abigail Anderson, Noel C. Burke, Gretta Chambers, Thomas Cobb, Scott Conrod, Patricia Deans, Walter Duszara, Elaine Friedman, Leo Lafrance, Charley Levy, Daniel Michael Mason, Jim McKinnon, Marianna McVey, Leslie Pasquin, Kenneth Robertson, Howard Simpkin, Donald Taylor, Sue Winn, Vikki Zack

39.2 Programs Offered

The Department offers the following programs:

Three Graduate Certificates (15 credits)

- Graduate Certificate in Educational Leadership 1
- Graduate Certificate in Educational Leadership 2
- Graduate Certificate in Teaching English as a Second Language

Four M.A. Thesis and Non-Thesis degree programs (45 credits) in the following areas:

- Culture and Values in Education
- Curriculum Studies
- Educational Leadership
- Second Language Education

The Department also offers a Ph.D. in Educational Studies. The four research areas currently available are:

- Curriculum and Literacy Studies
- Cultural and International Studies in Education
- Studies in Educational Leadership
- Studies in Second Language Education

Applicants should take note that, unlike the Department's Bachelor of Education programs, these graduate programs do not lead to teacher certification.

39.3 Admission Requirements

Graduate Certificates, M.A. and Ph.D. Programs

1. Applicants to the Certificate and M.A. programs must hold a Bachelor's degree from a recognized university. A minimum standing equivalent to a CGPA of 3.0/ 4.0, or 3.2 /4.0 for the last two full-time academic years, is required. A concentration of courses related to the area chosen for graduate work is usually required. (See #5, below.)

Applicants to the Ph.D. program must hold an M.A. in Education or a recognized equivalent degree from a recognized university. The applicant's record should indicate high academic standing (a minimum CGPA of 3.0/4.0) and evidence of research competence in the proposed area of doctoral research.

2. Applicants to the Certificate and M.A. programs must submit:
 - A letter of intent specifying academic and professional experience and interests (specifically, research interests for the thesis option; project interests for the non-thesis project option).

Applicants to the Ph.D. in Educational Studies program must submit:

- A letter of application identifying the applicant's proposal research topic, potential supervisor and expected professional direction. Please note that it is the Ph.D. applicant's responsibility to secure a supervisor as part of the admission process.
 - A 4-5 page summary of the proposed research topic identifying the applicant's main research questions, the research trends that have led to the isolation of the questions, ways in which the research could be conducted, and relevant references.
3. Two letters of recommendation, at least one of which must be from a university-level instructor; the other may be from an administrator in an educationally relevant context.
 4. Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must meet one of the following English proficiency criteria:

IELTS with a minimum overall band of 7.0

TOEFL:

- iBT (Internet-based test) - Total score 92 with a minimum score of 22 each for the Writing and Speaking sections and a minimum of 20 each for the Reading and Listening sections
- CBT (Computer-based test) - 237
- PBT (Paper-based test) - 580

The Department reserves the right to evaluate the applicant's language proficiency before initial registration.

5. Further requirements applicable to specific options:

Graduate Certificates in Educational Leadership 1 and 2.

Normally, at least two years of relevant educational experience (teaching or related professional experience).

Graduate Certificate in Teaching English as a Second Language. Applicants are required to pass a written and oral English language proficiency test set by the Department.

Master of Arts in Second Language Education. Normally, a minimum of 36 credits including a combination of relevant courses in education and language studies.

Normally, at least two years of relevant professional experience in education.

Master of Arts in Curriculum Studies and Master of Arts in Educational Leadership. Normally, at least two years of relevant educational experience (teaching or related professional experience).

39.4 Application Procedures

McGill's online application form is available to all graduate program candidates at www.mcgill.ca/applying.

Applicants must submit, **before the application deadline**, the following:

1. Completed Web application form
2. \$80 application fee
3. Letter of intent (1 to 2 pages) for Certificate and M.A. programs
Letter of application and a summary of proposed research topic (4-5 pages) for Ph.D. program
4. Curriculum vitae
5. TOEFL score IELTS result (if applicable). Results must be submitted directly from the TOEFL or IELTS Office.

Applicants must arrange to have the following documents sent directly to the Department from the institutions involved:

6. Two sets of official transcripts of all previous undergraduate and graduate studies.
7. Two letters of recommendation. (At least one of the letters must be from a university-level instructor; the other may be from an administrator qualified to assess the applicant's professional qualities. Both letters must be on institutional letterhead paper with original signatures; no standard evaluation form is available for this purpose.)

The deadlines for submitting applications are:

Fall admission:

March 1st – Graduate Certificates,
February 1st - M.A. and Ph.D. programs

Winter admission:

October 1st – Graduate Certificate in Educational Leadership 1 and Graduate Certificate in Educational Leadership 2

All documentation is to be submitted directly to the Graduate Program Coordinator in the Department of Integrated Studies in Education:

Mary Kate Wallbridge
Graduate Certificate in Teaching English as a Second Language;
M.A. in Culture and Values in Education, M.A. in Second Language Education and Ph.D. in Educational Studies
Education Building, Room 244
3700 McTavish Street
Montreal, QC H3A 1Y2

Catherine Hughes
Graduate Certificates in Educational Leadership 1 and 2; M.A. in Educational Leadership and M.A. in Curriculum Studies
Department of Integrated Studies in Education
Education Building, Room 244
3700 McTavish Street
Montreal, QC H3A 1Y2

39.5 Program Requirements

39.5.1 Graduate Certificate in Educational Leadership 1

This 15-credit program addresses the needs of experienced and aspiring school leaders who are taking increased responsibility for the students and communities they serve. The management of schools is increasingly seen as making a major contribution to the learning and personal development of students. The professional development of school leaders, educational reform and school partnership form the basis for the program.

Required Courses (9 credits)

EDEM 610 (3) Leadership in Action
EDEM 628 (3) Education Resource Management
EDEM 646 (3) Planning and Evaluation

Complementary Courses (6 credits)

Two courses chosen from the following:

EDEC 635 (3) Advanced Written Communication
EDEM 635 (3) Fiscal Accountability in Education
EDEM 637 (3) Managing Educational Change

EDEM 644	(3)	Curriculum Development and Implementation
EDEM 660	(3)	Community Relations in Education
EDEM 664	(3)	Education and the Law
EDEM 671	(3)	The Principalship
EDEM 675	(3)	Special Topics 1
EDEM 693	(3)	School Improvement Approaches
EDEM 695	(3)	Policy Studies in Education

39.5.2 Graduate Certificate in Educational Leadership 2

This 15-credit program explores deeper leadership theory and educational issues and applications in a practicum. Candidates for the Graduate Certificate in Educational Leadership 2 should normally have completed the first certificate. In combination, the two certificates allow school administrators to acquire the 30 graduate credits in the field of educational leadership required by the Quebec Ministry of Education.

Required Courses (9 credits)

EDEM 609	(3)	Issues in Educational Studies
EDEM 673	(3)	Leadership Theory in Education
EDEM 681	(3)	Practicum-Administrative Studies

Complementary Courses (6 credits)

Two courses chosen from the following:

EDEC 635	(3)	Advanced Written Communication
EDEM 635	(3)	Fiscal Accountability in Education
EDEM 637	(3)	Managing Educational Change
EDEM 644	(3)	Curriculum Development and Implementation
EDEM 660	(3)	Community Relations in Education
EDEM 664	(3)	Education and the Law
EDEM 671	(3)	The Principalship
EDEM 675	(3)	Special Topics 1
EDEM 693	(3)	School Improvement Approaches
EDEM 695	(3)	Policy Studies in Education

Other courses may be taken with permission from the Director of Graduate Certificate Programs in consultation with the Graduate Program Director.

39.5.3 Graduate Certificate in Teaching English as a Second Language (15 credits)

This 15-credit certificate is designed as professional development for in-service teachers and candidates with a background in education, language studies, linguistics or a related field, or as preparation for application to our M.A. in Second Language Education. The 5 courses which comprise the certificate provide a solid background and offer in-depth study in the field of second language education from a range of perspectives and with a focus on research and applications to teaching. Please note that this certification does not lead to teacher certification.

The Graduate Certificate in TESL in designed to be available to students worldwide. Courses are offered in a combination of online and face-to-face formats, and sequenced in such a way that students can complete the certificate in one year. The maximum time for completion is five years. The first 3 courses are offered online, and can be undertaken anywhere an internet connection is available. The final two courses are offered face-to-face either on-site at McGill or at off-site locations with collaborative partners, if numbers warrant.

Required Courses (15 credits)

Online courses:

EDSL 500	(3)	Foundations and Issues in Second Language Education
EDSL 505	(3)	Second Language Acquisition Applied to Classroom Contexts
EDSL 512	(3)	Grammar in Teaching English as a Second Language

On-site at McGill* in Intensive (1 month) Institute

EDSL 601	(3)	Methods and Curriculum in Teaching ESL
EDSL 602	(3)	Second Language Reading and Writing Development

* off-site delivery can be considered for a specified minimum number of students. Certain limitations and additional costs would apply.

39.5.4 M.A. in Culture and Values in Education

This program is designed to support inquiries into the meaning and purpose of education, to help candidates gain facility in appropriate research skills, and to develop innovative approaches to educational thought and practice. The program encourages research into educational issues that have a culture and/or values orientation as a key investigative focus on more specific topics - such as philosophy of education, international and comparative education, intercultural education, values/moral education, gender education, religious/spirituality education, peace education, or art and aesthetics education.

MASTER OF ARTS IN CULTURE AND VALUES IN EDUCATION (Thesis Option) (45 credits)

Required Courses (30 credits)

EDEM 609	(3)	Issues in Educational Studies
EDER 615	(3)	Culture, Values and Education
EDER 690	(6)	Thesis Preparation 1
EDER 691	(6)	Thesis Preparation 2
EDER 692	(12)	Thesis Preparation 3

Complementary Courses (9 credits)

6 credits to be selected from the following courses:

EDEC 620	(3)	Meanings of Literacy
EDER 600	(3)	Globalization, Education & Change
EDER 606	(3)	Philosophy of Moral Education
EDER 607	(3)	Values Education: Contemporary Approaches
EDER 608	(3)	Educational Implications of Social Theory
EDER 614	(3)	Sociology of Education
EDER 617	(3)	Aesthetics and Education
EDER 625	(3)	Topics: Culture in Education
EDER 626	(3)	Topics: Value in Education
EDER 649	(3)	Education: Multicultural Societies

3 credits to be selected from the following courses:

EDEM 690	(3)	Research Methods
EDEM 692	(3)	Qualitative Research Methods
EDSL 630	(3)	Qualitative/Ethnographic Methods

Elective Courses (6 credits)

6 credits at the 500, 600, or 700 level chosen in consultation with the Graduate Program Director.

MASTER OF ARTS IN CULTURE AND VALUES IN EDUCATION – GENDER AND WOMEN'S STUDIES (Thesis Option) (45 credits)

The Graduate Option in Gender and Women's Studies is an interdisciplinary program for students who meet Culture and Values in Education degree requirements in Integrated Studies in Education (and other participating departments and faculties) who wish to earn 6 credits of approved coursework focusing on gender and women's studies, and issues in feminist research and methods. The student's M.A. thesis must be on a topic centrally relating to issues of gender and/or women's studies.

Required Courses (33 credits)

EDEM 609	(3)	Issues in Educational Studies
EDER 615	(3)	Culture, Values and Education
EDER 690	(6)	Thesis Preparation 1
EDER 691	(6)	Thesis Preparation 2
EDER 692	(12)	Thesis Preparation 3
WMST 601	(3)	Feminist Theories and Methods

Complementary Courses (9 credits)

3 credits to be selected from the following courses:

EDEC 620	(3)	Meanings of Literacy
EDER 600	(3)	Globalization, Education & Change
EDER 606	(3)	Philosophy of Moral Education
EDER 607	(3)	Values Education: Contemporary Approaches

- EDER 608 (3) Educational Implications of Social Theory
 EDER 614 (3) Sociology of Education
 EDER 617 (3) Aesthetics and Education
 EDER 625 (3) Topics: Culture in Education
 EDER 626 (3) Topics: Value in Education
 EDER 649 (3) Education: Multicultural Societies

3 credits to be selected from the following courses:

- EDEM 690 (3) Research Methods
 EDEM 692 (3) Qualitative Research Methods
 EDSL 630 (3) Qualitative/Ethnographic Methods

3 credits chosen from the following, must be either:

- WMST 602 (3) Feminist Research Symposium

or one 3-credit course, at the 500 level or higher, on gender/women's issues (may be in the department or outside).

Elective Course (3 credits)

3 credits at the 500 level or higher chosen in consultation with the Graduate Program Director.

MASTER OF ARTS IN CULTURE AND VALUES IN EDUCATION (Non-Thesis Option – Coursework) (45 credits)

Required Courses (6 credits)

- EDEM 609 (3) Issues in Educational Studies
 EDER 615 (3) Culture, Values and Education

Complementary Courses (24 credits)

21 credits to be selected from the following courses:

- EDEC 620 (3) Meanings of Literacy
 EDER 600 (3) Globalization, Education & Change
 EDER 606 (3) Philosophy of Moral Education
 EDER 607 (3) Values Education: Contemporary Approaches
 EDER 608 (3) Educational Implications of Social Theory
 EDER 614 (3) Sociology of Education
 EDER 617 (3) Aesthetics and Education
 EDER 625 (3) Topics: Culture in Education
 EDER 626 (3) Topics: Value in Education
 EDER 649 (3) Education: Multicultural Societies

3 credits to be selected from the following courses:

- EDEM 690 (3) Research Methods
 EDEM 692 (3) Qualitative Research Methods
 EDSL 630 (3) Qualitative/Ethnographic Methods

Elective Courses (15 credits)

15 additional credits at the 500, 600, or 700 level chosen in consultation with the Graduate Program Director.

MASTER OF ARTS IN CULTURE AND VALUES IN EDUCATION (Non-Thesis Option – Project) (45 credits)

Required Courses (18 credits)

- EDEM 609 (3) Issues in Educational Studies
 EDER 615 (3) Culture, Values and Education
 EDER 633 (6) Project 1
 EDER 634 (6) Project 2

Complementary Courses (12 credits)

9 credits to be selected from the following courses:

- EDEC 620 (3) Meanings of Literacy
 EDER 600 (3) Globalization, Education & Change
 EDER 606 (3) Philosophy of Moral Education
 EDER 607 (3) Values Education: Contemporary Approaches
 EDER 608 (3) Educational Implications of Social Theory
 EDER 614 (3) Sociology of Education
 EDER 617 (3) Aesthetics and Education
 EDER 625 (3) Topics: Culture in Education
 EDER 626 (3) Topics: Value in Education
 EDER 649 (3) Education: Multicultural Societies

3 credits to be selected from the following courses:

- EDEM 690 (3) Research Methods

- EDEM 692 (3) Qualitative Research Methods
 EDSL 630 (3) Qualitative/Ethnographic Methods

Elective Courses (15 credits)

15 additional credits at the 500, 600, or 700 level chosen in consultation with the Graduate Program Director.

MASTER OF ARTS IN CULTURE AND VALUES IN EDUCATION – GENDER AND WOMEN'S STUDIES (Non-Thesis Option – Project) (45 credits)

The Graduate Non-Thesis Project Option in Gender and Women's Studies is an interdisciplinary program for students who meet Culture and Values in Education degree requirements in Integrated Studies in Education (and other participating departments and faculties) who wish to earn 6 credits of approved coursework focusing on gender and women's studies, and issues in feminist research and methods. The student's M.A. project must be on a topic centrally relating to issues of gender and/or women's studies.

Required Courses (21 credits)

- EDEM 609 (3) Issues in Educational Studies
 EDER 615 (3) Culture, Values and Education
 EDER 633 (6) Project 1
 EDER 634 (6) Project 2
 WMST 601 (3) Feminist Theories and Methods

Complementary Courses (12 credits)

6 credits to be selected from the following courses:

- EDEC 620 (3) Meanings of Literacy
 EDER 600 (3) Globalization, Education & Change
 EDER 606 (3) Philosophy of Moral Education
 EDER 607 (3) Values Education: Contemporary Approaches
 EDER 608 (3) Educational Implications of Social Theory
 EDER 614 (3) Sociology of Education
 EDER 617 (3) Aesthetics and Education
 EDER 625 (3) Topics: Culture in Education
 EDER 626 (3) Topics: Value in Education
 EDER 649 (3) Education: Multicultural Societies

3 credits to be selected from the following courses:

- EDEM 690 (3) Research Methods
 EDEM 692 (3) Qualitative Research Methods
 EDSL 630 (3) Qualitative/Ethnographic Methods

3 credits chosen from the following, must be either:

- WMST 602 (3) Feminist Research Symposium

or one 3-credit course, at the 500 level or higher, on gender/women's issues (may be in the department or outside).

Elective Courses (12 credits)

12 additional credits at the 500 level or higher chosen in consultation with the Graduate Program Director.

MASTER OF ARTS IN CULTURE AND VALUES IN EDUCATION – JEWISH EDUCATION (Non-Thesis Option) (45 credits)

This program is designed to offer a graduate-level point of entry into the teaching profession for students who typically will have completed a B.A. with minor or major in Jewish studies. The M.A. will not provide Quebec Government teacher certification (in Quebec certification is at the B.Ed. level) but Jewish schools presently have the right to hire non-certified teachers of Jewish studies.

Students interested in doing a research-focused M.A. in the area of Jewish education should follow one of the other graduate degree offerings within the area of Culture and Values in Education.

Required Courses (21 credits)

- EDEM 690 (3) Research Methods
 EDER 520 (3) Issues in Jewish Education
 EDER 529 (0) Hebrew Language Requirement
 EDER 610D1 (7.5) Internship
 EDER 610D2 (7.5) Internship

Complementary Courses (24 credits)

24 credits at the 500 level or above, selected in consultation with the program advisor. Students will normally follow this profile:

9 credits from the course offerings of the Department of Jewish Studies, Faculty of Arts.

9 credits from among the following:

- EDER 521 (3) Teaching Judaism: Yiddish
- EDER 522 (3) Teaching Judaism: Hebrew
- EDER 523 (3) Teaching Judaism: Bible
- EDER 524 (3) Teaching Judaism: History
- EDER 525 (3) Teaching Judaism: Holidays
- EDER 526 (3) Teaching Judaism: Liturgy
- EDER 527 (3) Teaching Judaism: Special Topics
- EDER 528 (3) Teaching Judaism: The Holocaust

6 credits from among the following:

- EDPI 526 (3) Talented and Gifted Studies
- EDPI 642 (3) Education of Learners/Special Needs 1
- EDPI 654 (3) Instruction/Curriculum Adaptation
- EDPI 666 (3) Methods: Learning Disabilities
- EDPE 510 (3) Learning and Technology
- EDPE 535 (3) Instructional Design
- EDPE 616 (3) Cognitive Development

39.5.5 M.A. in Curriculum Studies

This program introduces students to the broad field of curriculum studies in education. Students explore past and present theoretical perspectives on the curriculum, as well as issues concerned with curriculum design, implementation, planning and development. A central theme of the program is how curriculum unites theory and practice in education. The program draws upon a wide range of expertise from within the Department, including: sociology of education, multicultural and intercultural education, science and technology education, policy studies, gender, critical pedagogy, media and cultural studies.

MASTER OF ARTS IN CURRICULUM STUDIES (Thesis Option) (45 credits)**Required Courses** (33 credits)

- EDEC 602 (3) Foundations of Curriculum
- EDEC 606 (3) Seminar in Curriculum Inquiry
- EDEM 609 (3) Issues in Educational Studies
- EDEM 621 (6) Thesis 1
- EDEM 623 (6) Thesis 2
- EDEM 699 (12) Thesis 3

Complementary Courses (6 credits)

Six credits from the following:

- EDEM 690 (3) Research Methods
- EDEM 692 (3) Qualitative Research Methods, or equivalent
- EDSL 630 (3) Qualitative/Ethnographic Methods

Elective Courses (6 credits)

6 credits at the 500, 600, or 700 level chosen in consultation with the Graduate Program Director.

MASTER OF ARTS IN CURRICULUM STUDIES – GENDER AND WOMEN'S STUDIES (Thesis Option) (45 credits)

The Graduate Option in Gender and Women's Studies is an interdisciplinary program for students who meet Curriculum Studies degree requirements in Integrated Studies in Education (and other participating departments and faculties) who wish to earn 6 credits of approved coursework focusing on gender and women's studies, and issues in feminist research and methods. The student's M.A. thesis must be on a topic centrally relating to issues of gender and/or women's studies.

Required Courses (36 credits)

- EDEC 602 (3) Foundations of Curriculum
- EDEC 606 (3) Seminar in Curriculum Inquiry
- EDEM 609 (3) Issues in Educational Studies
- EDEM 621 (6) Thesis 1

- EDEM 623 (6) Thesis 2
- EDEM 699 (12) Thesis 3
- WMST 601 (3) Feminist Theories and Methods

Complementary Courses (6 credits)

3 credits from the following:

- EDEM 690 (3) Research Methods
- EDEM 692 (3) Qualitative Research Methods, or equivalent
- EDSL 630 (3) Qualitative/Ethnographic Methods

3 credits chosen from the following, must be either:

- WMST 602 (3) Feminist Research Symposium

or one 3-credit course, at the 500 level or higher, on gender/women's issues (may be in the department or outside).

Elective Course (3 credits)

3 credits at the 500 level or higher chosen in consultation with the Graduate Program Director.

MASTER OF ARTS IN CURRICULUM STUDIES (Non-Thesis Option – Coursework) (45 credits)**Required Courses** (12 credits)

- EDEC 602 (3) Foundations of Curriculum
- EDEC 606 (3) Seminar in Curriculum Inquiry
- EDEM 609 (3) Issues in Educational Studies
- EDEM 690 (3) Research Methods

Complementary Courses (27 credits)

24 credits from the following:

- EDEC 500 (3) Tutoring Writing
- EDEC 604 (3) Literacy and Learning Across Curriculum
- EDEC 610 (3) Literature: Children/Young Adults
- EDEC 612 (3) Media Literacy
- EDEC 616 (3) Reading Course
- EDEC 620 (3) Meanings of Literacy
- EDEC 627 (3) Responding to Texts
- EDEC 635 (3) Advanced Written Communication
- EDEM 644 (3) Curriculum Development and Implementation

3 credits from the following:

- EDEM 610 (3) Leadership in Action
- EDEM 646 (3) Planning and Evaluation
- EDEM 664 (3) Education and the Law
- EDEM 673 (3) Leadership Theory in Education
- EDEM 675 (3) Organizational Theory and Education

Elective Courses (6 credits)

6 credits at the 500, 600, or 700 level chosen in consultation with the Graduate Program Director.

MASTER OF ARTS IN CURRICULUM STUDIES (Non-Thesis Option – Project) (45 credits)**Required Courses** (24 credits)

- EDEC 602 (3) Foundations of Curriculum
- EDEC 606 (3) Seminar in Curriculum Inquiry
- EDEM 609 (3) Issues in Educational Studies
- EDEM 690 (3) Research Methods
- EDEM 625 (6) Project 1
- EDEM 627 (6) Project 2

Complementary Courses (15 credits)

12 credits from the following:

- EDEC 500 (3) Tutoring Writing
- EDEC 612 (3) Media Literacy
- EDEC 620 (3) Meanings of Literacy
- EDEC 627 (3) Responding to Texts
- EDEC 635 (3) Advanced Written Communication
- EDEM 644 (3) Curriculum Development and Implementation

3 credits from the following:

- EDEM 610 (3) Leadership in Action
- EDEM 646 (3) Planning and Evaluation
- EDEM 664 (3) Education and the Law

EDEM 673 (3) Leadership Theory in Education
 EDEM 675 (3) Special Topics 1

Elective Courses (6 credits)

6 credits at the 500, 600, or 700 level chosen in consultation with the Graduate Program Director.

MASTER OF ARTS IN CURRICULUM STUDIES – GENDER AND WOMEN'S STUDIES (Non-Thesis Option – Project)

(45 credits)

The Graduate Non-Thesis Project Option in Gender and Women's Studies is an interdisciplinary program for students who meet Curriculum Studies degree requirements in Integrated Studies in Education (and other participating departments and faculties) who wish to earn 6 credits of approved coursework focusing on gender and women's studies, and issues in feminist research and methods. The student's M.A. project must be on a topic centrally relating to issues of gender and/or women's studies.

Required Courses (27 credits)

EDEC 602 (3) Foundations of Curriculum
 EDEC 606 (3) Seminar in Curriculum Inquiry
 EDEM 609 (3) Issues in Educational Studies
 EDEM 690 (3) Research Methods
 EDEM 625 (6) Project 1
 EDEM 627 (6) Project 2
 WMST 601 (3) Feminist Theories and Methods

Complementary Courses (15 credits)

9 credits from the following:

EDEC 500 (3) Tutoring Writing
 EDEC 612 (3) Media Literacy
 EDEC 620 (3) Meanings of Literacy
 EDEC 627 (3) Responding to Texts
 EDEC 635 (3) Advanced Written Communication
 EDEM 644 (3) Curriculum Development and Implementation

3 credits from the following:

EDEM 610 (3) Leadership in Action
 EDEM 646 (3) Planning and Evaluation
 EDEM 664 (3) Education and the Law
 EDEM 673 (3) Leadership Theory in Education
 EDEM 675 (3) Special Topics 1'

3 credits chosen from the following, must be either:

WMST 602 (3) Feminist Research Symposium
 or one 3-credit course, at the 500 level or higher, on gender/women's issues (may be in the department or outside).

Elective Course (3 credits)

3 credits at the 500 level or higher chosen in consultation with the Graduate Program Director.

39.5.6 M.A. in Educational Leadership

This program is designed to prepare leaders in the field of education who are committed to personal and institutional improvement in schools and other centres of formal or informal learning. The program fosters the ongoing development of reflective practitioners who have a sense of educational action, the capacity to anticipate needs, the ability to exercise professional judgment within the realities of policy frameworks, and the ability to both lead and support institutional and organizational change at all levels. A central theme of the program is the impact of policy on educational practice at local, national and international levels.

MASTER OF ARTS IN EDUCATIONAL LEADERSHIP (Thesis Option) (45 credits)

Required Courses (33 credits)

EDEM 609 (3) Issues in Educational Studies
 EDEM 610 (3) Leadership in Action
 EDEM 673 (3) Leadership Theory in Education
 EDEM 621 (6) Thesis 1
 EDEM 623 (6) Thesis 2

EDEM 699 (12) Thesis 3

Complementary Courses (6 credits)

6 credits from the following:

EDEM 690 (3) Research Methods
 EDEM 692 (3) Qualitative Research Methods, or equivalent
 EDLSL 630 (3) Qualitative/Ethnographic Methods

Elective Courses (6 credits)

6 credits at the 500, 600, or 700 level chosen in consultation with the Graduate Program Director.

MASTER OF ARTS IN EDUCATIONAL LEADERSHIP – GENDER AND WOMEN'S STUDIES (Thesis Option) (45 credits)

The Graduate Option in Gender and Women's Studies is an interdisciplinary program for students who meet Educational Leadership degree requirements in Integrated Studies in Education (and other participating departments and faculties) who wish to earn 6 credits of approved coursework focusing on gender and women's studies, and issues in feminist research and methods. The student's M.A. thesis must be on a topic centrally relating to issues of gender and/or women's studies.

Required Courses (36 credits)

EDEM 609 (3) Issues in Educational Studies
 EDEM 610 (3) Leadership in Action
 EDEM 673 (3) Leadership Theory in Education
 EDEM 621 (6) Thesis 1
 EDEM 623 (6) Thesis 2
 EDEM 699 (12) Thesis 3
 WMST 601 (3) Feminist Theories and Methods

Complementary Courses (6 credits)

3 credits from following:

EDEM 690 (3) Research Methods
 EDEM 692 (3) Qualitative Research Methods, or equivalent
 EDLSL 630 (3) Qualitative/Ethnographic Methods

3 credits chosen from the following, must be either:

WMST 602 (3) Feminist Research Symposium
 or one 3-credit course, at the 500 level or higher, on gender/women's issues (may be in the department or outside).

Elective Course (3 credits)

3 credits at the 500 level or higher chosen in consultation with the Graduate Program Director.

MASTER OF ARTS IN EDUCATIONAL LEADERSHIP (Non-Thesis Option – Coursework) (45 credits)

Required Courses (12 credits)

EDEM 609 (3) Issues in Educational Studies
 EDEM 610 (3) Leadership in Action
 EDEM 673 (3) Leadership Theory in Education
 EDEM 690 (3) Research Methods

Complementary Courses (27 credits)

24 credits from the following:

EDEM 628 (3) Education Resource Management
 EDEM 630 (3) Policy Issues: Workplace Learning
 EDEM 637 (3) Managing Educational Change
 EDEM 644 (3) Curriculum Development and Implementation
 EDEM 646 (3) Planning and Evaluation
 EDEM 664 (3) Education and the Law
 EDEM 674 (3) Organizational Theory and Education
 EDEM 675 (3) Special Topics 1
 EDEM 677 (3) Special Topics 2
 EDEM 693 (3) School Improvement Approaches

3 credits from the following:

EDEC 602 (3) Foundations of Curriculum
 EDEC 606 (3) Seminar in Curriculum Inquiry
 EDEC 612 (3) Media Literacy

- EDEC 620 (3) Meanings of Literacy
 EDEC 635 (3) Advanced Written Communication

Elective Courses (6 credits)

6 credits at the 500, 600, or 700 level chosen in consultation with the Graduate Program Director.

MASTER OF ARTS IN EDUCATIONAL LEADERSHIP (Non-Thesis Option – Project) (45 credits)**Required Courses** (24 credits)

- EDEM 609 (3) Issues in Educational Studies
 EDEM 610 (3) Leadership in Action
 EDEM 673 (3) Leadership Theory in Education
 EDEM 690 (3) Research Methods
 EDEM 625 (6) Project 1
 EDEM 627 (6) Project 2

Complementary Courses (15 credits)

12 credits from the following:

- EDEM 628 (3) Education Resource Management
 EDEM 630 (3) Policy Issues: Workplace Learning
 EDEM 637 (3) Managing Educational Change
 EDEM 644 (3) Curriculum Development and Implementation
 EDEM 646 (3) Planning and Evaluation
 EDEM 664 (3) Education and the Law
 EDEM 674 (3) Organizational Theory and Education
 EDEM 675 (3) Special Topics 1
 EDEM 677 (3) Special Topics 2
 EDEM 693 (3) School Improvement Approaches

3 credits from the following:

- EDEC 602 (3) Foundations of Curriculum
 EDEC 606 (3) Seminar in Curriculum Inquiry
 EDEC 612 (3) Media Literacy
 EDEC 620 (3) Meanings of Literacy
 EDEC 635 (3) Advanced Written Communication

Elective Courses (6 credits)

6 credits at the 500, 600, or 700 level chosen in consultation with the Graduate Program Director.

MASTER OF ARTS IN EDUCATIONAL LEADERSHIP – GENDER AND WOMEN'S STUDIES (Non-Thesis Option – Project) (45 credits)

The Graduate Non-Thesis Project Option in Gender and Women's Studies is an interdisciplinary program for students who meet Educational Leadership degree requirements in Integrated Studies in Education (and other participating departments and faculties) who wish to earn 6 credits of approved coursework focusing on gender and women's studies, and issues in feminist research and methods. The student's M.A. project must be on a topic centrally relating to issues of gender and/or women's studies.

Required Courses (27 credits)

- EDEM 609 (3) Issues in Educational Studies
 EDEM 610 (3) Leadership in Action
 EDEM 673 (3) Leadership Theory in Education
 EDEM 690 (3) Research Methods
 EDEM 625 (6) Project 1
 EDEM 627 (6) Project 2
 WMST 601 (3) Feminist Theories and Methods

Complementary Courses (15 credits)

9 credits from the following:

- EDEM 628 (3) Education Resource Management
 EDEM 630 (3) Policy Issues: Workplace Learning
 EDEM 637 (3) Managing Educational Change
 EDEM 644 (3) Curriculum Development and Implementation
 EDEM 646 (3) Planning and Evaluation
 EDEM 664 (3) Education and the Law
 EDEM 674 (3) Organizational Theory and Education
 EDEM 675 (3) Special Topics 1

- EDEM 677 (3) Special Topics 2
 EDEM 693 (3) School Improvement Approaches

3 credits from the following:

- EDEC 602 (3) Foundations of Curriculum
 EDEC 606 (3) Seminar in Curriculum Inquiry
 EDEC 612 (3) Media Literacy
 EDEC 620 (3) Meanings of Literacy
 EDEC 635 (3) Advanced Written Communication

3 credits chosen from the following, must be either:

- WMST 602 (3) Feminist Research Symposium

or one 3-credit course, at the 500 level or higher, on gender/women's issues (may be in the department or outside).

Elective Course (3 credits)

3 credits at the 500 level or higher chosen in consultation with the Graduate Program Director.

39.5.7 M.A. in Second Language Education

From a range of pedagogical, linguistic, cognitive, political, and sociocultural perspectives, this program combines theoretical and applied studies of how second and foreign languages are learned and used. The M.A. Thesis option is a research-oriented degree in which approximately half consists of thesis research. The M.A. Non-thesis option, consisting entirely of course work, is less research-oriented and suitable for practitioners interested in professional development with a theoretical orientation.

MASTER OF ARTS IN SECOND LANGUAGE EDUCATION (Thesis Option) (45 credits)**Required Courses** (33 credits)

- EDPE 575 (3) Educational Measurement
 EDSL 623 (3) Second Language Learning
 EDSL 664 (3) Second Language Research Methods
 EDSL 666 (6) Thesis Research 1
 EDSL 667 (6) Thesis Research 2
 EDSL 668 (6) Thesis Research 3
 EDSL 669 (6) Thesis Research 4

Complementary Courses (9 credits)

9 credits chosen from the following:

- EDEM 609 (3) Issues in Educational Studies
 EDSL 617 (3) Special Topic in Second Language Education
 EDSL 620 (3) Critical Issues in Second Language Education
 EDSL 624 (3) Educational Sociolinguistics
 EDSL 627 (3) Classroom-Centred Second Language Research
 EDSL 629 (3) Second Language Assessment
 EDSL 630 (3) Qualitative/Ethnographic Methods
 EDSL 631 (3) Second Language Curriculum
 EDSL 632 (3) Second Language Literacy Development
 EDSL 651 (3) Immersion Education

Elective Course (3 credits)

3 credits at the 500, 600 or 700 level chosen in consultation with the Graduate Program Director

MASTER OF ARTS IN SECOND LANGUAGE EDUCATION – GENDER AND WOMEN'S STUDIES (Thesis Option) (45 credits)

The Graduate Option in Gender and Women's Studies is an interdisciplinary program for students who meet Second Language Education degree requirements in Integrated Studies in Education (and other participating departments and faculties) who wish to earn 6 credits of approved coursework focusing on gender and women's studies, and issues in feminist research and methods. The student's M.A. thesis must be on a topic centrally relating to issues of gender and/or women's studies.

Required Courses (36 credits)

EDPE 575	(3)	Educational Measurement
EDSL 623	(3)	Second Language Learning
EDSL 664	(3)	Second Language Research Methods
EDSL 666	(6)	Thesis Research 1
EDSL 667	(6)	Thesis Research 2
EDSL 668	(6)	Thesis Research 3
EDSL 669	(6)	Thesis Research 4
WMST 601	(3)	Feminist Theories and Methods

Complementary Courses (9 credits)

6 credits chosen from the following:

EDEM 609	(3)	Issues in Educational Studies
EDSL 617	(3)	Special Topic in Second Language Education
EDSL 620	(3)	Critical Issues in Second Language Education
EDSL 624	(3)	Educational Sociolinguistics
EDSL 627	(3)	Classroom-Centred Second Language Research
EDSL 629	(3)	Second Language Assessment
EDSL 630	(3)	Qualitative/Ethnographic Methods
EDSL 631	(3)	Second Language Curriculum
EDSL 632	(3)	Second Language Literacy Development
EDSL 651	(3)	Immersion Education

3 credits chosen from the following, must be either:

WMST 602	(3)	Feminist Research Symposium
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or one 3-credit course, at the 500 level or higher, on gender/women's issues (may be in the department or outside).

MASTER OF ARTS IN SECOND LANGUAGE EDUCATION (Non-Thesis Option) (45 credits)**Required Courses** (12 credits)

EDEM 609	(3)	Issues in Educational Studies
EDPE 575	(3)	Educational Measurement
EDSL 623	(3)	Second Language Learning
EDSL 664	(3)	Second Language Research Methods

Complementary Courses (15 credits)

15 credits chosen from the following:

EDSL 617	(3)	Special Topic in Second Language Education
EDSL 620	(3)	Critical Issues in Second Language Education
EDSL 624	(3)	Educational Sociolinguistics
EDSL 627	(3)	Classroom-Centred Second Language Research
EDSL 629	(3)	Second Language Assessment
EDSL 630	(3)	Qualitative/Ethnographic Methods
EDSL 631	(3)	Second Language Curriculum
EDSL 632	(3)	Second Language Literacy Development
EDSL 651	(3)	Immersion Education

Elective Courses (18 credits)

Elective courses, at the 500- or 600-level, are selected in consultation with the Graduate Program Director and may include complementary courses listed above. Up to 6 of the elective credits may include the following:

EDEC 635	(3)	Advanced Written Communication (for students whose primary language is English)
ESLN 590	(3)	Writing for Graduate Students (for students whose primary language is not English)

An undergraduate language course (e.g., Spanish, Italian, Japanese).

39.5.8 Ph.D. in Educational Studies

The Ph.D. in Educational Studies provides an integrative perspective on education by drawing on a range of related disciplines and research orientations. Students develop scholarly and innovative expertise in at least one of three contexts of inquiry and awareness of the inter-relatedness of all three: (a) the broad context of culture and society; (b) the international, national, and local contexts of educational leadership and policy studies; and (c) the

more specific contexts of schools and other sites of teaching and learning. Students begin with a set of common core courses and proceed to specialization through advanced course work and dissertation topics focused on areas of expertise that are supported by the research interests of current faculty members.

Required Courses (8 credits)

EDEC 700	(2)	Proseminar in Education 1
EDEC 701	(0)	PhD Comprehensive Examination Normally taken in the second year
EDEC 702	(2)	Proseminar in Education 2
EDEC 703	(2)	Ph.D. Colloquium 1
EDEC 704	(2)	Ph.D. Colloquium 2

Complementary Courses (3 -15 credits)

One of:

EDEC 705	(3)	Advanced Research Designs
EDEC 706	(3)	Textual Approaches to Research
EDEC 707	(3)	Interpretive Inquiry

12 credits maximum of graduate courses selected in consultation with the Doctoral Advisory Committee depending on the student's background and research interests.

Dissertation**Additional Requirements for All Ph.D. Students (Including Those in the Gender and Women's Studies Option)**

Additional courses required in the student's Ph.D. plan of study will be determined by the Doctoral Advisory Committee in consultation with the student at the time of admission.

Students admitted to Ph.D. 2 will normally take no more than 12 credits of additional courses (3 credits for students in the Gender and Women's Studies option), selected from among the Department's current graduate offerings.

Students admitted to the program without at least six credits of M.A. level research methods and/or statistics courses will be required to take such courses during their first year of study, selected from the Department's current offerings of research-methods courses

EDEM 690	(3)	Research Methods
EDEM 692	(3)	Qualitative Research Methods
EDSL 630	(3)	Qualitative/Ethnographic Methods
EDSL 664	(3)	Second Language Research Methods

Students required by their Doctoral Advisory Committee to take graduate courses in statistics will select from a range of courses offered by the Department of Educational and Counselling Psychology, such as:

EDPE 575	(3)	Educational Measurement
EDPE 676	(3)	Intermediate Statistics 2
EDPE 682	(3)	Univariate/Multivariate Analysis

Ph.D. in Educational Studies – Gender And Women's Studies Option

The Graduate Option in Gender and Women's Studies is an interdisciplinary program for Educational Studies students who meet degree requirements in Integrated Studies in Education (and other participating departments and faculties) who wish to earn 9 credits of approved coursework focusing on gender and women's studies, and issues in feminist research and methods. The student's doctoral thesis must be on a topic centrally relating to issues of gender and/or women's studies.

Required Courses (14 credits)

EDEC 700	(2)	Proseminar in Education 1
EDEC 701	(0)	PhD Comprehensive Examination Normally taken in the second year
EDEC 702	(2)	Proseminar in Education 2
EDEC 703	(2)	Ph.D. Colloquium 1
EDEC 704	(2)	Ph.D. Colloquium 2
WMST 601	(3)	Feminist Theories and Methods
WMST 602	(3)	Feminist Research Symposium

Complementary Courses (6 - 9 credits)

One of:

- EDEC 705 (3) Advanced Research Designs
 EDEC 706 (3) Textual Approaches to Research
 EDEC 707 (3) Interpretive Inquiry

One 3-credit course, at the 500 level or higher, on gender/women's issues (may be in the department or outside).

3 credits maximum of graduate courses selected in consultation with the Doctoral Advisory Committee depending on the student's background and research interests.

Dissertation**39.6 Courses**

Students preparing to register should consult the Web at www.mcgill.ca/minerva-students (click on Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Single term and Multi-term Courses (D1/D2, N1/N2, J1/J2/J3)

The same course may be available as a single term offering and also as a multi-term offering. The course content and credit weight is equivalent in all modes; the only difference being the scheduling.

Courses with numbers ending in D1 and D2 are taught in two consecutive terms (most commonly Fall and Winter). Students must register for the same section of both the D1 and D2 components. No credit will be given unless both components (D1 and D2) are successfully completed in consecutive terms, e.g., Fall 2008 and Winter 2009.

Courses with numbers ending in N1 and N2 are taught in two non-consecutive terms (Winter and Fall). Students must register for the same section of both the N1 and N2 components. No credit will be given unless both components (N1 and N2) are successfully completed within a twelve (12) month period.

Courses with numbers ending in J1, J2 and J3 are taught over three consecutive terms. Students must register for the same section of all three components (J1, J2, J3). No credit will be given unless all three components are successfully completed.

For more information on Multi-term Courses, Course Terminology, Class Schedule and Course Catalog, see the *General Information, Regulations and Research Guidelines, Graduate and Postdoctoral Studies Calendar for 2008-09*.

☐ Denotes limited enrolment

39.6.1 EDEA – Arts Education

Courses currently scheduled for 2008-09:

EDEA 612 ART EDUCATION TUTORIAL. (3) (Restriction: Not open to those who have taken EDEA 612 6 credits - prior to 1993.) Tutorial based on candidate's research question, oriented toward development of a literature review and preparation for the research activity.

EDEA 652 APPROACHES TO MUSIC CURRICULUM. (3) An examination and critical assessment of music curriculum at the elementary or secondary level. Specific content of the course will vary from year to year.

39.6.2 EDEC – Curriculum and Instruction

Courses currently scheduled for 2008-09:

EDEC 602 FOUNDATIONS OF CURRICULUM. (3) The processes of development, implementation and evaluation will be studied from the perspective of the teacher. The focus will be on the role of the teacher as a curriculum professional at the preschool, elementary and secondary school levels.

EDEC 603 INDIVIDUAL READING COURSE. (6) Individualized guided study of a topic in the teaching of the candidates' specialties selected according to their interest and teaching experience.

EDEC 604 LITERACY AND LEARNING ACROSS CURRICULUM. (3) Examination of the central role of language in learning across the curriculum: the processes by which pupils acquire information and understanding and the ways in which teaching must take account of these processes: learning through talk, learning by writing, learning from text.

EDEC 606 SEMINAR IN CURRICULUM INQUIRY. (3) Students will be introduced to debates that are current in curriculum studies which centre on the appropriate emphasis to be accorded to traditions of schooling. To join the debate, students will need to explore the nature of a variety of traditions and the concomitant curricular manifestations and approaches to pedagogy.

EDEC 608 SELECTED READINGS IN LITERACY. (6) This course serves as a tutorial course that would normally involve the monograph supervisor. Students would concentrate their reading in an area pertinent to the monograph.

EDEC 610 LITERATURE: CHILDREN/YOUNG ADULTS. (3) An examination of the growth of children's literature from the Middle Ages to modern times, with special emphasis on its reflection of social, cultural, psychological and historical events, issues and norms of the times. Particular emphasis is given to its implications for school programs.

EDEC 612 MEDIA LITERACY. (3) The course examines the nature and possibilities of media literacy education in schooling, including both the development of students' ability to critically analyze the mass, visual, electronic media in society as well as the development of their own ability to utilize various new media for their own communication.

EDEC 616 READING COURSE. (3) Individualized guided study of a topic in the teaching of the candidates' specialties selected according to their interest and teaching experience.

EDEC 617 SPECIAL TOPICS - LITERACY STUDIES. (3)

EDEC 620 MEANINGS OF LITERACY. (3) (Restriction: Not open to students who have taken EDEM 620.) Investigation of basic issues related to definitions of literacy. Issues include new directions in literacy and education, the need for non-print literacies in contemporary life, and the challenges these changes present for educators.

EDEC 627 RESPONDING TO TEXTS. (3) An examination of current theory and research on response to texts and implications for classroom practice at the elementary, secondary, and post-secondary levels. A special emphasis on the processes involved in reading texts, theories of audiences, and researching and assessing response to texts.

EDEC 635 ADVANCED WRITTEN COMMUNICATION. (3) Rhetorical practices and principles that remain constant across disciplines: generating and organizing ideas; setting goals; planning; considering readers; editing and revising. Students will analyze and produce texts that use the formats, rhetorical strategies, styles, genres, and other conventions of their disciplines.

EDEC 645 SCIENCE WRITING AND PUBLISHING. (3) (Restriction: Limited to senior graduate students - Ph.D.2 and above.) Techniques for writing reader-sensitive scientific articles and grant applications, including how to express abstract ideas.

EDEC 690 MONOGRAPH PREPARATION AND PRESENTATION. (12) The preparation and submission of a study project dealing with some aspect of the teaching of the candidate's specialization and supported by a comprehensive review of the relevant literature. The monograph is to be presented to the candidate's program director after the satisfactory completion of the required coursework.

EDEC 700 PROSEMINAR IN EDUCATION 1. (2) (Restriction: Limited to Doctoral students.) Students will be exposed to a wide range of educational theory and research as faculty members present the theoretical underpinnings, methodologies, and applications of their various programs of research.

EDEC 701 PHD COMPREHENSIVE EXAMINATION. (0) Comprehensive examination.

EDEC 702 PROSEMINAR IN EDUCATION 2. (2) (Restriction: Limited to Doctoral students) First-year doctoral students will be exposed to more advanced level of educational theory and research to experience the multidisciplinary nature of educational inquiry.

EDEC 703 PH.D. COLLOQUIUM 1. (2) (Restriction: Limited to Doctoral students) Second-year doctoral students will have opportunities to present their work for critical discussion and dialogue. This course will provide students with an introduction to fundamental issues and questions in the field of education.

EDEC 704 PH.D. COLLOQUIUM 2. (2) (Restriction: Limited to Doctoral students) Second-year doctoral students will have opportunities to present their work for critical discussion and dialogue. This course will provide students with a more advanced exposure to issues and questions in the field of education.

EDEC 705 ADVANCED RESEARCH DESIGNS. (3) (Restriction: Limited to Doctoral students) Examination of research methods that are supported by multiple research perspectives.

EDEC 706 TEXTUAL APPROACHES TO RESEARCH. (3) (Restriction: Limited to Doctoral students) Survey a range of research strategies including philosophical, theoretical, historical, narrative, and autobiographical methods of textual analysis.

EDEC 707 INTERPRETIVE INQUIRY. (3) (Restriction: Not open to students who have taken EDEM 679) Focus on issues of voice, reflectivity, and representation when using interpretive frameworks in qualitative research.

39.6.3 EDEE – Elementary Education

Courses currently scheduled for 2008-09:

EDEE 655 SPECIAL TOPICS - CURRICULUM STUDIES. (3) A detailed examination of a selected topic. The content will vary from year to year and will be announced prior to registration.

39.6.4 EDEM – Admin & Policy Studies in Education

Courses currently scheduled for 2008-09:

EDEM 603 INDIVIDUAL READING COURSE. (6) Independent study of an approved topic with the guidance of a faculty advisor.

EDEM 606 EDUCATIONAL LEADERSHIP ISSUES. (3) Critical analysis and appraisal of leadership issues across geographic, linguistic, racial, gender and cultural contexts from a comparative perspective. Students will analyze their own experience.

EDEM 609 ISSUES IN EDUCATIONAL STUDIES. (3) The purpose is to explore critically the contemporary trends, issues, historical contexts and implications in curriculum and leadership through processes that engage students with each other and various members of the Department.

EDEM 610 LEADERSHIP IN ACTION. (3) Teaching of the use of reflective practice as a means of developing individual theories of action in educational settings. It provides students with the knowledge, skills and attitudes necessary to engage in processes that can improve individual and organizational performance. Special emphasis will be given to communication, problem solving and decision-making.

EDEM 615 SELECTED ISSUES: CONTEMPORARY EDUCATION. (6)

EDEM 616 INDIVIDUAL READING COURSE. (3) Independent study of an approved topic with the guidance of a faculty advisor.

EDEM 621 THESIS 1. (6) Departmental seminar to guide students through the process of developing a thesis proposal, identifying a supervisor, research sites and participants, and considering ethical issues.

EDEM 623 THESIS 2. (6) Continuation of EDEM 621.

EDEM 625 PROJECT 1. (6) Theoretical or practical project under the supervision of a departmental faculty member to explore and analyze an area of interest relevant to the concentration in leadership or curriculum.

EDEM 627 PROJECT 2. (6) Extension of Project 1 or new project.

EDEM 628 EDUCATION RESOURCE MANAGEMENT. (3) An exploration of the concepts and skills necessary to manage the human and financial resources of small organizations (schools, NGOs, departments). Among the areas to be explored are labour contracts, supervision, grantsmanship, use of volunteers, managing site-based budgets.

EDEM 630 POLICY ISSUES: WORKPLACE LEARNING. (3) This course explores the complex policy climate in workplace learning in Canada and examines the pressures and choices facing program planners and instructors.

EDEM 635 FISCAL ACCOUNTABILITY IN EDUCATION. (3) Accountability in schools and education systems, public responsibility, budgeting, and measures of educational performance.

EDEM 637 MANAGING EDUCATIONAL CHANGE. (3) Conceptual approaches to managing school improvement and reform with applications such as conflict management, action planning, coaching, shared vision-building and problem solving.

EDEM 644 CURRICULUM DEVELOPMENT AND IMPLEMENTATION. (3) Processes of planning, developing, implementing and adapting curricula in various learning systems.

EDEM 646 PLANNING AND EVALUATION. (3) Knowledge and skills development in educational planning and monitoring at the service delivery unit (school, non-governmental organization, adult education centre). Areas of study include strategic management, results-based management, log frame analysis, systems assessment, stakeholders analysis, and fourth generation evaluation.

EDEM 660 COMMUNITY RELATIONS IN EDUCATION. (3) School-community relations and methods of encouraging public involvement in education.

EDEM 664 EDUCATION AND THE LAW. (3) The legal and institutional framework of Canadian education systems; legal terminology and the tools and methods of legal research; selected public and private law issues in Canadian education.

EDEM 671 THE PRINCIPALSHIP. (3) Roles, expectations and skills related to the task of the school principal and the implications for school climate and effectiveness.

EDEM 673 LEADERSHIP THEORY IN EDUCATION. (3) Concepts of leadership and the role of leadership in educational settings.

EDEM 674 ORGANIZATIONAL THEORY AND EDUCATION. (3) Contemporary organization theories and their implications for education and the management of learning environments.

EDEM 675 SPECIAL TOPICS 1. (3) Important current issues in the field of Educational Studies. (Content varies from year to year.)

EDEM 677 SPECIAL TOPICS 2. (3) Important current issues in the field of Educational Studies. (Content varies from year to year.)

EDEM 681 PRACTICUM - ADMINISTRATIVE STUDIES. (3) Field studies and applied research, including the preparation of a research report.

EDEM 690 RESEARCH METHODS. (3) Students will develop a critical understanding of quantitative and qualitative research in the field of Educational Studies. Students will learn about the purposes and types of research, the research process and how to evaluate and use research information.

EDEM 692 QUALITATIVE RESEARCH METHODS. (3) Theoretical and practical exploration of the foundations of qualitative methods, with emphasis on underlying principles.

EDEM 693 SCHOOL IMPROVEMENT APPROACHES. (3) Analysis of action research approaches used to improve school performance.

EDEM 695 POLICY STUDIES IN EDUCATION. (3) Issues in the field of policy studies with specific reference to the formulation, analysis, and assessment of educational policies.

EDEM 699 THESIS 3. (12) Final synthesis of the research project.

EDEM 699N1 THESIS 3. (6) (Students must also register for EDEM 699N2) (No credit will be given for this course unless both EDEM

699N1 and EDEM 699N2 are successfully completed in a twelve month period) Final synthesis of the research project.

EDEM 699N2 THESIS 3. (6) (Prerequisite: EDEM 6991) (No credit will be given for this course unless both EDEM 699N1 and EDEM 699N2 are successfully completed in a twelve month period)

39.6.5 EDER – Religious Studies

Courses currently scheduled for 2008-09

EDER 505 EDUCATION AND SOCIAL ISSUES. (3) A study of the philosophical aspects of major social issues to education, and of selected approaches to fostering critical thinking concerning such issues.

EDER 520 ISSUES IN JEWISH EDUCATION. (3) (Restriction: Not open to students who have taken 422-320 / EDER 320) An exploration of dissenting and complementary perspectives on the purpose of Jewish education. Challenges facing the field of Jewish education are examined. Developments in general education of relevance to Jewish education are considered.

EDER 523 TEACHING JUDAISM: BIBLE. (3) (Restriction: Not open to students who have taken 422-401 / EDER 401) (Prerequisite: Knowledge of Hebrew, with permission of instructor) A study of selected narrative, poetic and legal portions of the Pentateuch with a view to teaching this material in Jewish schools. An examination of some of the techniques presently used in the teaching of Bible.

EDER 525 TEACHING JUDAISM: HOLIDAYS. (3) (Restriction: Not open to students who have taken 422-250 / EDER 252) An exploration of the rituals, customs, values and historical development of Jewish holidays. Methods of applying this material to the Jewish studies classroom are examined.

EDER 526 TEACHING JUDAISM: LITURGY. (3) (Restriction: Not open to students who have taken 422-400 / EDER 407) (Prerequisite: Knowledge of Hebrew, with permission of instructor.) An exploration of curriculum developed for teaching prayer and fostering spirituality within Jewish educational frameworks. Selected portions of the High Holy Day liturgy are examined with a view to teaching this material in Jewish settings.

EDER 527 TEACHING JUDAISM: SPECIAL TOPICS. (3) In-depth examination of topics in Jewish education. Content will vary from year to year.

EDER 528 TEACHING JUDAISM: THE HOLOCAUST. (3) (Restriction: Not open to students who have taken 422-421 / EDER 421) An exploration of approaches and techniques for the teaching of the Holocaust. Strategies for using Holocaust education as a basis for discussing prejudice and moral responsibility are examined.

EDER 600 GLOBALIZATION, EDUCATION & CHANGE. (3) The impact of globalization on educational institutions, processes and practices. Topics may include the politics of change, teachers' work, educational reform, technology, environment, educational management and leadership.

EDER 603 INDIVIDUAL READING COURSE. (6)

EDER 606 PHILOSOPHY OF MORAL EDUCATION.(3) A study of principles underlying contemporary moral education such as what constitutes moral values and judgments, normative basis for morality, and differing foundations employed in determining moral norms.

EDER 607 VALUES EDUCATION: CONTEMPORARY APPROACHES. (3) A study of the objectives, content and approaches to the teaching of human and moral values. A critical examination of selected programs dealing with human and moral values.

EDER 608 EDUCATIONAL IMPLICATIONS OF SOCIAL THEORY. (3) An analysis of some of the educational implications of various social and political theories: liberalism, Marxism and others.

EDER 609 EDUCATION AND PHILOSOPHICAL THOUGHT. (3) An analysis of the educational implications of various philosophical positions concerning the nature of reality and the nature of knowledge.

EDER 610D1 (7.5), EDER 610D2 (7.5) INTERNSHIP. (Restriction: Only open to students in M.A. Culture and Values Non-Thesis (Jewish Education Option)) (Students must register for both EDER

610D1 and EDER 610D2) (No credit will be given for this course unless both EDER 610D1 and EDER 610D2 are successfully completed in consecutive terms) Supervised fieldwork in a Jewish school or educational institution.

EDER 614 SOCIOLOGY OF EDUCATION. (3) Social context of schooling, including education and social stratification and socialization processes within and outside schools.

EDER 615 CULTURE, VALUES AND EDUCATION. (3) In-depth examination of culture and values in education.

EDER 616 INDIVIDUAL READING COURSE.(3)

EDER 617 AESTHETICS AND EDUCATION. (3) An examination and critical analysis of selected readings on the topic of aesthetics, with specific reference to their application to educational practice.

EDER 622 STUDIES IN COMPARATIVE EDUCATION. (3) Comparative study of the economic, political and social aspects of education systems.

EDER 625 TOPICS: CULTURE IN EDUCATION. (3) In-depth examination of topics in culture in education. Content will vary from year to year and will be announced prior to registration. (Examples: Post-modernism and Education; Antiracist Education; Cultural Relativism and Critical Thinking; Popular Culture and Education.)

EDER 626 TOPICS: VALUE IN EDUCATION. (3) In-depth examination of topics in values in education. Content will vary from year to year and will be announced prior to registration. (Examples: Spirituality and Education; Patterns of Moral/Spiritual Development; Ethics and Education.)

EDER 633 PROJECT 1. (6) (Prerequisite: Completion of program course requirements.) (Restriction: Not open to students who have taken EDER 633 prior to 200609. For non-thesis students only.) Theoretical or practical project to explore and analyze an area of interest relevant to the concentration in culture and values in education.

EDER 634 PROJECT 2. (6) (Prerequisite: EDER 633 and completion of program course requirements.) (Restriction: Not open to students who have taken EDER 633 prior to 200609. For non-thesis students only.) Theoretical or practical project to explore and analyze an area of interest relevant to the concentration in culture and values in education.

EDER 639 EDUCATION AND DEVELOPMENT. (3) Theories of development and the contribution of education to political, economic and social change.

EDER 643 WOMEN, EDUCATION AND DEVELOPMENT. (3) This course will trace the major theoretical developments in women and development and relate them to educational issues in the formal, non-formal and informal settings. There will be an emphasis on the significance and policy implications of women's education for sustainable developments in the countries of the South.

EDER 649 EDUCATION: MULTICULTURAL SOCIETIES. (3) Majority-minority relations and their implications for educational policy and practice.

EDER 672 POLICY ON GENDER ISSUES. (3) An examination and analysis of recent research and policy positions on the influence of gender on hiring, performance, promotion and attrition in educational institutions at all levels.

EDER 690 THESIS PREPARATION 1. (6) A supervised comprehensive study and written review of the literature in the area of the student's thesis topic.

EDER 691 THESIS PREPARATION 2. (6) Supervised independent work leading to an elaborated written proposal of the student's thesis project, to be presented and defended at a colloquium convened by the Department.

EDER 692 THESIS PREPARATION 3. (12) Supervised on-going research and writing pertaining to the student's thesis. Submission of the completed thesis for examination and evaluation.

39.6.6 EDSL – Education in Second Language Education

Courses currently scheduled for 2008-09:

EDSL 500 FOUNDATIONS AND ISSUES IN SECOND LANGUAGE EDUCATION. (3) (Restriction: Restricted to students in the Graduate Certificate in TESL.) Introduction of second language (L2) education; an overview of contributing disciplines (e.g., linguistics, psychology, sociology and education). A history of theory and various methodological approaches to L2 teaching and learning is used to promote an understanding of current theory and practice.

EDSL 505 SECOND LANGUAGE ACQUISITION APPLIED TO CLASSROOM CONTEXTS. (3) (Prerequisite: EDSL 500.) (Restriction: Restricted to students in the Graduate Certificate in TESL.) An overview of theory and research in second language acquisition, including developmental patterns, factors affecting how second languages are learned, and relevance for teachers in terms of applications to the classroom context.

EDSL 512 GRAMMAR IN TEACHING ENGLISH AS A SECOND LANGUAGE. (3) (Prerequisite: EDSL 505) (Restriction: Restricted to students in the Graduate Certificate in TESL) Analysis of English grammar at phonological, morphological, syntactic, semantic, and discourse levels. Applications are made to second language teaching and learning, focusing on integrating grammar into communicative language approaches.

EDSL 601 METHODS AND CURRICULUM IN TEACHING ESL. (3) (Prerequisite: EDSL 512) (Restriction: Restricted to students in the Graduate Certificate in TESL or with permission of the Graduate Program Director) Adapting and elaborating strategies in language and content lessons for second language learners, including materials selection and development, activities and assessment in a variety of programs.

EDSL 602 SECOND LANGUAGE READING AND WRITING DEVELOPMENT. (3) (Prerequisite: EDSL 512) (Restriction: Restricted to students in the Graduate Certificate in TESL or with permission of the Graduate Program Director) Current theories and models of second language literacy development and their implications for teaching, including the use of literature as a tool for language learning. Key issues include the nature of literacy development, reading and writing processes, and appropriate pedagogical approaches and techniques.

EDSL 603 INDIVIDUAL READING COURSE 1. (6) Independent study of an approved topic with the guidance of individual instructor and permission of Graduate Program Director.

EDSL 616 INDIVIDUAL READING COURSE 2. (3) Independent study of an approved topic with the guidance of individual instructor and permission of Graduate Program Director.

EDSL 617 SPECIAL TOPIC IN SECOND LANGUAGE EDUCATION. (3) In-depth study of a current topic in Second Language Education, in conjunction with EDSL 630.)

EDSL 620 CRITICAL ISSUES IN SECOND LANGUAGE EDUCATION. (3) An examination of social identity, first language maintenance, and power relations, and their impact on the nature of second language teaching, from the perspective of critical applied linguistics. Topics range from the micro level of the individual to the macro level of language planning and policy-making.

EDSL 623 SECOND LANGUAGE LEARNING. (3) Seminar in second language acquisition theory and research and their relevance to teaching a second language.

EDSL 624 EDUCATIONAL SOCIOLINGUISTICS. (3) Seminar in the social, cultural and political dimensions of English second language learning and teaching.

EDSL 627 CLASSROOM-CENTRED SECOND LANGUAGE RESEARCH. (3) Seminar in second language classroom-centered research focusing on instructional procedures and practices in relationship to learning outcomes.

EDSL 629 SECOND LANGUAGE ASSESSMENT. (3) Research, theory, issues and practices in second language assessment in relationship to learners, teachers, and programs.

EDSL 630 QUALITATIVE/ETHNOGRAPHIC METHODS. (3) An examination of theoretical and applied issues in qualitative and ethnographic studies in second language education.

EDSL 631 SECOND LANGUAGE CURRICULUM. (3) Research, theory and practice in curriculum development and teaching in second language education within contemporary frameworks.

EDSL 632 SECOND LANGUAGE LITERACY DEVELOPMENT. (3) Theory and research related to the teaching and learning of second language literacy. The orientation is on reading and writing as a socio-cognitive activity.

EDSL 651 CONTENT-BASED L2 LEARNING. (3) Theoretical research underpinnings of learning a second language through content-based approaches and analysis of empirical studies undertaken in a wide range of immersion and other content-based L2 classrooms.

EDSL 664 SECOND LANGUAGE RESEARCH METHODS. (3) An examination of general research procedures and specific research methods and designs employed in second language research.

EDSL 666 THESIS RESEARCH 1. (6) Submission of a thesis proposal.

EDSL 667 THESIS RESEARCH 2. (6) Presentation of thesis proposal.

EDSL 668 THESIS RESEARCH 3. (6) Master's thesis.

EDSL 669 THESIS RESEARCH 4. (6) Master's thesis.

EDSL 711 LANGUAGE ACQUISITION ISSUES 3. (2)

40 Islamic Studies

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Director — Jamil Ragep

40.1 Staff

Emeritus Professor

Donald P. Little; B.A.(Vanderbilt), M.A.(Stan.), Ph.D.(Calif.)

Professors

Sajida S. Alvi; B.A., M.A., Ph.D.(Punj.)

Issa J. Boullata; Ph.D.(Lond.) (*post-retirement*)

Wael B. Hallaq; B.A.(Haifa), Ph.D.(Wash.)

Jamil Ragep; B.A.(Mich.), M.A.(Mich.), Ph.D.(Harv.)

Associate Professors

Rula J. Abisaab; B.A.(Amer. U. Beirut), M.A.(Calif. St.), M.Phil., Ph.D.(Yale)

Michelle L. Hartman; B.A.(Col.), D.Phil.(Oxf.)

Laila Parsons; B.A.(Exe.), D.Phil.(Oxf.)

A. Üner Turgay; B.A.(Robert Coll., Istanbul), M.A., Ph.D.(Madison-Wisc.)

Robert Wisnovsky; B.A.(Yale), M.A., Ph.D.(Princ.)

Assistant Professors

Malek H. Abisaab; B.A.(Lebanese U.), M.A.(CUNY), Ph.D.(Binghamton)

Setrag Manoukian; B.A.(Venezia), M.A., Ph.D.(Michigan-Ann Arbor)

Khalid M. Medani; B.A.(Brown); M.A.(G'town), M.A., Ph.D.(Calif., Berk.)

Faculty Lecturers

Shouky Gohar, David Nancekivell, Pouneh Shabani-Jadidi

40.2 Programs Offered

Courses of study and research are offered leading to the degrees of M.A. and Ph.D. in Islamic Studies, and a Graduate Diploma in Islamic Studies.

In its academic programs, the Institute of Islamic Studies focuses on several aspects of medieval, early modern and modern Islamic societies. Courses and research are offered in the fields of law, philosophy, history, politics, science, literature and languages.

The Islamic Studies Library is especially strong in its reference materials and periodical holdings for the Islamic regions. The collection, one of the largest in North America, contains over 100,000 volumes in the principal European languages as well as in Arabic, Persian, Turkish, Urdu and other Islamic languages.

40.3 Admission Requirements

Applicants must have a degree (B.A. or M.A.) from a recognized university, with a *minimum* Cumulative Grade Point Average (CGPA) of 3.0 out of 4 (or equivalent), OR a Grade Point Average (GPA) of 3.2 out of 4 in the last two years of full-time studies, according to Canadian standards. The degree should be in the Humanities or Social Sciences, preferably in Islamic or Middle Eastern Studies.

Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit acceptable evidence of competence in English before their application for admission can be considered. The Test of English as a Foreign Language (TOEFL) OR an IELTS test is required at McGill University. Only TOEFL or IELTS scores will be accepted. No other test scores will be considered. GRE scores are not required. Please see GPSO Website for minimum test scores, www.mcgill.ca/gps/staff/gpso.

40.4 Application Procedures

Applications will be considered upon receipt of:

1. McGill University application form.
2. Two originals of all official university transcripts (B.A. and/or M.A. if applicable).
3. Two letters of recommendation for M.A. applications OR three letters of recommendation for Ph.D. applications.
4. Application fee of \$80.00 (money order or certified cheque in Canadian funds; for the online application, payable by credit card.)
5. TOEFL or IELTS test results.
6. Proof of Citizenship (*certified* photocopy of passport, birth certificate or equivalent).
7. Institute of Islamic Studies Academic Background form.
8. Copy of M.A. thesis for Ph.D. applicants.

All application documents must be submitted directly to the Chair, Admissions Committee, Institute of Islamic Studies before January 9.

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

40.5 Program Requirements

M.A. in Islamic Studies (Thesis) (51 - 54 credits)

Students registered in the M.A. program must fulfill the residence requirement (see Guidelines of Graduate and Postdoctoral Studies Office) and a language requirement of Arabic at second year level, ISLA 522 or equivalent.

Required Course (3 credits*)

ISLA 603 (3) Introductory: Research Materials - Islamic Studies

* Unless exempt.

Complementary Courses (27 credits)

27 credits, nine 3-credit (or equivalent) graduate-level ISLA courses, including at least one 700-level seminar course. (Note: ISLA 522 can be counted but ISLA 521 cannot.)

With permission of the Institute, up to 6 credits from other departments at McGill, other universities, or other Islamic institutions can be used.

Thesis Component - Required (24 credits)

ISLA 697 (6) Thesis Research

ISLA 698 (6) Thesis Research

ISLA 699 (12) Thesis Research

Ph.D. in Islamic Studies

The Ph.D. program requirements are:

Required Coursework (30 credits)

Five 6-credit courses (or equivalent) for a total of 30 credits at the 500 level or higher,

including two 700 level seminars offered by the Institute

Complementary Courses

at the 500 level or higher

ISLA 523 (6) Higher Intermediate Arabic

Knowledge of an Islamic language other than Arabic at the second year level (i.e. Turkish, Persian, Urdu, Bahasa-Indonesia).

Knowledge of a European language at the second year level (i.e. French, German, Russian, Spanish, Dutch, Italian)

Comprehensive - Required

ISLA 701 (0) Comprehensive Examination in three specified fields

Dissertation

A dissertation judged to contain original research. Upon approval of the dissertation, a "pass" must be received at the final oral examination.

Ph.D. in Islamic Studies – Gender and Women's Studies Option/Concentration

The Graduate Option in Gender and Women's Studies is an interdisciplinary program for students who meet the degree requirements in Islamic Studies who wish to earn 6 credits of approved coursework focusing on gender and women's studies, and issues in feminist research and methods. The student's M.A. thesis must be on a topic centrally relating to issues of gender and/or women's studies.

Required Coursework (30 credits)

Five 6-credit courses (or equivalent) for a total of 30 credits at the 500 level or higher,

including two 700 level seminars offered by the Institute, and

WMST 601 (3) Feminist Theories and Methods

WMST 602 (3) Feminist Research Symposium

AND an additional 3 credits in a course with a substantive focus on women and/or gender (e.g. ISLA 739 (3) Special Seminar)

Complementary Courses

at the 500 level or higher

ISLA 523 (6) Higher Intermediate Arabic

Knowledge of an Islamic language other than Arabic at the second year level (i.e. Turkish, Persian, Urdu, Bahasa-Indonesia).

Knowledge of a European language at the second year level (i.e. French, German, Russian, Spanish, Dutch, Italian)

Comprehensive - Required

ISLA 701 (0) Comprehensive Examination
in three specified fields

Dissertation

A dissertation judged to contain original research and on a topic centrally relating to issues of gender or women's studies. Upon approval of the dissertation, a "pass" must be received at the final oral examination.

Graduate Diploma in Islamic Studies (30 credits)

With a B.A. in Islamic Studies (or its equivalent), applicants may be admitted to this non-degree program which requires the completion of 30 credits of course work *in one academic year*. Students must fulfill a language requirement of Arabic at second year level, ISLA 522 or equivalent.

If awarded this Diploma with high standing, they may be allowed to proceed to a higher degree in Islamic Studies.

Complementary Courses (30 credits)

at least 18 credits, six 3-credit (or equivalent) graduate-level ISLA courses.

at most 12 credits, four 3-credit (or equivalent) courses, normally at the graduate-level, from related fields.

40.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Courses with numbers ending D1 and D2 are taught in two consecutive terms (most commonly Fall and Winter). Students must register for both the D1 and D2 components. No credit will be given unless both components (D1 and D2) are successfully completed in consecutive terms.

Note: All undergraduate courses administered by the Faculty of Arts (courses at the 100- to 500-level) have limited enrolment.

★ Denotes courses taught only in alternate years.

The course credit weight is given in parentheses after the title.

ISLA 501 THE QUR'AN: TEXT AND HISTORY. (3) A study of the Qur'an's teachings, structures, style, and history in the light of classical and modern scholarship.

★ **ISLA 510D1 (3), ISLA 510D2 (3) HISTORY: ISLAMIC CIVILIZATION - CLASSICAL.** (Fall and Winter) (3 hours) (Students must register for both ISLA 510D1 and ISLA 510D2.) (No credit will be given for this course unless both ISLA 510D1 and ISLA 510D2 are successfully completed in consecutive terms) The origins of the early Islamic state in Arabia and the Umayyad Caliphate. The growth of an Islamic civilization, and the "Abbasid Empire" until the Seljuk period. The rise of the Fatimids. The Caliphate of Cordoba.

ISLA 511D1 (3), ISLA 511D2 (3) HISTORY: ISLAMIC CIVILIZATION - MEDIAEVAL ERA. (Fall and Winter) (3 hours) (Students must register for both ISLA 511D1 and ISLA 511D2.) (No credit will be given for this course unless both ISLA 511D1 and ISLA 511D2 are successfully completed in consecutive terms) The Seljuks, and the medieval synthesis. The Moors in Spain and North Africa. The Crusades. The Mongols and the destruction of the Baghdad Caliphate. The Mamluk, Persian, Turkish and Indian Empires until 1700.

ISLA 521D1 (4.5), ISLA 521D2 (4.5) INTRODUCTORY ARABIC. (Fall and Winter) (5 lecture hours and laboratory) (Students must register for both ISLA 521D1 and ISLA 521D2.) (No credit will be given for this course unless both ISLA 521D1 and ISLA 521D2 are successfully completed in consecutive terms) Modern Standard Literary Arabic (non-spoken).

ISLA 522 LOWER INTERMEDIATE ARABIC. (6) (3 hours and laboratory) (Prerequisite: ISLA 521 or equivalent)

ISLA 522D1 (3), ISLA 522D2 (3) LOWER INTERMEDIATE ARABIC. (Fall) (3 hours and laboratory) (Prerequisite: ISLA 521 or equivalent) (Students must register for both ISLA 522D1 and ISLA 522D2.) (No credit will be given for this course unless both ISLA 522D1 and ISLA 522D2 are successfully completed in consecutive terms) (ISLA 522D1 and ISLA 522D2 together are equivalent to ISLA 522)

ISLA 523D1 (3), ISLA 523D2 (3) HIGHER INTERMEDIATE ARABIC. (Fall and Winter) (3 hours) (Prerequisite: ISLA 522 or equivalent) (Formerly 397-623) (Students must register for both ISLA 523D1 and ISLA 523D2.) (No credit will be given for this course unless both ISLA 523D1 and ISLA 523D2 are successfully completed in consecutive terms)

ISLA 532D1 (3), ISLA 532D2 (3) INTRODUCTORY TURKISH. (Fall and Winter) (3 lecture hours plus conference and laboratory) (Students must register for both ISLA 532D1 and ISLA 532D2.) (No credit will be given for this course unless both ISLA 532D1 and ISLA 532D2 are successfully completed in consecutive terms)

ISLA 533D1 (3), ISLA 533D2 (3) LOWER INTERMEDIATE TURKISH. (Fall and Winter) (3 lecture hours plus conference and laboratory) (Prerequisite: ISLA 532 or equivalent) (Students must register for both ISLA 533D1 and ISLA 533D2.) (No credit will be given for this course unless both ISLA 533D1 and ISLA 533D2 are successfully completed in consecutive terms)

ISLA 541D1 (3), ISLA 541D2 (3) INTRODUCTORY PERSIAN. (Fall and Winter) (3 hours) (Students must register for both ISLA 541D1 and ISLA 541D2.) (No credit will be given for this course unless both ISLA 541D1 and ISLA 541D2 are successfully completed in consecutive terms)

ISLA 542D1 (3), ISLA 542D2 (3) LOWER INTERMEDIATE PERSIAN. (Fall and Winter) (3 hours) (Prerequisite: ISLA 541 or equivalent) (Students must register for both ISLA 542D1 and ISLA 542D2.) (No credit will be given for this course unless both ISLA 542D1 and ISLA 542D2 are successfully completed in consecutive terms)

ISLA 551D1 (3), ISLA 551D2 (3) INTRODUCTORY URDU. (Fall and Winter) (3 hours) (Students must register for both ISLA 551D1 and ISLA 551D2.) (No credit will be given for this course unless both ISLA 551D1 and ISLA 551D2 are successfully completed in consecutive terms) Introduction to the basic grammatical structures and vocabulary of the Urdu language, including drills in pronunciation and sentence structures.

ISLA 552D1 (3), ISLA 552D2 (3) INTERMEDIATE URDU. (Fall and Winter) (3 hours) (Prerequisite: ISLA 551 or equivalent) (Students must register for both ISLA 552D1 and ISLA 552D2.) (No credit will be given for this course unless both ISLA 552D1 and ISLA 552D2 are successfully completed in consecutive terms) Assuming a knowledge of basic grammar and vocabulary, this course continues with the study of more complex grammatical structures. Reading and composition exercises in Urdu script are designed to give intermediate competency in the language.

ISLA 553 ADVANCED URDU 1. (3)

ISLA 581 SPECIAL TOPICS 1. (3) (Note: Subject matter will vary year to year, according to the instructor. Topic will be announced at the beginning of the term.) Selected topics in Islamic studies.

ISLA 585 ARAB WOMEN'S LITERATURE. (3) (Prerequisite: ISLA 392 or permission of instructor.) (Note: Readings in English translation.) Explorations of writings by Arab women. Issues include: translation/reception, gender and genre, categories of knowledge about Arab women, feminist and post-colonial theories/methodologies.

ISLA 601 ANTHROPOLOGY AND IRANIAN STUDIES. (3) Advanced examination of research issues in the field of modern history and anthropology of Iran. Topics will include the social construction of knowledge, politics and society, cultural history and technology.

ISLA 602 ISLAMIC PHILOSOPHY & THEOLOGY. (3) Advanced examination of research issues in the field of Islamic philosophy and theology. Topics will include dialectic, metaphysics, the commentary traditions and 19th century Kalâm.

ISLA 603 INTRODUCTORY: RESEARCH MATERIALS - ISLAMIC STUDIES. (3) (Non-credit) (2 hours) (Compulsory for M.A. students; recommended for Ph.D. students) Some discussion of research methods, the preparation of reports and essays, documentation; transliteration; WWW/Gophers/Databases and on-line catalogue searching; resources for research and teaching. Particular attention given to special reference books and serials used in the field.

ISLA 604 ARABIC MANUSCRIPT TRADITION. (3) This course will examine the way manuscript books were bound, transcribed, decorated, collated, corrected and glossed. It will deal with various scribal practices employed in the critical apparatus, including abbreviations, and will provide practical assistance on how to locate and choose a manuscript for text editing.

ISLA 605 MUSLIM INDIA & PAKISTAN. (3) Historiographical and research issues in the field of Indo-Islamic history; "people of the pen" and "people of the sword" and ruling institutions in Muslim India; madrasah and khangah and the process of conversion; the British Raj and the challenges of modernity; Pakistan: nation state versus Islamic state - issues and debates.

ISLA 607 ISLAM AND POLITICS: PAKISTAN. (3) Religious and institutional developments from later Mughal and British periods (1707-1947) to present; questions of Muslim identity and separatism; creation of Pakistan - an ideological or a modern state?; evolution of Islamic thought; the traditionalists and modernists; interplay of religion and politics; and the experiment of Islamization and its aftermath.

ISLA 608 ISLAM AND POLITICS: IRAN. (3) Religious and institutional developments from pre-modern Safavid Iran (1501-1795) to present; evolution of Shi'i theory of government; 'ulama' and politics; challenges of modernity; impact of 1979 Islamic Revolution on Iranian society; ideological conflict between traditionalists and reformists; intellectual cross-currents; and women's issues in post-Revolution Iran.

ISLA 610 PERSIAN LITERATURE. (3) Advanced examination of research issues in the field of Persian literature. Topics will include modern and medieval Persian poetry and prose; women in early Qajar Iran, c. 1795-1850.

ISLA 611 PRE-MODERN ISLAMIC HISTORY. (3) Advanced examination of research issues in the field of pre-modern Islamic history. Topics will include Shi'ite doctrine and law (fiqh), the Safavid Empire, and Shi'ites in Iran, Iraq and Lebanon.

ISLA 613 WOMEN IN CONTEMPORARY MIDDLE EAST. (3) Advanced examination of research issues related to the experiences of women in the contemporary Middle East. Topics will include patriarchy, women and Islam, women and the state, nationalism and anti-colonialism struggles; labour, public space and theoretical issues.

ISLA 616 MODERN ARABIC LITERATURE. (3) Advanced examination of research issues in the field of Arabic literature. Topics will include women's literature, gender and nationalism in literature, language use in literature and the diasporic literatures of the Middle East.

ISLA 624 ADVANCED ARABIC 1. (3) (Prerequisite: ISLA 523D1/2 or permission of instructor.) (Restriction: Not open to students who have taken ISLA 624D1/2.) (Note: Language of instruction is Arabic.) Advanced level of the Arabic language study.

ISLA 625 ADVANCED ARABIC 2. (3) (Prerequisite: ISLA 624 or permission of instructor.) (Restriction: Not open to students who have taken ISLA 624D1/2.) (Note: Language of instruction is Arabic.) Advanced level of the Arabic language study.

ISLA 633D1 (3), ISLA 633D2 (3) HIGHER INTERMEDIATE TURKISH. (Prerequisite: ISLA 532 or equivalent) (Students must register for both ISLA 633D1 and ISLA 633D2) (No credit will be given for this course unless both ISLA 633D1 and ISLA 633D2 are successfully completed in consecutive terms)

ISLA 642 UPPER INTERMEDIATE PERSIAN 1. (3) (Prerequisite: ISLA 542 or permission of instructor.) (Restriction: Not open to students who have taken ISLA 643D1/2.) (Note: Language of instruction is Persian.) Upper intermediate level of Persian language study.

ISLA 643 UPPER INTERMEDIATE PERSIAN 2. (3) (Prerequisite: ISLA 642 or permission of instructor.) (Restriction: Not open to students who have taken ISLA 643D1/2.) (Note: Language of instruction is Persian.) Continuation of upper intermediate level of Persian language study.

ISLA 644 ADVANCED PERSIAN 1. (3) (Prerequisite: ISLA 643 or permission of instructor.) (Restriction: Not open to students who have taken ISLA 644D1/2.) (Note: Language of instruction is Persian.) Advanced level of Persian language study.

ISLA 645 ADVANCED PERSIAN 2. (3) (Prerequisite: ISLA 644 or permission of instructor.) (Restriction: Not open to students who have taken ISLA 644D1/2.) (Note: Language of instruction is Persian.) Advanced level of Persian language study.

ISLA 670 ISLAMIC LAW. (3) Advanced examination of research issues in the field of Islamic law. Topics will include modernity, gender, family law, and property.

ISLA 680 PRO-SEMINAR: OTTOMAN INSTITUTIONS. (3)

ISLA 681 SPECIAL TOPICS 2. (3) (Note: Subject matter will vary year to year, according to the instructor. Topic will be announced at the beginning of the term.) Selected topics in Islamic studies.

ISLA 682 ISLAMIC POLITICS IN AFRICA. (3) Advanced examination of research issues in the field of Islamic politics in Africa. Topics will include: Political Islam; social movement perspectives; Islam, state-building and civil conflict; the political economy of Islamist extremism, and globalization; informal markets and the rise of the politics of Identity.

ISLA 683 HISTORY OF SCIENCE IN ISLAM. (3) Advanced examination of research issues in the historiography of Islamic science. These include: the appropriation and naturalization of ancient Greek science by Islamic scientists; the Arabic-Latin translation movement and the influence of Islamic science on medieval and Renaissance Europe; and the question of the post-medieval decline of Islamic science.

ISLA 697 THESIS RESEARCH. (6) Six credits for accepted thesis proposal.

ISLA 697D1 (3), ISLA 697D2 (3) THESIS RESEARCH. (Students must register for both ISLA 697D1 and ISLA 697D2) (No credit will be given for this course unless both ISLA 697D1 and ISLA 697D2 are successfully completed in consecutive terms) (ISLA 697D1 and ISLA 697D2 together are equivalent to ISLA 697) Six credits for accepted thesis proposal.

ISLA 698 THESIS RESEARCH. (6) Six credits on submission of completed thesis.

ISLA 698D1 (3), ISLA 698D2 (3) THESIS RESEARCH. (Students must register for both ISLA 698D1 and ISLA 698D2) (No credit will be given for this course unless both ISLA 698D1 and ISLA 698D2 are successfully completed in consecutive terms) (ISLA 698D1 and ISLA 698D2 together are equivalent to ISLA 698) Six credits on submission of completed thesis.

ISLA 699 THESIS RESEARCH. (12) Twelve credits for thesis passed by Internal and External examiners.

ISLA 699D1 (6), ISLA 699D2 (6) THESIS RESEARCH. (Students must register for both ISLA 699D1 and ISLA 699D2) (No credit will be given for this course unless both ISLA 699D1 and ISLA 699D2 are successfully completed in consecutive terms) (ISLA 699D1 and ISLA 699D2 together are equivalent to ISLA 699) Twelve credits for thesis passed by Internal and External examiners.

ISLA 701 COMPREHENSIVE EXAMINATION. (0)

ISLA 701D1 (0), ISLA 701D2 (0) COMPREHENSIVE EXAMINATION. (Students must register for both ISLA 701D1 and ISLA 701D2) (No credit will be given for this course unless both ISLA 701D1 and ISLA 701D2 are successfully completed in consecutive terms)

(ISLA 701D1 and ISLA 701D2 together are equivalent to ISLA 701)

★ **ISLA 705D1 (3), ★ ISLA 705D2 (3) STATE AND GOVERNMENT IN ISLAM.** (Students must register for both ISLA 705D1 and ISLA 705D2) (No credit will be given for this course unless both ISLA 705D1 and ISLA 705D2 are successfully completed in consecutive terms) Survey of the evolution of the various patterns and concrete manifestations of Muslim political theory through the classical and medieval periods of Islamic history. The rise of modern states and relations between religion and politics in various Muslim countries.

ISLA 706D1 (3), ISLA 706D2 (3) ISLAMIC LAW. (Students must register for both ISLA 706D1 and ISLA 706D2) (No credit will be given for this course unless both ISLA 706D1 and ISLA 706D2 are successfully completed in consecutive terms) The nature of the law, its origins and historical development, the medieval schools of law, modern evolution of the law, and its roles in Islamic religious and political thought.

ISLA 707 QUR'AN EXEGESIS (CLASSICAL). (3) (Seminar 2 hours) (Prerequisite: Reading knowledge of Arabic) A study of two or three suras of the Qur'an as interpreted by classical exegetes. The suras considered will vary from year to year.

ISLA 709 PROBLEMS IN SHI'AH THOUGHT. (3)

ISLA 711 ISLAMIC JURISPRUDENCE. (3) (Seminar 2 hours) (Prerequisite: Reading knowledge of Arabic) Contents of this course change from year to year.

ISLA 715 ADVANCED STUDIES IN ISLAMIC LAW. (3) (Seminar, 2 hours) (Prerequisite: Reading knowledge of Arabic and ISLA 711 or consent of the instructor) An intensive investigation of the theory of law and methodology of juristic construction as expounded in the classical Arabic texts of Islamic jurisprudence.

ISLA 716 ISLAMIC LEGAL DISCOURSE. (3) A study of the modes in which medieval Muslim jurists gave expression to their individual theories of law.

★ **ISLA 723D1 (3), ★ ISLA 723D2 (3) ISLAMIC DEVELOPMENTS - MODERN INDIA AND PAKISTAN.** (Students must register for both ISLA 723D1 and ISLA 723D2) (No credit will be given for this course unless both ISLA 723D1 and ISLA 723D2 are successfully completed in consecutive terms) Significant movements in Islamic thought and political action, since the Mughal downfall. The influence of Sirhindi; Waliyullah and his school; the Mujahidin; 1857, De'oband; Aligarh; Azad and Muslim participation in Indian nationalism; Iqbal; Pakistan. Pakistan constitutional and ideological issues; birth of Bangladesh and subsequent developments; Muslims in India since partition.

★ **ISLA 732D1 (3), ★ ISLA 732D2 (3) RISE AND EVOLUTION - NATIONALISM AMONG MUSLIMS.** (Students must register for both ISLA 732D1 and ISLA 732D2) (No credit will be given for this course unless both ISLA 732D1 and ISLA 732D2 are successfully completed in consecutive terms) A comparative approach to the motivation and ideology in nationalist movements among Muslim peoples. Analysis of general trends and distinctive characteristics in various nationalist movements and their orientations, and the doctrinal disputes among Muslim intellectuals who attempted to explore the nature of the nation and its making in relation to universalist ideas of Islam.

ISLA 735 SPECIAL SEMINAR. (3)

ISLA 736 SPECIAL TOPICS 3. (3)

ISLA 739 SPECIAL SEMINAR. (3)

ISLA 740D1 (3), ISLA 740D2 (3) MYSTICAL TRADITION OF ISLAM. (Seminar 2 hours) (Students must register for both ISLA 740D1 and ISLA 740D2) (No credit will be given for this course unless both ISLA 740D1 and ISLA 740D2 are successfully completed in consecutive terms) The varieties of mystical thought in Islam, primarily as seen in Sufism, its historical development and its place in Islamic culture. Analytical study of major authors, their writings and their central problems. Reading of primary sources in Arabic and Persian.

ISLA 745 SPECIAL SEMINAR. (3)

ISLA 749D1 (3), ISLA 749D2 (3) SPECIAL TOPICS 4. (Students must register for both ISLA 749D1 and ISLA 749D2) (No credit will be given for this course unless both ISLA 749D1 and ISLA 749D2 are successfully completed in consecutive terms)

★ **ISLA 752D1 (3), ★ ISLA 752D2 (3) SOCIAL/ECONOMIC DEVELOPMENTS / MUSLIM COUNTRIES.** (Seminar, 2 hours) (Students must register for both ISLA 752D1 and ISLA 752D2) (No credit will be given for this course unless both ISLA 752D1 and ISLA 752D2 are successfully completed in consecutive terms) A study of development problems in the light of a historical survey of various reform policies in different countries; contemporary ideas of, and policy towards, development as shown in economic, technical, political and educational measures; with emphasis on the relevance of Islamic values to development problems.

★ **ISLA 764D1 (3), ★ ISLA 764D2 (3) OTTOMAN HISTORY.** (Seminar 2 hours) (Students must register for both ISLA 764D1 and ISLA 764D2) (No credit will be given for this course unless both ISLA 764D1 and ISLA 764D2 are successfully completed in consecutive terms) A critical examination of significant developments in political, social and economic spheres.

ISLA 770 ISLAMIC LOGIC. (3)

ISLA 777 ISLAMIC PHILOSOPHY. (3) (Seminar 2 hours) Consideration of the development of philosophic thought among the Muslims. Classical Arabic or Persian writings will be used.

ISLA 785 MODERN ARABIC LITERATURE 1. (3)

ISLA 788 SPECIAL TOPICS IN ISLAMIC THOUGHT. (3)

ISLA 789 SPECIAL TOPICS 5. (3)

41 Italian Studies

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Website: www.mcgill.ca/italian

Chair — Lucienne Kroha

Graduate Director — Lucienne Kroha

41.1 Staff

Emeritus Professor
Pamela D. Stewart; B.A.(Montr.), M.A.(McG.), F.R.S.C.

Associate Professor
Lucienne Kroha; B.A., M.A.(McG.), Ph.D.(Harv.)

Assistant Professor
Eugenio Bolongaro; B.A., LL.B.(Br. Col.), M.A., Ph.D.(McG.)

41.2 Programs Offered

M.A. (thesis and non-thesis option).

41.3 Admission Requirements

The B.A. degree with Honours or Joint Honours in Italian or its equivalent and a CGPA of 3.20 constitute the minimum requirement. Applicants who do not have these prerequisites may be admitted to a Qualifying Year, or, in some cases, to a Qualifying Term.

41.4 Application Procedures

Applications will be considered upon receipt of:

1. application form;
2. two certified copies of all university transcripts (all transcripts not in English or French **must** be accompanied by a **certified** English or French translation);
3. two letters of recommendation (in English or French);
4. a sample critical essay, written in Italian;
5. Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit a TOEFL. Minimum score of 86, with each component score not less than 20, required on the internet-based TOEFL examination. Proof of TOEFL must be presented at time of application or shortly thereafter);
6. application fee of \$80;
7. statement of academic intent.

Deadline: February 1.

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

41.5 Program Requirements

Master's Programs

The course work and the thesis and/or research papers must demonstrate that the student possesses a sound knowledge of the language, is familiar with all periods of Italian literature and has developed the background and skills necessary to carry out scholarly research.

The regulations concerning the M.A. degree, as stated in the General Information section of the *Graduate and Postdoctoral Studies Calendar*, apply.

M.A. in Italian (Thesis) (45 credits)

Required Courses (12 credits)

- ITAL 602 (3) The Literary Tradition
 ITAL 610 (3) Bibliography of Italian Literature
 ITAL 619 (3) Topics in Literary Theory, or a similar approved course in another department
 ITAL 680 (3) Research Seminar

Complementary Courses (9 credits)

9 additional course-credits, chosen in consultation with an advisor from among the graduate courses offered by the Department. The three courses should cover three distinct chronological periods in Italian literature.

Thesis Component – Required (24 credits)

- ITAL 698 (6) Thesis Proposal
 ITAL 699 (18) Thesis

A maximum of 6 credits of graduate courses may be taken outside the Italian Studies Department, upon the advice of the Supervisor and with the permission of the Graduate Studies Director.

In exceptional cases, when program requirements cannot be fulfilled otherwise, students may take ITAL 606 Individual Reading Course 1 and ITAL 607 Individual Reading Course 2 offered as tutorials.

Typically, the first year program will consist of: Literary Theory course, ITAL 610, the three Complementary courses, and ITAL 698. The second year will include ITAL 602, ITAL 680 and the Thesis.

M.A. in Italian (Non-Thesis) (45 credits)

Required Courses (12 credits)

- ITAL 602 (3) The Literary Tradition
 ITAL 610 (3) Bibliography of Italian Literature
 ITAL 619 (3) Topics in Literary Theory, or a similar approved course in another department
 ITAL 680 (3) Research Seminar

Complementary Courses (15 credits)

15 additional course-credits, chosen in consultation with an advisor from among the graduate courses offered by the Department. The courses should cover at least three distinct chronological periods in Italian literature.

Research Paper - Required (18 credits)

- ITAL 690 (9) Research Paper 1
 ITAL 691 (9) Research Paper 2

A maximum of 6 credits of graduate courses may be taken outside the Italian Studies Department, upon the advice of the Supervisor and with the permission of the Graduate Studies Director.

In exceptional cases, when program requirements cannot be fulfilled otherwise, students may take ITAL 606 Individual Reading Course 1 and ITAL 607 Individual Reading Course 2 offered as tutorials.

Typically, the first year program will consist of: Literary Theory course, ITAL 610, three Complementary courses, and ITAL 690. The second year will include ITAL 602, ITAL 680, two Complementary courses and ITAL 691.

41.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Note: All undergraduate courses administered by the Faculty of Arts (courses at the 100- to 500-level) have limited enrolment.

The course credit weight is given in parentheses after the title.

ITAL 602 THE LITERARY TRADITION. (3) The course highlights the importance of tradition in literature and focuses on different aspects of Italian literary history.

ITAL 606 INDIVIDUAL READING COURSE 1. (3)

ITAL 607 INDIVIDUAL READING COURSE 2. (3)

ITAL 610 BIBLIOGRAPHY OF ITALIAN LITERATURE. (3) Tools for literary research: encyclopedias, dictionaries, bibliographies, journals, Internet sites, library catalogues. Tools for linguistic research: historical, specialized, Italian-dialect, etymological vocabularies. History of the book: manuscript, early printing, catalogues of incunabula and of early books.

ITAL 619 TOPICS IN LITERARY THEORY. (3) An introduction to some of the main subjects and authors of modern literary theory. Topics may include reception theory, deconstruction, postmodernism, cultural studies, formalism and structuralism, semiotics, gender studies, psychoanalysis, Marxism, translation and subjectivity.

ITAL 680 RESEARCH SEMINAR. (3) Presentation and discussion of research work.

ITAL 690 RESEARCH PAPER 1. (9) For students in non-thesis option only.

ITAL 691 RESEARCH PAPER 2. (9) For students in non-thesis option only.

ITAL 698 THESIS PROPOSAL. (6) A written presentation which will include: (a) a review of the literature pertinent to the thesis, (b) the definition of the thesis research project within the parameters of the critical literature, and (c) an indication of how the research project will be carried out.

ITAL 699 THESIS. (18) Completion of the thesis.

ITAL 701 COMPREHENSIVE EXAMINATION. (0)

ITAL 780 STUDENT STAFF SEMINAR. (3)

42 Jewish Studies

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Chair — Eric Caplan

42.1 Staff

Professors

David Aberbach; B.A.(Univ. Coll., Lon.) M.Litt. Ph.D.(Oxf.)
Gershon Hundert; B.A., M.A.(Ohio St.), Ph.D.(Col.) (*Leonor Segal Professor of Jewish Studies*) (joint appt. with History)
B. Barry Levy; B.A., M.A., B.R.E.(Yeshiva), Ph.D.(NYU)

Associate Professors

Eric Caplan; B.A.(McG.), M.A.(Tor.), Ph.D.(McG.) (*joint appt. with Integrated Studies in Education*)
Carlos Fraenkel; B.A., M.A., Ph.D.(F.U. Berlin) (*joint appoint. with dept. of Philosophy*)
Yael Halevi-Wise; B.A.(Hebrew), M.A.(G'town), Ph.D.(Princ.) (*joint appt. with English*)
Lawrence Kaplan; B.A.(Yeshiva), M.A., Ph.D.(Harv.)
Eugene Orenstein; B.A.(C.C.N.Y.), M.A., Ph.D.(Col.)

Adjunct Professors

Magdalena Opalski; M.A.(Warsaw), Ph.D.(Ott.)
Ruth Wisse; M.A.(Col.), Ph.D.(McG.)

42.2 Programs Offered

M.A. in Jewish Studies. (An ad hoc Ph.D. is also available. Please contact the department for further information on this option.)

The Department of Jewish Studies welcomes students interested in deepening their knowledge of Jewish History and Jewish texts. We offer both a thesis and a non-thesis M.A. in Jewish Studies and a stream in the History of the Jewish Interpretation of the Bible. Areas of study include Eastern European History, Jewish Thought, Modern Jewish Literature, and Hebrew Literature. These areas are broadly construed to accommodate the range of research interests in the Department.

While the thesis option is designed for students undertaking advanced research in one of the areas above, the non-thesis option offers a generalist degree in Jewish studies.

42.3 Admission Requirements

Ideally, applicants would have completed a B.A. Honours in Jewish Studies. If an applicant is otherwise deemed acceptable, it is possible to be admitted to a qualifying year. Students seeking admission to History of Jewish Interpretation of the Bible must demonstrate competence in Hebrew prior to beginning the program.

In addition to the appropriate references, transcripts, and examination scores, applicants should send samples of their academic work in their field of interest. Personal interviews are strongly recommended.

42.4 Application Procedures

Applications will be considered upon receipt of:

1. application form
2. official transcripts
3. Research Proposal/Study Plan
4. Curriculum Vitae

5. letters of reference
6. \$80 application fee
7. GRE and TOEFL scores (if applicable)
8. samples of applicant's academic work

Deadline for admission in September:

Ph.D. applications – January 6

M.A. applications – February 1

Note: there are no January admissions.

Application inquiries should be addressed to the Graduate Coordinator, (514) 398-6543. E-mail: graduate.jewishst@mcgill.ca.

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

42.5 Program Requirements

M.A. (Thesis) Degree

An M.A. in Jewish Studies (thesis option) is offered in the following areas: History of the Jewish Interpretation of the Bible, Eastern European History, Jewish Thought, Hebrew Literature, and Modern Jewish Literatures. These areas of specialization are broadly construed to accommodate the range of research interests in the Department. The M.A. can be completed in one year, though most students spend two years in the program. The focus is the thesis work (30 credits or 24 credits for students specializing in the History of the Jewish Interpretation of the Bible). In addition, 15 credits of coursework (at the 500 level or higher, including JWST699: Research in Jewish Studies) will be chosen according to the student's area of specialization in consultation with the thesis advisor.

M.A. in Jewish Studies – Thesis (45 credits)

Required Courses (33 credits)

JWST 699 (3) Research in Jewish Studies
JWST 695 (9) M.A. Thesis 1
JWST 696 (9) M.A. Thesis 2
JWST 697 (12) M.A. Thesis 3

Complementary Courses (12 credits)

12 credits of courses at the 500 level or higher, chosen according to each student's specialization in consultation with the student's thesis advisor.

Language requirement:

Students choosing Eastern European studies, Jewish thought, or Hebrew literature must demonstrate fluency in either Hebrew or Yiddish according to their field of specialization. Mastery is normally determined by an examination administered by the Department.

M.A. in Jewish Studies – Thesis (45 credits)

Stream in History of the Jewish Interpretation of the Bible

Required Courses (33 credits)

JWST 510 (3) Jewish Bible Interpretation 1
JWST 511 (3) Jewish Bible Interpretation 2
JWST 699 (3) Research in Jewish Studies
JWST 690 (3) M.A. Thesis 1
JWST 691 (6) M.A. Thesis 2
JWST 692 (12) M.A. Thesis 3
JWST 694 (3) M.A. Thesis 4

Complementary Courses (12 credits)

12 credits of courses at the 500 level or higher, chosen in consultation with the student's thesis advisor.

Language requirement:

In addition to Hebrew, students in the History of the Jewish Interpretation of the Bible stream must master another language in which primary documents in this field have been written; in most cases, this will be Aramaic, but classical Arabic and Greek are also accepted. Mastery is normally determined by an examination administered by the Department.

M.A. in Jewish Studies – Non-Thesis (45 credits)

All students pursuing this option must take JWST 699. The remaining credits will normally include 15 credits in two of the following areas and 12 credits in the third: Jewish Thought, Jewish History, and Jewish Literature. The substitution of credits in related disciplines outside of Jewish Studies may be permitted if appropriate. The coursework will be adjusted to the student's academic background.

Required Course (3 credits)

JWST 699 (3) Research in Jewish Studies

Complementary Courses (42 credits)

Students will normally take 15 credits in two of the following areas and 12 credits in the third.

(The substitution of credits in related disciplines outside of Jewish Studies may be permitted if appropriate.)

Jewish Thought (12 or 15 credits)

- JWST 504 (3) Seminar in Jewish Thought
 JWST 510 (3) Jewish Bible Interpretation 1
 JWST 511 (3) Jewish Bible Interpretation 2
 JWST 542 (3) Abraham Ibn Ezra as Parshan
 JWST 543 (3) Maimonides as Parshan
 JWST 544 (3) Nachmanides as Parshan
 JWST 555 (3) The Bible in Jewish Philosophy
 JWST 556 (3) Modern Parshanut 1
 JWST 558 (3) Topics: Modern Jewish Thought
 JWST 604 (3) Topics in Jewish Thought
 JWST 661 (3) Study of a Biblical Character

Jewish History (12 or 15 credits)

- JWST 585 (3) Tutorial: Eastern European Studies 1
 JWST 586 (3) Tutorial: Eastern European Studies 2
 JWST 602 (3) East European Jewish History 1
 JWST 603 (3) East European Jewish History 2
 HIST 655 (6) Tutorial
 HIST 677D1 (3) Seminar: European Jewish History
 HIST 677D2 (3) Seminar: European Jewish History

Jewish Literature (12 or 15 credits)

- JWST 502 (3) Modern Israeli Literature
 JWST 510 (3) Jewish Bible Interpretation 1
 JWST 511 (3) Jewish Bible Interpretation 2
 JWST 520 (3) Bible Interpretation in Antiquity
 JWST 521 (3) Bible in the Dead Sea Scrolls
 JWST 530 (3) Topics in Yiddish Literature
 JWST 531 (3) Topics in Yiddish Literature
 JWST 532 (3) Narrative Midrash
 JWST 533 (3) Halakhic Midrash
 JWST 534 (3) Homiletic Midrash
 JWST 535 (3) Exegetic Midrash
 JWST 536 (3) Readings: Aramaic Bible Translation
 JWST 537 (3) The Bible in the Talmud Bavli
 JWST 538 (3) Early Rabbinic Parshanut 1
 JWST 541 (3) Medieval Ashkenazi Parshanut
 JWST 546 (3) Innovative Medieval Parshanut
 JWST 547 (3) Mystical Biblical Interpretation
 JWST 548 (3) Medieval Parshanut
 JWST 550 (3) The Bible in Hebrew Literature
 JWST 551 (3) 20th Century Parshanut
 JWST 554 (3) Modern Jewish Biblical Scholarship
 JWST 555 (3) The Bible in Jewish Philosophy
 JWST 556 (3) Modern Parshanut 1
 JWST 571 (3) Biblical Literature
 JWST 572 (3) Aggadah in Modern Scholarship
 JWST 573 (3) History of Hebrew Bible Text
 JWST 574 (3) Bible in Responsa Literature
 JWST 575 (3) Topics in Parshanut
 JWST 581 (3) Aramaic Language
 JWST 582 (3) Hebrew and Aramaic Philology
 JWST 587 (3) Tutorial in Yiddish Literature
 JWST 588 (3) Tutorial in Yiddish Literature

JWST 615 (3) Literary Analysis of Hebrew Fiction

42.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Note: All undergraduate courses administered by the Faculty of Arts (courses at the 100- to 500-level) have limited enrolment.

The course credit weight is given in parentheses after the title.

JWST 502 MODERN ISRAELI LITERATURE. (3) (Prerequisite: JWST 340 or permission of instructor) (Knowledge of Hebrew required) A review of the mastertexts of Israeli literature from the modern period.

JWST 504 SEMINAR IN JEWISH THOUGHT. (3) (Note: Readings in English) Examination of a theme or philosopher in the history of Jewish thought with particular attention to the intersections between Jewish thought and other intellectual traditions (e.g. Greek, Islamic, Christian, etc.)

JWST 510 JEWISH BIBLE INTERPRETATION 1. (3) (Restriction: Not open to students who have taken JWST 512) The issues, approaches, and texts of Jewish Bible interpretation between the Biblical and talmudic eras: Bible interpretation in the Bible; in Greco-Roman Jewish literature; in the Mishnah, Tosefta, Targumim, and Talmudim; early Samaritan interpretation, Bible interpretation in ancient synagogue art, and in the massoretic literature.

JWST 511 JEWISH BIBLE INTERPRETATION 2. (3) (Restriction: Not open to students who have taken JWST 512) The issues, problems, approaches, and texts of Jewish Bible interpretation in medieval, renaissance, early modern, and modern times. Interpretation in the Geonic, Ashkenazi, Sefardic, North African, Italian, European, Yemenite, North American and Israeli centres of Jewish Learning.

JWST 523 ANCIENT BIBLE INTERPRETATION. (3) Advanced level work in one aspect of Jewish Bible interpretation in ancient times.

JWST 530 TOPICS IN YIDDISH LITERATURE. (3) Supervised research in Yiddish literature. Work will focus on one genre, literary school or author.

JWST 531 TOPICS IN YIDDISH LITERATURE. (3) Supervised research in Yiddish literature. Work will focus on one genre, literary school or author.

JWST 539 BIBLICAL INTERPRETATION 1. (3) Close readings in one or more texts of early rabbinic Bible interpretation: Mishnah, Tosefta, Halakhic and Aggadic Midrashim, Talmud.

JWST 548 MEDIEVAL PARSHANUT. (3) Advanced level work in one aspect of Jewish Bible interpretation in medieval times.

JWST 551 20TH CENTURY PARSHANUT. (3)

JWST 552 JUDAISM AND POVERTY. (3) (Prerequisite: One course in Jewish Studies, Sociology or Social Work.) An introduction to the subject of poverty in Jewish literature and its influence on religions such as Christianity and Islam, and on modern, secular ideologies, especially socialism, and creative literature.

JWST 558 TOPICS: MODERN JEWISH THOUGHT. (3) Topic 2008-09: The writings and thought of Rabbi Abraham Isaac Kook, the noted theologian, mystic, ideologist of religious Zionism, and communal leader.

JWST 562 MEDIEVAL ISLAMIC AND JEWISH PHILOSOPHY. (3) (Prerequisite: one course in Greek, Islamic or Jewish Philosophy, or permission of instructor.) Deals with the manifold points of contact between medieval Muslim and Jewish intellectual history. Muslim and Jewish philosophers, theologians and mystics belonged to the same currents of thought, used the same language and studied the same sources in translation, proposing similar answers to

questions that arose in the context of their respective religious traditions.

JWST 575 TOPICS IN PARSHANUT. (3) Advanced level work in one aspect of Jewish Bible Interpretation that cuts across all periods of Jewish Bible interpretation.

JWST 581 ARAMAIC LANGUAGE. (3) (Requires Departmental approval) (Restriction: Not open to students who have taken JWST 506)

JWST 585 TUTORIAL: EASTERN EUROPEAN STUDIES 1. (3)

JWST 586 TUTORIAL: EASTERN EUROPEAN STUDIES 2. (3)

JWST 587 TUTORIAL IN YIDDISH LITERATURE. (3)

JWST 588 TUTORIAL IN YIDDISH LITERATURE. (3)

JWST 589 TUTORIAL IN JEWISH LITERATURE. (3) Supervised research in Modern Jewish history.

JWST 590 TUTORIAL IN JEWISH LITERATURE. (3) Supervised research in Modern Jewish history.

JWST 602 EAST EUROPEAN JEWISH HISTORY 1. (3) (1500 - 1800) Studies on specific issues and problems related to the social and cultural history of the Jews in Eastern Europe.

JWST 603 EAST EUROPEAN JEWISH HISTORY 2. (3) (1500 - 1800) Studies on specific issues and problems related to the social and cultural history of the Jews in Eastern Europe.

JWST 604 TOPICS: IN JEWISH THOUGHT. (3) Tutorial in Jewish thought.

JWST 615 LITERARY ANALYSIS OF HEBREW FICTION. (3) (Note: Readings in English) A methodological examination of contemporary Hebrew narratives with particular attention to literary structures and narrative form.

JWST 690 M.A. THESIS 1. (3) Normally done during the first semester of residence, this project entails original bibliographic research related to the history of Jewish Bible interpretation, usually the preparation of an extensive bibliography of one writer, text or theme. The choice may relate to the thesis topic.

JWST 690D1 (1.5), JWST 690D2 (1.5) M.A. THESIS 1. (Students must register for both JWST 690D1 and JWST 690D2) (No credit will be given for this course unless both JWST 690D1 and JWST 690D2 are successfully completed in consecutive terms) (JWST 690D1 and JWST 690D2 together are equivalent to JWST 690) Normally done during the first semester of residence, this project entails original bibliographic research related to the history of Jewish Bible interpretation, usually the preparation of an extensive bibliography of one writer, text or theme. The choice may relate to the thesis topic.

JWST 690N1 M.A. THESIS 1. (1.5) (Students must also register for JWST 690N2) (No credit will be given for this course unless both JWST 690N1 and JWST 690N2 are successfully completed in a twelve month period) (JWST 690N1 and JWST 690N2 together are equivalent to JWST 690) Normally done during the first semester of residence, this project entails original bibliographic research related to the history of Jewish Bible interpretation, usually the preparation of an extensive bibliography of one writer, text or theme. The choice may relate to the thesis topic.

JWST 690N2 M.A. THESIS 1. (1.5) (Prerequisite: JWST 690N1) (No credit will be given for this course unless both JWST 690N1 and JWST 690N2 are successfully completed in a twelve month period) (JWST 690N1 and JWST 690N2 together are equivalent to JWST 690) See JWST 690N1 for course description.

JWST 691 M.A. THESIS 2. (6) A study of the history of Jewish interpretation of one verse, based on 100 primary sources of a topical analysis of a major issue in the history of Jewish Bible interpretation.

JWST 692 M.A. THESIS 3. (12) Preparation of the thesis.

JWST 692D1 (6), JWST 692D2 (6) M.A. THESIS 3. (Students must register for both JWST 692D1 and JWST 692D2) (No credit will be given for this course unless both JWST 692D1 and JWST 692D2 are successfully completed in consecutive terms) (JWST

692D1 and JWST 692D2 together are equivalent to JWST 692) Preparation of the thesis.

JWST 692N1 M.A. THESIS 3. (6) (Students must also register for JWST 692N2) (No credit will be given for this course unless both JWST 692N1 and JWST 692N2 are successfully completed in a twelve month period) (JWST 692N1 and JWST 692N2 together are equivalent to JWST 692) Preparation of the thesis.

JWST 692N2 M.A. THESIS 3. (6) (Prerequisite: JWST 692N1) (No credit will be given for this course unless both JWST 692N1 and JWST 692N2 are successfully completed in a twelve month period) (JWST 692N1 and JWST 692N2 together are equivalent to JWST 692) See JWST 692N1 for course description.

JWST 694 M.A. THESIS 4. (3) A directed reading project devoted to the modern critical scholarship on one Biblical work.

JWST 695 M.A. THESIS 1. (9) Bibliography and preparation of a research proposal.

JWST 696 M.A. THESIS 2. (9) Thesis preparation and ongoing presentation of research results.

JWST 697 M.A. THESIS 3. (12) Writing and submission of thesis.

JWST 699 RESEARCH IN JEWISH STUDIES. (3) Practical problems and resources related to research and key theoretical debates in the field will be discussed.

The following are also considered graduate courses in Jewish studies:

HIST 655 TUTORIAL. (6) If a seminar is not available in a field judged necessary to complete the program, candidates may (with the consent of their Director of Studies and that of the Chair of the Graduate Committee) do tutorial work to replace a seminar.

HIST 677D1 (3), HIST 677D2 (3) SEMINAR: EUROPEAN JEWISH HISTORY. (Students must register for both HIST 677D1 and HIST 677D2) (No credit will be given for this course unless both HIST 677D1 and HIST 677D2 are successfully completed in consecutive terms) 08-09: "Messianism and Messianic".

43 Kinesiology and Physical Education

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Chair — Dr. Ted Milner

Graduate Program Director — Dr. René A. Turcotte
Telephone: (514) 398-4184 ext. 0488

43.1 Staff

Professors

Ross E. Andersen; B.Ed., M.A.(McG.), Ph.D.(Temple)
Greg Reid; B.Ed.(P.E.)(McG.), M.S.(Calif.), Ph.D.(Penn.St.)
Theodore E. Milner; B.Sc., M.Sc., Ph.D.(Alta.)

Associate Professors

Gordon Bloom; B.Ed.(W. Ont), M.A.(York (Can.)), Ph.D.(Ott.)
David J. Pearsall; B.A., BPHE, M.Sc., Ph.D.(Qu.)
René A. Turcotte; H.B.P.H.E.(Lauren.), M.Sc., Ph.D.(Alta.)

Assistant Professors

Julie Côté; B.Sc., M.Sc.(Wis.-Madison), Ph.D.(Montr.)
William Harvey; B.Ed, M.A., Ph.D.(McG.)
Catherine Sabiston; B.Sc.K.(Dal.), M.H.K.(Windsor),
Ph.D.(Br. Col.)
Paul Stapley; B.A.(Leeds), M.Sc (Northumbria), Ph.D.
(Bourgnone)

Tanja Taivassalo; B.Sc., Ph.D.(McG.)
 Enrique Garcia; BPE, INEF(Madrid), M.Sc.(Laval), Ph.D.(Alta.)
 Dilson Rassier; BPE, M.Sc.(Brazil), Ph.D.(Calg.)

Adjunct Professors

Bernard Aguilaniu, Robert Boushel, Isabelle Cossette, Christian Duval

43.2 Programs Offered

The Department of Kinesiology and Physical Education Department offers thesis and non-thesis options leading to an M.A. or an M.Sc. in Kinesiology and Physical Education. Graduate program of studies in the areas of Adapted Physical Activity, Pedagogy and Sport and Exercise Psychology lead to an M.A. while graduate program of studies in the areas of Biomechanics, Exercise Physiology and Motor Control and Learning lead to an M.Sc.

The M.A. or M.Sc. with thesis route provides the opportunity to acquire critical skills and knowledge related to systematic research in an area of specialization.

The M.A. or M.Sc. non-thesis route provides the opportunity for those interested in professional practice to acquire advanced knowledge in an area of specialization as well as some breadth.

Prospective applicants to the Ph.D. (Ad Hoc) program should contact the Department at (514) 398-4184.

Research conducted in the Department of Kinesiology and Physical Education focuses in the areas of adapted physical activity, biomechanics, exercise physiology, motor control, and learning and sport and exercise psychology. Research laboratories are located in the department's Seagram Sport Science Centre as well as in the satellite facilities located at the Occupational Biomechanics and Posture-Movement Control Lab of the Jewish Rehabilitation Hospital, the Research Clinical Exercise Physiology Lab of the McGill University Health Centre (MUHC), Douglas Mental Health University, Ste-Justine Hospital, the Ville Marie Medical and Women's Health Center and the Montreal Neurological Institute. Other affiliated research centres include Summit School and the Mackay Centre.

43.3 Admission Requirements

1. An undergraduate degree in Physical and Health Education, Exercise Science, Kinesiology, or its equivalent is required.
2. A minimum academic standing equivalent to a CGPA of 3.0 out of 4.0.

43.4 Application Procedure

McGill's online application form is available to all graduate program candidates at www.mcgill.ca/applying/graduate.

Applications will be considered upon receipt of:

1. application form,
2. official transcripts from previous undergraduate/graduate programs of study,
3. two letters of reference,
4. \$80 application fee,
5. TOEFL score (where applicable).

The deadlines for Canadians to submit applications are:

Fall session – March 1

Winter session – October 15

For International students, applications must be submitted at least six months prior to the official deadline indicated above.

All documentation is to be submitted directly to the Graduate Program Director in the Department of Kinesiology and Physical Education.

43.5 Program Requirements

M.A. Kinesiology and Physical Education (Thesis Option) (45 credits)

Areas: Adapted Physical Activity, Pedagogy, and Sport and Exercise Psychology

Required Courses (6 credits)

EDKP 605 (3) Research Methods 1

EDPE 676 (3) Intermediate Statistics 2 or equivalent

Complementary Courses (15 credits)

Students must take a minimum of 9 credits of coursework in a classroom setting in the area of concentration selected in consultation with the graduate student advisor.

EDKP 504 (3) Health and Lifestyle Education

EDKP 550 (3) Analyzing Instructional Behaviours

EDKP 603 (6) Individual Reading Course 1

EDKP 607 (3) Curriculum Innovation and Change

EDKP 616 (3) Individual Reading Course 2

EDKP 648 (3) Physical Activity Psychology

EDKP 650 (3) Research in Physical Education Pedagogy

EDKP 654 (3) Sport Psychology

EDKP 655 (3) Inclusive Physical Activity

EDKP 664 (3) Motor Learning

EDKP 665 (3) Motor Behaviour and Disability

EDKP 671 (3) Experimental Problems

EDKP 672 (6) Experimental Problems

EDKP 695 (3) Thesis Research 5 or complementary course

EDKP 696 (3) Thesis Research 6 or complementary course

Students may also take courses from the Faculty of Education or the Faculty of Arts in consultation with an advisor (500-level or higher).

Thesis Component – Required (24 credits)

EDKP 691 (6) Thesis Research 1

EDKP 692 (6) Thesis Research 2

EDKP 693 (6) Thesis Research 3

EDKP 694 (6) Thesis Research 4

M.A. Kinesiology and Physical Education (Non-Thesis) (45 credits)

Areas: Adapted Physical Activity, Pedagogy, and Sport and Exercise Psychology

Complementary Courses (18 credits)

6 credits, two courses from the following list:

EDPE 575 (3) Educational Measurement

EDKP 605 (3) Research Methods 1

EDSL 630 (3) Qualitative/Ethnographic Methods

or EDEM 692 (3) Qualitative Research Methods

12 credits selected from the following list:

EDKP 504 (3) Health and Lifestyle Education

EDKP 550 (3) Analyzing Instructional Behaviours

EDKP 603 (6) Individual Reading Course 1

EDKP 568 (3) Biomechanics Instrumentation

EDKP 607 (3) Curriculum Innovation and Change

EDKP 616 (3) Individual Reading Course 2

EDKP 648 (3) Physical Activity Psychology

EDKP 650 (3) Research in Physical Education Pedagogy

EDKP 654 (3) Sport Psychology

EDKP 655 (3) Inclusive Physical Activity

EDKP 664 (3) Motor Learning

EDKP 665 (3) Motor Behaviour and Disability

EDKP 671 (3) Experimental Problems

EDKP 672 (6) Experimental Problems

Students may also take courses from the Faculty of Education or the Faculty of Arts in consultation with an advisor (500-level or higher).

Elective Courses (12 credits)

12 credits (normally four courses) chosen in consultation with an advisor (should be 500-level or higher).

Project Component – Required (15 credits)

EDKP 608 (15) Special Project

M.Sc. Kinesiology and Physical Education (Thesis Option)
(45 credits)

Areas: Biomechanics, Exercise Physiology, and Motor Control and Learning

Required Courses (6 credits)

EDKP 605 (3) Research Methods 1
EDPE 676 (3) Intermediate Statistics 2 or equivalent

Complementary Courses (15 credits)

Students must take a minimum of 9 credits of coursework in a classroom setting in the area of concentration selected in consultation with the graduate student advisor.

EDKP 542 (3) Environmental Exercise Physiology
EDKP 553 (3) Physical Activity Assessments
EDKP 566 (3) Muscle Mechanics
EDKP 568 (3) Biomechanics Instrumentation
EDKP 603 (6) Individual Reading Course 1
EDKP 616 (3) Individual Reading Course 2
EDKP 630 (3) Human Walking Mechanics
EDKP 635 (3) Modeling Human Movement
EDKP 640 (3) Advanced Ergonomics
EDKP 652 (3) Cardio - Respiratory Exercise Physiology
EDKP 662 (3) Nerve/Muscle Exercise Response
EDKP 663 (3) Applied Exercise Physiology
EDKP 667 (3) Sport Science – Seminar
EDKP 671 (3) Experimental Problems
EDKP 672 (6) Experimental Problems
EDKP 695 (3) Thesis Research 5
EDKP 696 (3) Thesis Research 6

Students may also take courses from the Faculty of Science chosen in consultation with the advisor (500-level or higher).

Thesis Component – Required (24 credits)

EDKP 691 (6) Thesis Research 1
EDKP 692 (6) Thesis Research 2
EDKP 693 (6) Thesis Research 3
EDKP 694 (6) Thesis Research 4

M.Sc. Kinesiology and Physical Education (Non-Thesis)
(45 credits)

Areas: Biomechanics, Exercise Physiology, and Motor Control and Learning

Complementary Courses (18 credits)

6 credits, two courses from the following list:

EDPE 575 (3) Educational Measurement
EDKP 605 (3) Research Methods
EDSL 630 (3) Qualitative/Ethnographic Methods
or EDEM 692 (3) Qualitative Research Methods

12 credits chosen from the following:

EDKP 542 (3) Environmental Exercise Physiology
EDKP 553 (3) Physical Activity Assessments
EDKP 566 (3) Muscle Mechanics
EDKP 568 (3) Biomechanics Instrumentation
EDKP 603 (6) Individual Reading Course 1
EDKP 616 (3) Individual Reading Course 2
EDKP 630 (3) Human Walking Mechanics
EDKP 635 (3) Modeling Human Movement
EDKP 640 (3) Advanced Ergonomics
EDKP 652 (3) Cardio - Respiratory Exercise Physiology
EDKP 662 (3) Nerve/Muscle Exercise Response
EDKP 663 (3) Applied Exercise Physiology
EDKP 667 (3) Sport Science – Seminar
EDKP 671 (3) Experimental Problems
EDKP 672 (6) Experimental Problems

Students may also take courses from the Faculty of Science in consultation with advisor.

Elective Courses (12 credits)

12 credits (normally four courses) chosen in consultation with an advisor (should be 500-level or higher).

Project Component – Required (15 credits)

EDKP 608 (15) Special Project

43.6 Courses (EDKP)

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click on Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Single term and Multi-term Courses (D1/D2, N1/N2, J1/J2/J3)

The same course may be available as a single term offering and also as a multi-term offering. The course content and credit weight is equivalent in all modes; the only difference being the scheduling.

Courses with numbers ending in D1 and D2 are taught in two consecutive terms (most commonly Fall and Winter). Students must register for the same section of both the D1 and D2 components. When registering for a fall term D1 course the student will automatically be registered for the winter term D2 portion. No credit will be given unless both components (D1 and D2) are successfully completed in consecutive terms, e.g., Fall 2008 and Winter 2009.

Courses with numbers ending in N1 and N2 are taught in two non-consecutive terms (Winter and Fall). Students must register for the same section of both the N1 and N2 components. No credit will be given unless both components (N1 and N2) are successfully completed within a twelve (12) month period.

The course credit weight is given in parentheses after the title.

Descriptions of courses not scheduled in 2008-09 can usually be found in the preceding Calendar.

For more information on Multi-term Courses, Course Terminology, Class Schedule and Course Catalog, see the *General Information, Regulations and Research Guidelines, Graduate and Postdoctoral Studies Calendar for 2008-09*.

EDKP 504 HEALTH & LIFESTYLE EDUCATION. (3) This course will focus on content development and implementation of Health and Lifestyle concepts within the elementary and secondary physical education curriculum. Emphasis through lectures and labs will allow students' participation and experimentation of activities that could be taught in classroom and/or physical education settings.

EDKP 542 ENVIRONMENTAL EXERCISE PHYSIOLOGY. (3) (Prerequisite: EDKP 395.) Environmental Exercise Physiology will examine human physiological responses to acute and chronic exercise in the following environments: thermal stress (hot and cold), hypobaric (medium and high altitude), hyperbaric (diving and chambers), and microgravity.

EDKP 550 ANALYZING INSTRUCTIONAL BEHAVIOURS. (3) Students will investigate generic and specialized data collection instruments used in the supervision of and research into teaching and coaching. Practical experience will include the selection and use of appropriate tools, establishment of observer reliability, critical analysis of observational systems, and application of systematic observation to pertinent research questions.

EDKP 566 MUSCLE MECHANICS. (3) (Prerequisite: EDKP 206) Theoretical basis of muscle activity measurement in the context of biomechanical studies, including muscle-related topics such as fatigue, injury and control.

EDKP 568 BIOMECHANICS INSTRUMENTATION. (3) (Restriction: Not open to students who have taken EDKP 668.) Instrumentation and technical knowledge to assist in the acquisition and processing of data used in biomechanics.

EDKP 603 INDIVIDUAL READING COURSE 1. (6).

EDKP 603D1 (3), EDKP 603D2 (3) INDIVIDUAL READING COURSE 1. (Students must register for both EDKP 603D1 and EDKP 603D2) (No credit will be given for this course unless both EDKP 603D1 and EDKP 603D2 are successfully completed in consecutive terms) (EDKP 603D1 and EDKP 603D2 together are equivalent to EDKP 603)

EDKP 605 RESEARCH METHODS 1. (3) The course will examine the nomenclature, structure, methods and areas of quantitative and qualitative research in Physical Education. Students will be required to evaluate research concepts and examine their relationship to statistical design. Activities will focus on data retrieval, research problems, proposals, data collection and report of findings.

EDKP 607 CURRICULUM INNOVATION AND CHANGE. (3) This course examines recent Physical Education curriculum innovations at elementary, secondary and collegiate levels of physical education and how they have been implemented in various settings. It involves study of philosophical, societal and institutional changes on program emphasis and gives particular attention to how teachers may implement curriculum changes.

EDKP 608 SPECIAL PROJECT. (15) The development of a substantive written document which depicts an investigation or application of a physical education problem, issue or innovative practice. The monograph is to be presented to the candidate's advisor after satisfactory completion of the required course work.

EDKP 616 INDIVIDUAL READING COURSE 2. (3) Reading Course.

EDKP 630 HUMAN WALKING MECHANICS. (3) (Prerequisite: EDKP 206 or permission of instructor) Kinematics, kinetics, and neural control of walking and running under normal and perturbed conditions. Comparison of locomotion strategies for different populations (e.g. adolescents, elderly, amputees, etc.) will be emphasized. Various measurement techniques, data processing, and evaluations of total body and limb coordination will be addressed.

EDKP 635 MODELING HUMAN MOVEMENT. (3) (Prerequisite: EDKP 206 or permission of instructor) Computational techniques and methodologies necessary for theoretical calculation of modeling the physical dynamic behaviour of the human body and tissues.

EDKP 640 ADVANCED ERGONOMICS. (3) Biomechanical aspects of some common motion disorders associated with the workplace. Recent knowledge in this area will be used to gain a better understanding and develop problem-solving skills related to issues such as risk factors, activity status, injury mechanisms, movement compensation, and work adaptation strategies.

EDKP 648 PHYSICAL ACTIVITY PSYCHOLOGY. (3) An examination of the psychological and social psychological factors influencing physical activity behaviours. Emphasis is placed on understanding the theoretical constructs and research underlying involvement in physical activity including the introduction of salient measurement issues.

EDKP 650 RESEARCH IN PHYSICAL EDUCATION PEDAGOGY. (3) Theoretical foundation on research in physical education teaching, teacher preparation, and curriculum, including current literature to assess the scope of research designs used in the field and practical applications of the research.

EDKP 652 CARDIO-RESPIRATORY EXERCISE PHYSIOLOGY. (3) A comprehensive review of the basic physiological responses of the circulatory and respiratory systems to acute and chronic exercise and a brief discussion of regulatory mechanisms.

EDKP 654 SPORT PSYCHOLOGY. (3) The psychological factors and personality characteristics that influence diverse aspects of sport and physical activity. Seminars focus on discussions/presentations of theory, psychometrics and application of psychological principles to behavior in sport.

EDKP 655 INCLUSIVE PHYSICAL ACTIVITY. (3) Physical activity program development for individuals with a disability, primarily from an inclusive self-determined perspective, including contemporary assessment, instructional methods, best educational practices,

and existing curricular models for selected developmental disabilities.

EDKP 662 NERVE/MUSCLE EXERCISE RESPONSE. (3) Acute and chronic adaptations of the neuromuscular system to exercise, current concepts and understanding of neuromuscular morphology, motor unit recruitment, the etiology of neuromuscular fatigue, and mechanisms of neuromuscular adaptation.

EDKP 664 MOTOR LEARNING. (3) The analysis of conditions and factors related to human learning and performance or behavioural potential using the information processing model of behaviour. Seminar format is used to discuss experimentation and theory that examine motor skill acquisition.

EDKP 665 MOTOR BEHAVIOUR AND DISABILITY. (3) Factors that influence the motor behaviour of individuals with a disability, including anthropometric characteristics, information processing, knowledge and self-regulation, motivation, and the social-cultural context. Cognitive and dynamic systems perspectives will be emphasized as well as developmental disabilities such as autism, intellectual disability, developmental coordination disorder, and ADHD.

EDKP 671 EXPERIMENTAL PROBLEMS. (3) Study in one area of: ergo-physiology or biomechanics or psychology of motor performance or motor performance for exceptional children. To provide an opportunity to conduct a research project and develop an awareness of the problems involved in the area of concentration under departmental supervision.

EDKP 672 EXPERIMENTAL PROBLEMS. (6) See EDKP 671. This course, however, is more intensive and comprehensive in nature.

EDKP 672D1 (3), EDKP 672D2 (3) EXPERIMENTAL PROBLEMS. (Students must register for both EDKP 672D1 and EDKP 672D2) (No credit will be given for this course unless both EDKP 672D1 and EDKP 672D2 are successfully completed in consecutive terms) (EDKP 672D1 and EDKP 672D2 together are equivalent to EDKP 672) See EDKP 671. This course, however, is more intensive and comprehensive in nature.

EDKP 691 THESIS RESEARCH 1. (6) A comprehensive literature review in the general area of the thesis topic. Independent work under the supervision of the thesis advisor(s).

EDKP 691D1 (3), EDKP 691D2 (3) THESIS RESEARCH 1. (Students must register for both EDKP 691D1 and EDKP 691D2) (No credit will be given for this course unless both EDKP 691D1 and EDKP 691D2 are successfully completed in consecutive terms) (EDKP 691D1 and EDKP 691D2 together are equivalent to EDKP 691) A comprehensive literature review in the general area of the thesis topic. Independent work under the supervision of the thesis advisor(s).

EDKP 692 THESIS RESEARCH 2. (6) Independent work under the supervision of the thesis advisor(s) culminating with a written proposal and oral seminar explaining the direction of the thesis research.

EDKP 692D1 (3), EDKP 692D2 (3) THESIS RESEARCH 2. (Students must register for both EDKP 692D1 and EDKP 692D2) (No credit will be given for this course unless both EDKP 692D1 and EDKP 692D2 are successfully completed in consecutive terms) (EDKP 692D1 and EDKP 692D2 together are equivalent to EDKP 692) Independent work under the supervision of the thesis advisor(s) culminating with a written proposal and oral seminar explaining the direction of the thesis research.

EDKP 693 THESIS RESEARCH 3. (6) Ongoing research pertaining to the thesis under the direction of the thesis advisor(s).

EDKP 693D1 (3), EDKP 693D2 (3) THESIS RESEARCH 3. (Students must register for both EDKP 693D1 and EDKP 693D2) (No credit will be given for this course unless both EDKP 693D1 and EDKP 693D2 are successfully completed in consecutive terms) (EDKP 693D1 and EDKP 693D2 together are equivalent to EDKP 693) Ongoing research pertaining to the thesis under the direction of the thesis advisor(s).

EDKP 694 THESIS RESEARCH 4. (6) Independent work under the supervision of the thesis advisor(s). Final submission and approval of the thesis.

EDKP 694D1 (3), EDKP 694D2 (3) THESIS RESEARCH 4. (Students must register for both EDKP 694D1 and EDKP 694D2) (No credit will be given for this course unless both EDKP 694D1 and EDKP 694D2 are successfully completed in consecutive terms) (EDKP 694D1 and EDKP 694D2 together are equivalent to EDKP 694) Independent work under the supervision of the thesis advisor(s). Final submission and approval of the thesis.

EDKP 695 THESIS RESEARCH 5. (3) Independent work under the supervision of the thesis advisor(s) leading to the finalization of procedures for data collection.

EDKP 696 THESIS RESEARCH 6. (3) Independent work under the supervision of the thesis advisor(s) leading to the finalization of procedures for data collection.

44 Law

Faculty of Law
Graduate Programs in Law
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Dean, Faculty of Law — Nicholas Kasirer
Associate Dean (Graduate Studies) — Shauna Van Praagh

44.1 Staff

44.1.1 Directors of Institutes

Institute of Air and Space Law
Paul S. Dempsey; A.B.J., J.D.(Georgia), LL.M.(GWU),
D.C.L.(McG.) **Director**

Institute of Comparative Law
TBD **Director**

Institute of European Studies
Armand de Mestral; O.C., A.B.(Harv.), B.C.L.(McG.), LL.M.(Harv.),
Doctorat Hon. Causa(Université Lyon III, Kwansai Gakuin
University) **Co-Director**

44.1.2 Directors of Research Centres

Centre for Human Rights and Legal Pluralism
René Provost; LL.B.(Montr.), LL.M.(Berkeley), D.Phil.(Oxon.)
Director

Colleen Sheppard; B.A., LL.B.(Tor.), LL.M.(Harv.)
Research Director

Centre for Intellectual Property Policy
TBD **Director**

Centre for Medicine, Ethics and Law
Margaret A. Somerville; A.M., F.R.C.S., A.u.A.(Pharm.)(Adel.),
LL.B.(Syd.), D.C.L.(McG.), LL.D. Hon. Causa(Windsor,
Macquarie, St. FX.) (*Samuel Gale Professor of Law*)
Acting Director

Centre of Private and Comparative Law
Lionel Smith; B.Sc.(Tor.), LL.B.(W. Ont.), LL.M.(Cantab.),
D.Phil.(Oxon.), LL.B.(Montr.), (*James McGill Professor*)
Director

Centre for Research in Air and Space Law
Paul S. Dempsey; A.B.J., J.D.(Georgia), LL.M.(George
Washington), D.C.L.(McG.) **Director**

44.1.3 Teaching Faculty

Wendy Adams; B.A.(Laur.), LL.B.(Tor.), LL.M.(Mich.)
Payam Akhavan; LL.B.(York (Can.)), LL.M., S.J.D.(Harv.)
Kirsten Anker; B.Sc., LL.B.(Syd.)
Mark Antaki; B.C.L., LL.B.(McG.), M.A., Ph.D.(Calif.)
Frédéric Bachand; LL.B.(Montr.), LL.M.(Cantab.), LL.D.(Montr.),
Docteur en droit (Paris II)
G. Blaine Baker; B.A.(Huron College), LL.B.(W. Ont.), LL.M.(Col.)
Jean-Guy Belley; LL.L., LL.M.(Laval), Doctorat en sociologie
juridique(Paris II) (*Sir William C. Macdonald Professor of Law*)
Adelle Blackett; B.A.(Qu.), LL.B., B.C.L.(McG.), LL.M., J.S.D.
(Col.) (*William Dawson Scholar*)
Kimberley Brooks; B.A.(Tor.), LL.B.(Br. Col.), LL.M.(York (Can.))
Angela Campbell; B.A., B.C.L., LL.B.(McG.), LL.M.(Harv.)
Irwin Cotler; O.C., B.A., B.C.L.(McG.), LL.M.(Yale), Ph.D.(Hebrew
University), LL.D. Hon. Causa(Bar-Ilan, York, S. Fraser, Haifa)
(*on leave*)
Paul-André Crépeau; C.C., O.Q., Q.C., B.A., L.Ph.(Ott.),
LL.L.(Montr.), B.C.L.(Oxon), Docteur de l'Université de
Paris(Droit), LL.D. Hon. Causa(Ott., York, Dal., Stras., Montr.,
Paris II (Panthéon-Assas), Laval), F.R.S.C. (*Wainwright
Emeritus Professor of Civil Law*)
Armand de Mestral; O.C., A.B.(Harv.), B.C.L.(McG.), LL.M.(Harv.),
Doctorat Hon. Causa(Université Lyon III, Kwansai Gakuin
University) (*on-leave*)
Helge Dedek; LL.M.(Harv.), Dr. Iuris(Bonn)
Paul S. Dempsey; A.B.J., J.D.(Georgia), LL.M.(GWU),
D.C.L.(McG.) (*Tomlinson Professor of Global Governance*)
Jaye Ellis; B.A.(Calg.), LL.B., B.C.L.(McG.), LL.M.(Br. Col.),
D.C.L.(McG.)
Yaëll Emerich; B.C.L. (Paris), Docteur en droit (Montr.), Docteur en
droit(Jean Moulin, Lyon III)
William F. Foster; LL.B.(Hons.)(Auck.), LL.M.(Br.Col.) (*Sir William
C. Macdonald Professor of Law*) (*on leave*)
Evan Fox-Decent; B.A., M.A.(Manit.), J.D., Ph.D.(Tor.)
Fabien Gélinas; LL.B., LL.M.(Montr.), D.Phil.(Oxon.) (*on-leave*)
H. Patrick Glenn; B.A.(Br.Col.), LL.B.(Qu.), LL.M.(Harv.), D.E.S.,
Docteur en droit (Stras.), LL.D. Hon. Causa(Fribourg)
F.R.S.C. (*Peter M. Laing Professor of Law*)
Richard Gold; B.Sc.(McG.), LL.B.(Hons)(Tor.), LL.M.,
S.J.D.(Mich.)
Ram Jakhu; B.A., LL.B., LL.M.(Panjab), LL.M., D.C.L.(McG.)
Richard A. Janda; B.A.(Tor.), LL.B., B.C.L.(McG.), LL.M.(Col.)
Pierre-Gabriel Jobin; B.A., B.Phil., LL.L.(Laval), D.E.S. en droit
privé, Doctorat d'état en droit privé(Montpellier)
Rosalie Jukier; B.C.L., LL.B.(McG.), B.C.L.(Oxon.)
Daniel Jutras; LL.B.(Montr.), LL.M.(Harv.)
Nicholas Kasirer; B.A.(Tor.), B.C.L., LL.B.(McG.), D.E.A.(Paris),
(*James McGill Professor*)
Lara Khoury; LL.B.(Sher.), B.C.L., D.Phil.(Oxon.)
Alana Klein; B.A.(C'dia), B.C.L., LL.B.(McG.)
Dennis R. Klinck; B.A., M.A.(Alta.), Ph.D.(Lon.), LL.B.(Sask.)
David Lametti; B.A.(Tor.), LL.B., B.C.L.(McG.), LL.M.(Yale),
D.Phil.(Oxon.)
Robert Leckey; B.A.(Qu.), B.C.L., LL.B. (McG.), S.J.D.(Tor.)
Roderick A. Macdonald; B.A., LL.B.(York (Can.)), LL.L.(Ott.),
LL.M.(Tor.) (*F.R. Scott Professor of Public and Constitutional
Law*), F.R.S.C.
Desmond Manderson; B.A.(Hons.), LL.B.(Hons.)(A.N.U.),
D.C.L.(McG.) (*Canada Research Chair in Law and Discourse*)
Frédéric Mégret; LL.B. (King's College), D.E.A. (Paris), Ph. D.
(Geneva/Paris) (*Canada Research Chair on the Law of Human
Rights and Legal Pluralism*)
Pierre-Emmanuel Moysé; LL.B., LL.M., LL.D.(Montr.)
Victor Muñoz-Fraticelli; B.A.(C'nell), J.D.(Puerto Rico), M.A.(Chic.)
(*joint appt. with Political Science*)
Tina Piper; B.A.Sc.(Tor.), LL.B.(Dal.), B.C.L., M.Phil.(Oxon.)
René Provost; LL.B.(Montr.), LL.M.(Berkeley), D.Phil.(Oxon.)
Geneviève Saumier; B.Com, B.C.L., LL.B.(McG.), Ph.D.(Cantab.)
Stephen A. Scott; B.A., B.C.L.(McG.), D.Phil.(Oxon.); *Emeritus
Professor*
Colleen Sheppard; B.A., LL.B.(Tor.), LL.M.(Harv.)

Ronald B. Sklar; B.S.(NYU), LL.B.(Brooklyn), LL.M. (N'western), LL.M.(Yale)
 Lionel Smith; B.Sc.(Tor.), LL.B.(W.Ont.), LL.M.(Cantab.), D.Phil.(Oxon.), LL.B.(Montr.) (*James McGill Professor*)
 Stephen A. Smith; B.A.(Qu.), LL.B.(Tor.), D.Phil.(Oxon.) (*William Dawson Scholar*)
 Margaret A. Somerville; A.M., F.R.C.S., A.u.A.(Pharm.) (Adel.), LL.B.(Syd.), D.C.L.(McG.), LL.D. Hon. Causa (Windsor, Macquarie, St. FX) D.Sc. Honor's Causa(Ryerson) (*Samuel Gale Professor of Law*)
 William Tetley; C.M., Q.C., B.A.(McG.), LL.L.(Laval)
 Shauna Van Praagh; B.Sc., LL.B.(Tor.), LL.M., J.S.D.(Col.)
 Ivan A. Vlastic; B.C.L.(Zag.), LL.M.(McG.), LL.M., J.S.D.(Yale); *Emeritus Professor*
 Catherine Walsh; B.A.(Dal.), LL.B.(New Br.), B.C.L.(Oxon.)

Adjunct Professors

Kenneth Atlas; B.C.L., LL.B.(McG.)
 Donald Bunker; B.A.(S.G.W.), B.C.L., LL.M., D.C.L.(McG.)
 Pierre Deschamps; L.Sc.R., B.C.L.(McG.)
 Morris J. Fish; B.A., B.C.L., LL.D.(McG.)
 Robert Godin; B.C.L.(McG.), B.A.(Sir G. Wms.) (*Wainwright Fellow*)
 Charles D. Gonthier; B.C.L.(McG.)
 Peter Haanappel; LL.M., D.C.L.(McG.)
 Sunny Handa; B.Com.(McG.), LL.B.(Tor.), LL.M., D.C.L.(McG.)
 Andrew Harakas; B.A.(Mich.), LL.B.(Juris Doctor)(Mich. St.), LL.B.(Witw.), D.C.L.(McG.)
 Rod Margo; LL.M.(McG.), Ph.D.(Lond.)
 Peter Nesgos; D.C.L.(McG.)
 John Saba; B.A., M.A., LL.B., LL.M., D.C.L.(McG.)
 Francis P. Schubert; B.C.L., D.E.S. Rel. intern., Ph.D. Law(U. Geneva)
 Peter Van Fenema; LL.M.(McG.)
 Ludwig Weber; Lic iur. Dr. Jur(Heidel.), LL.M.(McG.)
 James Woods; B.A., B.C.L., LL.B.(McG.)

44.1.4 Law Library Staff

John Hobbins; B.A., M.L.S.(McG.)	Law Librarian
Louise Robertson; B.A., M.L.S.(McG.)	Associate Law Librarian and Law Cataloguer
Daniel Boyer; B.A.(McG.), LL.B.(UQAM), M.L.I.S.(McG.) (<i>on leave</i>)	Wainwright Civil Law Librarian
Louisa Piatti; B.A., M.L.S.(McG.)	Liaison Librarian
Maryvon Côté; B.A.(Ott.), M.L.S.(McG.)	Liaison Librarian

44.2 Programs Offered

The Faculty of Law offers a range of programs at the graduate level. These include the degrees of Master of Laws (LL.M.) with thesis and non-thesis options, and Doctor of Civil Law (D.C.L.), as well as Graduate Certificates.

Students may choose to pursue either the LL.M. or the D.C.L. in the Faculty of Law, the Institute of Air and Space Law (IASL), or the Institute of Comparative Law (ICL). Graduate Certificates may only be completed within either the IASL or the ICL.

The Faculty of Law promotes study and research in private, commercial, international, and public law, as well as legal theory, from the perspectives of diverse legal traditions. In collaboration with the McGill School of Environment, the Faculty offers an LL.M. thesis or non-thesis option in Environment. The Faculty also offers two other options within the LL.M. degree, a new cross-disciplinary European Studies Option (ESO) in collaboration with the Faculty of Arts, and a specialization in Bioethics. The D.C.L. degree always involves a substantial thesis.

The Institute of Air and Space Law operates within the Faculty of Law. The Institute offers a curriculum exploring legal issues that arise from international civil aviation and new technologies in space. It provides students with a comprehensive understanding of the legal processes regulating world wide aerospace activities.

The Institute offers the degrees of Master of Laws (LL.M.) with thesis and non-thesis and Doctor of Civil Law (D.C.L.), and a Graduate Certificate in Air and Space Law.

The Graduate Certificate in Air and Space Law is a course work program with a limited research and writing requirement. It is particularly appropriate for students with a strong professional orientation who do not wish to write a thesis.

The Institute of Comparative Law operates within the Faculty of Law as a centre of comparative legal studies. It accommodates national, international and transnational studies and encourages openness to diverse legal cultures in teaching and research. The Institute offers the degrees of Master of Laws (LL.M.) and of Doctor of Civil Law (D.C.L.) and a Graduate Certificate in Comparative Law.

The Graduate Certificate in Comparative Law provides advanced training in subjects within the scope of the ICL to candidates who do not wish to undertake the Master's degree. The Graduate Certificate is particularly appropriate for judges, law professors, and legal practitioners from countries undergoing substantial legal reform (such as post-Communist or developing countries) who wish to pursue advanced studies in areas such as civil, commercial, or human rights law.

44.3 Admission Requirements

General

The Faculty of Law Graduate Admissions Committee reviews applications and makes recommendations regarding admission to the Graduate and Postdoctoral Studies Office (GPSO). Final admissions decisions are taken by the Graduate and Postdoctoral Studies Office.

For information and application forms please consult the Faculty Website or write to the Graduate Programs Office in Law, McGill University at the above address in [section 44, "Law"](#), or via e-mail at grad.law@mcgill.ca.

Language Requirement

Graduate level courses are offered in English, and English-language abilities must be demonstrated for admission. In order to communicate fully with all law students at McGill, and to understand all course materials, the ability to speak and read French is an asset. At McGill's Faculty of Law, all students may choose to write essays, examinations and theses in English or French.

Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English. **Before acceptance**, appropriate exam results must be submitted directly from the TOEFL or IELTS Office. An institutional version of the TOEFL is not acceptable. Applications will not be considered if a TOEFL or IELTS test result is not available.

Generally, applicants must achieve a minimum TOEFL score of 600 (250 on the computer-based test or 100 on the Internet-based test with each component score not less than 20) or 7.5 in the IELTS. There are, however, some exceptions, in the IASL, applicants must achieve a minimum TOEFL score of 577 (233 on the computer-based test or 90 on the Internet-based test with each component score not less than 20) or 7.0 overall band in the IELTS.

In all programs, non-Canadian applicants whose mother tongue is French must achieve a minimum TOEFL score of 567 (227 computer-based or 86 on the Internet-based test, with each component score not less than 20) or an IELTS score of 7 overall band. This is because at McGill, students can write essays, examinations and theses in French, even where the course is taught in English. All students should be aware that the majority of courses in Graduate Programs in Law are taught in English.

For information about the TOEFL, and to register to take the test, see www.toefl.org. For information about the IELTS, see www.ielts.org. There may be a lengthy delay for registration, and

the communication of results takes approximately 40 days. For both tests, the official results should be sent directly from the testing institution to Graduate Programs in Law. For the TOEFL, McGill's institutional code is **0935** and Law's departmental code is **03**. These codes must be provided to TOEFL when requesting a test report form. For the IELTS, applicants must ask for an official report to be sent to Graduate Programs in Law at the above address. For either test, the test must be taken sufficiently early for results to reach McGill no later than **February 1** of the year of admission. Application files not completed by that date will not be considered.

French: The ability to speak or read French is an asset but not a necessity. In areas such as the study of private law in the civilian tradition or comparative private law, a reading knowledge of French is essential. Applicants should indicate their knowledge of French on the admissions questionnaire; they will be notified if French is essential to the area of study.

Master's Degrees

Candidates for admission to the LL.M. program must hold a Bachelor of Laws (LL.B.) degree, or its equivalent, with at least Upper Second Class honours or the equivalent of 3.0/4.0 cumulative grade point average. This standing does not guarantee admission; instead the Graduate Admissions Committee weighs the entire file, including the applicant's references and the quality of the research proposal.

Furthermore, in the case of thesis programs, the Committee must consider the availability of a supervisor. If a supervisor is not available in the applicant's preferred field of study, the applicant may be refused admission or else offered admission pending a change of field of study.

LL.M. Interdisciplinary Options in Environment and European Studies: Students who apply for admissions to the LL.M. thesis or non-thesis program at the Faculty of Law may specify an interest in these options.

LL.M. Specialization in Bioethics: Requirements for admission to the Master's program in Bioethics from the base discipline Law are the same as for admission to the LL.M.

For further information see the bioethics section of the calendar, or contact the Chair, Master's Specialization in Bioethics, Biomedical Ethics Unit, 3647 Peel Street, Montreal, QC, H3A 1W9. Telephone: (514) 398-6980; Fax: (514) 398-8349; E-mail: kathleen.glass@mcgill.ca.

D.C.L. Degree

Applicants demonstrating outstanding academic ability will be considered for admission to the doctoral program.

Admission to the DCL program occurs only when:

- the candidate has completed a graduate law degree with thesis at McGill or at another university, and
- the Graduate Admissions Committee is satisfied that the quality of his or her previous research is sufficient to justify admission to a doctoral program.

Review of the completed Master's thesis is normally part of the admission decision-making process. Exceptionally, a candidate with a non-thesis masters' degree with an outstanding file may be admitted to the doctoral program.

Graduate Certificate Programs

The requirements for admission to the Graduate Certificate programs are essentially the same as for the Master's programs, except that greater weight may be placed on professional experience.

Candidates desiring a Graduate Certificate in Air and Space Law who do not hold a law degree may be admitted if they have earned an undergraduate university degree in another discipline and possess sufficient professional experience to compensate for the lack of a law degree (as determined by the Graduate Admissions Committee).

44.4 Application Procedures

An application will be considered upon receipt of:

- application form with \$80 application fee payable by credit card and non-refundable;
- statement of academic program;
- official transcripts and proof of degree;
- certified translations of transcripts and proof of degree (if not written in French or English);
- official university grading system;
- letters of reference on forms provided for that purpose and/or official letterhead (sent directly by the referee to Graduate Programs in Law);
- official TOEFL or IELTS score report (sent directly by the testing organization);
- a curriculum vitae;
- two recent passport photographs

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate. Documents corresponding to numbers 2-5 and 8-9 should be sent to the Coordinator, Graduate Programs in Law, at the above address in [section 44, "Law"](#).

Deadline: February 1 in the year prior to the start of the academic year for which the candidate is applying.

44.5 Program Requirements

MASTER OF LAWS (LL.M.) DEGREES

There are two LL.M. options in the Faculty of Law, the Institute of Comparative Law, and the Institute of Air & Space Law: a thesis option (fewer courses and a 20 000 word externally evaluated thesis) and a non-thesis option (more courses and a 10 000 word supervised research project). In each case, the student must complete 45 credits. It is not normally possible to take extra credits. Students pursuing the LL.M., with thesis or non-thesis, in the Faculty must take the following courses: Legal Research Methodology (4 credits) and Theoretical Approaches to Law (4 credits). Students in the Institute of Comparative Law must also take Legal Traditions (4 credits). Students in the Institute of Air & Space Law upon recommendation may take Legal Research Methodology (4 credits) and/or Theoretical Approaches to Law (4 credits), in addition to compulsory courses in Air & Space Law. Other courses are selected from those offered by the Faculty and its Institutes, subject to the approval of the Associate Dean (Graduate Studies) of the Faculty of Law.

Students must register and pay fees for three terms of full-time study. Usually courses are taken during the first two terms only. The third term, devoted to research, may be taken during the Summer session of the first year, if the Thesis or Project supervisor approves. This means that it may be possible to complete the three terms within one calendar year.

Thesis Option

The LL.M. Program, thesis option, is a research-intensive graduate program focused on developing research interests into a thesis project under the supervision of a faculty member. Graduate level courses on theoretical and methodological approaches to legal writing complement the research work and thesis completion process, and courses in specific areas of knowledge related to the candidate's research interests complete the program's credit requirements.

The Master's Thesis programs consist of a course work component and a thesis of approximately 100 pages. Candidates must remain in residence for three terms. The third term, usually devoted to thesis research, may be taken the summer of the first year, making it possible to complete residence requirements within one calendar year. If the thesis is not completed in this time, students must register for additional sessions as needed. All degree requirements must be completed within a maximum of three years of the date of first registration.

As part of the course Master's Thesis 1, a thesis candidate must provide a protocol to his or her supervisor setting out details as to the thesis topic, the deadlines for the completion of the various thesis courses and the schedule of meetings with the thesis supervisor. Modifications to the protocol must be made in writing and submitted to the Associate Dean (Graduate Studies).

Non-Thesis Option

The LL.M., non-thesis option, complements previous legal education through specialized graduate-level coursework and in-depth research. It enhances expertise in selected areas of legal scholarship and offers an opportunity to write a supervised, substantial and publishable paper in an area of interest.

The non-thesis option does require a substantial Supervised Research Project during the third term of registration, a 10,000 word paper, assessed by the supervisor on a pass-fail basis, and typically completed in the summer. Candidates must remain in residence for three terms. The third term, usually devoted to research, may be taken the Summer of the first year, making it possible to complete residence requirements within one calendar year. If the research project is not completed in this time, students must register for additional sessions as needed. All degree requirements must be completed within a maximum of three years of the date of first registration.

Master of Laws (LL.M.); Law (Thesis) (45 credits)

Required Courses (38 credits)

CMPL 610	(4)	Legal Research Methodology
CMPL 641	(4)	Theoretical Approaches to Law
CMPL 612	(3)	Master's Thesis 1
CMPL 613	(3)	Master's Thesis 2
CMPL 614	(3)	Master's Thesis 3
CMPL 615	(6)	Master's Thesis 4
CMPL 616	(12)	Master's Thesis 5
CMPL 617	(3)	Master's Thesis 6

If approved by the Associate Dean (Graduate Studies) and the Graduate and Postdoctoral Studies Office (GPSO), students may reduce their elective course work by up to 3 credits by completing one or both of:

CMPL 618	(2)	Master's Thesis 7
CMPL 619	(1)	Master's Thesis 8

The remaining 7 credits (or fewer if more credits are earned for the Master's Thesis) are elective, with courses to be chosen from among Faculty offerings at the 500 and 600 level.

Master of Laws (LL.M.); Law (Non-Thesis) (45 credits)

Required Courses (23 credits)

CMPL 610	(4)	Legal Research Methodology
CMPL 641	(4)	Theoretical Approaches to Law
CMPL 655	(15)	Research Project 1

If approved by the Associate Dean (Graduate Studies) and the Graduate and Postdoctoral Studies Office (GPSO), students may reduce their elective course work by up to 3 credits by completing one or both of:

CMPL 656	(2)	Research Project 2
CMPL 657	(1)	Research Project 3

The remaining 22 credits (or fewer if more credits are earned for the research project) are elective, with courses to be chosen from among Faculty offerings at the 500 and 600 level.

Master of Laws (LL.M.); Law; Comparative Law (Thesis) (45 credits)

Required Courses (42 credits)

CMPL 600	(4)	Legal Traditions
CMPL 610	(4)	Legal Research Methodology
CMPL 641	(4)	Theoretical Approaches to Law
CMPL 612	(3)	Master's Thesis 1
CMPL 613	(3)	Master's Thesis 2
CMPL 614	(3)	Master's Thesis 3
CMPL 615	(6)	Master's Thesis 4

CMPL 616 (12) Master's Thesis 5

CMPL 617 (3) Master's Thesis 6

If approved by the Associate Dean (Graduate Studies) and the Graduate and Postdoctoral Studies Office (GPSO), students may reduce their elective course work by up to 3 credits by completing one or both of:

CMPL 618	(2)	Master's Thesis 7
CMPL 619	(1)	Master's Thesis 8

The remaining 3 credits (or fewer if more credits are earned for the Master's Thesis) are elective, with courses to be chosen from among Faculty offerings at the 500 and 600 level.

Master of Laws (LL.M.); Law; Comparative Law (Non-Thesis) (45 credits)

Required Courses (27 credits)

CMPL 600	(4)	Legal Traditions
CMPL 610	(4)	Legal Research Methodology
CMPL 641	(4)	Theoretical Approaches to Law
CMPL 655	(15)	Research Project 1

If approved by the Associate Dean (Graduate Studies) and the Graduate and Postdoctoral Studies Office (GPSO), students may reduce their elective course work by up to 3 credits by completing one or both of:

CMPL 656	(2)	Research Project 2
CMPL 657	(1)	Research Project 3

The remaining 18 credits (or fewer if more credits are earned for the research project) are elective, with courses to be chosen from among Faculty offerings at the 500 and 600 level.

Institute of Air and Space Law

Master of Laws (LL.M.); Air and Space Law (Thesis) (45 credits)

Required Courses (34 credits)

ASPL 636	(3)	Private International Air Law
ASPL 633	(3)	Public International Air Law
ASPL 637	(3)	Space Law: General Principles
ASPL 690	(4)	Master's Thesis 1
ASPL 691	(3)	Master's Thesis 2
ASPL 692	(6)	Master's Thesis 3
ASPL 693	(12)	Master's Thesis 4

Complementary Courses (11 credits)

4 credits from the following:

CMPL 610D1/D2	(4)	Legal Research Methodology or CMPL 641
(4)		Theoretical Approaches to Law

7 credits, at the 500 level or higher, chosen from among Faculty offerings (including ASPL offerings)

Master of Laws (LL.M.); Air and Space Law (Non-Thesis) (45 credits)

Required Courses (27 credits)

ASPL 636	(3)	Private International Air Law
ASPL 633	(3)	Public International Air Law
ASPL 637	(3)	Space Law: General Principles
ASPL 655	(15)	Research Project 1
ASPL 656	(2)	Research Project 2
ASPL 657	(1)	Research Project 3

Complementary Courses (18 credits)

4 credits from the following:

CMPL 610D1/D2	(4)	Legal Research Methodology or CMPL 641
(4)		Theoretical Approaches to Law

14 credits, at the 500 level or higher, chosen from among Faculty offerings (including ASPL offerings)

Environment Option

The Faculty of Law together with the School of Environment and other units at McGill offers a multi-disciplinary environment option at the LL.M. level.

Master of Laws (LL.M.) (Thesis) – Environment**Option/Concentration** (45 credits)**Required Courses** (10 credits)

CMPL 610	(4)	Legal Research Methodology
ENVR 610	(3)	Foundations of Environmental Policy
ENVR 650	(1)	Environmental Seminar 1
ENVR 651	(1)	Environmental Seminar 2
ENVR 652	(1)	Environmental Seminar 3

Complementary Courses (6 credits)

3 - 6 credits chosen from:

CMPL 546	(3)	International Environmental Law
CMPL 580	(3)	Environment and the Law

0 - 3 credits chosen from:

ENVR 519	(3)	Global Environmental Politics
ENVR 544	(3)	Environmental Measurement and Modelling
ENVR 580	(3)	Topics in Environment 3
ENVR 611	(3)	The Economy of Nature
ENVR 620	(3)	Environment and Health of Species
ENVR 622	(3)	Sustainable Landscapes
ENVR 630	(3)	Civilization and Environment 1
ENVR 680	(3)	Topics in Environment 4

or another course at the 500-level or higher recommended by the advisory committee and approved by the Environment Option Committee

Thesis Component – Required (29 credits)

CMPL 612	(3)	Master's Thesis 1
CMPL 613	(3)	Master's Thesis 2
CMPL 614	(3)	Master's Thesis 3
CMPL 615	(6)	Master's Thesis 4
CMPL 616	(12)	Master's Thesis 5
CMPL 618	(2)	Master's Thesis 7

Master of Laws (LL.M.) (Non-Thesis) – Environment**Option/Concentration** (45 credits)**Required Courses** (10 credits)

CMPL 610	(4)	Legal Research Methodology
ENVR 610	(3)	Foundations of Environmental Policy
ENVR 650	(1)	Environmental Seminar 1
ENVR 651	(1)	Environmental Seminar 2
ENVR 652	(1)	Environmental Seminar 3

Complementary Courses (18 credits)

15 credits chosen from:

CMPL 500	(3)	Aboriginal Peoples and the Law
CMPL 546	(3)	International Environmental Law
CMPL 580	(3)	Environment and the Law

and/or other Faculty of Law offerings.

3 credits chosen from:

ENVR 519	(3)	Global Environmental Politics
ENVR 544	(3)	Environmental Measurement and Modelling
ENVR 580	(3)	Topics in Environment 3
ENVR 611	(3)	The Economy of Nature
ENVR 620	(3)	Environment and Health of Species
ENVR 622	(3)	Sustainable Landscapes
ENVR 630	(3)	Civilization and Environment 1
ENVR 680	(3)	Topics in Environment 4

or another course at the 500-level or higher recommended by the advisory committee and approved by the Environment Option Committee.

Research Project – Required (17 credits)

CMPL 655	(15)	Research Project 1
CMPL 656	(2)	Research Project 2

European Studies Option

The European Studies Option (ESO) is a cross-disciplinary program offered as an option within existing LL.M. Thesis Program. This option is open to students whose work is focused on Europe,

in particular on issues relating to European integration, broadly understood. Students will take an interdisciplinary seminar and three courses on European themes and issues as part of their LL.M. thesis program. The thesis must be on a topic relating to European Studies, approved by the (ESO) coordinating committee. Knowledge of French, while not a strict pre-requisite, is an important asset for admission and will be encouraged as part of the program, as well as knowledge of a third European language.

Master of Laws (LL.M.) (Thesis) – European Studies**Option/Concentration** (46 credits)**Required Courses** (7 credits)

CMPL 610	(4)	Legal Research Methodology
LAWG 659	(3)	Interdisciplinary Seminar in European Studies

Complementary Courses (9 - 10 credits)

CMPL 536	(3)	European Community Law 1
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or another course at the 500 level or higher on European Studies in the Faculty of Law or the Faculty of Arts, approved by the Associate Dean (Graduate Studies)

CMPL 537	(2)	European Community Law 2
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or another course at the 500 level or higher on European Studies in the Faculty of Law or the Faculty of Arts, approved by the Associate Dean (Graduate Studies)

one of:

CMPL 600	(4)	Legal Traditions
CMPL 641	(4)	Theoretical Approaches to Law

Thesis Component – Required (30 credits)

CMPL 612	(3)	Master's Thesis 1
CMPL 613	(3)	Master's Thesis 2
CMPL 614	(3)	Master's Thesis 3
CMPL 615	(6)	Master's Thesis 4
CMPL 616	(12)	Master's Thesis 5
CMPL 617	(3)	Master's Thesis 6

LL.M. in Law - Bioethics option:

The Master's Specialization in Bioethics is an interdisciplinary program that emphasizes both the conceptual and practical aspects of Bioethics with students applying through the Faculties of Law, Medicine, Religious Studies and the Department of Philosophy. Students entering through Law are bound by the requirements of the Faculty of Law's LL.M. program (thesis option) and are attached to the Institute of Comparative Law. This means that the courses in Legal Research Methodology and Theoretical Approaches to Law are required. A total of 21 course credits are required for the Bioethics Specialization.

The curriculum is composed of required courses (for 6 credits) offered in the Biomedical Ethics Unit, bioethics courses (3 credits minimum), CMPL 642, Law and Health Care, and CMPL 641, Theoretical Approaches to Law, with remaining credits chosen from the Faculty of Law and Bioethics offerings at the 500 or 600 level). A minimum of 45 credits is required including the thesis. For further information regarding this program, please refer to the Bioethics section. See www.mcgill.ca/biomedicaethicsunit.

DOCTOR OF CIVIL LAW (D.C.L.) DEGREE

The Doctor of Civil Law (D.C.L.) Program allows for the development of substantive and original contribution to legal research and knowledge under the supervision of a faculty member. Doctoral candidates normally plan to pursue an academic career and develop their approach to pedagogy, research and writing while at McGill. Every candidate must successfully pass a comprehensive examination, usually after one year in the program.

The studies may be pursued through the Faculty or one of its Institutions - the Institute of Air and Space Law or the Institute of Comparative Law. Courses related to Air and Space Law and Legal Traditions, respectively, are included with the program requirements. Graduate level courses on theoretical and methodological approaches to legal writing complement the research work.

D.C.L. candidates may be associated with the Centre for Human Rights and Legal Pluralism, the Quebec Research Centre of Private and Comparative Law, the Centre for Intellectual Property Policy, the Centre for International Sustainable Development Law or one of the specialized Research Chairs at the Faculty of Law. For more information, see our Website: www.mcgill.ca/law-studies/grad-programs/dcl.

The degree will be awarded, at the earliest, after the completion of three years of residence in the Faculty. In the case of a candidate holding an LL.M. from McGill or an equivalent degree from another university, the residency requirement may be reduced to two years of study beyond the Master's degree, with the approval of the Graduate and Postdoctoral Studies Office, upon recommendation of the Graduate Studies Committee of the Faculty of Law.

The principal basis for evaluation is a doctoral thesis of up to 400 pages. It must constitute a significant contribution to legal knowledge, evidencing in concept and execution the original work of the candidate. Its form must be suitable for publication. The thesis must be submitted within four years of completion of the residency requirement.

The Doctor of Civil Law (D.C.L.); Law is the doctoral program in the Faculty of Law. The core of the program is a substantial thesis that makes an original contribution to legal scholarship. Students must pass a Comprehensive Exam - Law (LAWG 701). Students are also required to take CMPL 641 Theoretical Approaches to Law, and are encouraged to take CMPL 610 Legal Research Methodology.

The Doctor of Civil Law (D.C.L.); Comparative Law is the doctoral program in the Institute of Comparative Law of the Faculty of Law. The core of the program is a substantial thesis that makes an original contribution to legal scholarship. Students must pass a Comprehensive Exam (CMPL 701). Students are also required to take CMPL 641 Theoretical Approaches to Law, and are encouraged to take CMPL 610 Legal Research Methodology.

The Doctor of Civil Law (D.C.L.) in Air and Space Law is the doctoral program in the Institute of Air and Space Law of the Faculty of Law. The core of the program is a substantial thesis that makes an original contribution to legal scholarship. Students must pass a Comprehensive Exam - Air/Space Law (ASPL 701) and are encouraged to take the courses Theoretical Approaches to Law and Legal Research Methodology.

Graduate Certificates in Law

The Graduate Certificate program provides advanced legal training over one term of full-time studies or two terms of part-time studies to candidates who wish to pursue graduate legal education for a limited period and particular career-related purposes.

The Graduate Certificate is awarded upon completion of a minimum of 15 law course credits. The Certificate is pursued through the two institutes of the Faculty of Law, the Institute of Comparative Law and the Institute of Air and Space Law. For more information, see our Website: www.mcgill.ca/law-studies/grad-programs/certificates.

Graduate Certificate in Comparative Law

The Graduate Certificate is awarded after at least one term of residence in the Faculty and upon completion of a minimum of 15 course credits. In every case, the program is structured to meet individual needs and must be approved by the Associate Dean (Graduate Studies).

Note: International students must register for at least 12 credits per term in order to satisfy Visa requirements.

Graduate Certificate in Air and Space Law

The Graduate Certificate in Air and Space Law is a course work program with a limited research and writing requirement. It is particularly appropriate for students with a strong professional orientation who do not wish to write a thesis.

The Graduate Certificate is awarded after at least one term of residence in the Faculty and upon completion of a minimum of 15 academic credits of law courses. Those credits must include the

three Air and Space Law courses obligatory for Master's students (ASPL 633, ASPL 636, and ASPL 637) all offered in the Fall term. Students may take courses beyond the minimum of 15 credits, and these additional courses may be non-law courses. Graduate Certificate students often remain in residence for both terms and take all of the Air and Space Law courses.

Note: International students must register for at least 12 credits per term in order to satisfy Visa requirements.

COURSE SELECTION

It should be noted that not all courses are offered in each year. Students wishing to pursue research topics outside of these particular fields are welcome to do so, subject to the availability of appropriate thesis supervisors.

The graduate-level Law courses are grouped into four inter-related concentrations.

Legal Traditions and Legal Theory

This concentration combines two areas of strength: the coexistence of diverse legal traditions, particularly (but not exclusively) the civil and common law, and the awareness of the importance of theoretical approaches to law as a means of understanding both the internal dynamic of legal phenomena and their relationship to other social phenomena.

Courses offered within this concentration may include:

- Aboriginal Peoples and the Law
- Advanced Criminal Law
- Advanced Jurisprudence
- Canadian Legal History
- Canon Law
- Civil Law Perspectives
- Common Law Perspectives
- Comparative Modern Legal History
- Feminist Legal Theory
- Human Rights and Cultural Diversity
- Interdisciplinary Seminar in European Studies
- Islamic Law
- Jurisprudence
- Legal Education Seminar
- Legal Theory
- Legal Traditions
- Linguistic and Literary Approaches to the Law
- Research Seminars
- Restitution
- Roman Law
- Sentencing in Canadian Law
- Social and Ethical Issues in Jewish Law
- Social Diversity and the Law
- Talmudic Law
- Theoretical Approaches to the Law

International Business Law

The ICL pioneered the first graduate concentration in international business law in Canada. This field has practical significance in international business relations and also provides opportunities to apply experience derived from multiple legal systems to the development of multi-jurisdictional, "international" commercial rules.

Courses offered within this concentration may include:

- Airline Business & Law
- Comparative Air Law
- Comparative Legal Institutions
- Copyright and Trademark Theory
- Corporate Finance
- European Community Law 1
- European Community Law 2
- Government Control of Business
- Government Regulation of Space Activities
- Intellectual and Industrial Property
- International Business Law
- International Carriage of Goods by Sea
- International Development Law
- International Environmental Law

International and Domestic Documentary Sales
 International Maritime Conventions
 International Securities Markets
 International Taxation
 Law and Practice of International Trade
 Law of Space Applications
 Patent Theory and Policy
 Private International Air Law
 Public International Air Law
 Research Seminars
 Resolution of International Disputes
 Securities Regulation

Human Rights and Cultural Diversity

Building on the Faculty's strength in public law, this concentration promotes the comparative study of human rights law. It provides students with opportunities to reflect critically on the emergence and institutionalization of human rights norms in both domestic and international settings and to explore complexities arising from cultural diversity.

Courses offered within this concentration may include:

Aboriginal Peoples and the Law
 Advanced Criminal Law
 Children and the Law
 Comparative Constitutional Protection of Human Rights
 Current Problems of the International Legal Order
 Discrimination and the Law
 Human Rights & Cultural Diversity
 International Criminal Law
 International Humanitarian Law
 International Law of Human Rights
 Law & Psychiatry
 Research Seminars
 Social Diversity and Law

Regulation, Technology and Society

This concentration focuses on the comparative and inter-disciplinary study of legal regulation in areas of rapid technological change. It encourages critical reflection on notions of the public interest and its protection in areas as diverse as the bio-medical sciences, the environment, the growth of computer networks, and the commercial exploitation of space.

Courses offered within this concentration may include:

Communications Law
 Comparative Medical Law
 Computers and the Law
 Environment and the Law
 Government Control of Business
 Intellectual and Industrial Property
 International Environmental Law
 Land Use Planning
 Law & Healthcare
 Law & Psychiatry
 Medical Liability
 Policies, Politics and the Legislative Process
 Regulation, Technology & Society
 Research Seminars
 Trade Regulation

44.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Further information can be found on the Faculty of Law's Website: www.mcgill.ca/law-studies.

Courses with numbers ending D1 and D2 are taught in two consecutive terms (most commonly Fall and Winter). Students must register for both the D1 and D2 components. No credit will be

given unless both components (D1 and D2) are successfully completed in consecutive terms.

The course credit weight is given in parentheses after the title.

INSTITUTE OF AIR AND SPACE LAW COURSES

ASPL 613 GOVERNMENT REGULATION OF AIR TRANSPORT. (3) Economic regulation of air transport and navigation, deregulation, liberalization, open skies. Economic and regulatory theories, competition, anti-trust regulation. Status, negotiation, and implementation of international agreements on air services.

ASPL 614 AIRLINE BUSINESS AND LAW. (3) Interdisciplinary analysis of the legal issues confronting airlines in such areas as economics, finance, securities, bankruptcy, pricing, marketing, distribution, alliances, joint-ventures and competition.

ASPL 633 PUBLIC INTERNATIONAL AIR LAW. (3) Sources of public international law relating to the air space and its aeronautical uses. International aviation organizations and their law-making functions. Legal responses to aviation terrorism.

ASPL 636 PRIVATE INTERNATIONAL AIR LAW. (3) Sources of private international air law. Conflicts of laws. Unification of law of liability. Liability for damage on the surface, liability of the ATC and CNS/ATM providers. Rights in aircraft and their international recognition.

ASPL 637 SPACE LAW: GENERAL PRINCIPLES. (3) Examination of the role of international law in the regulation of outer space activities.

ASPL 638 LAW OF SPACE APPLICATIONS. (3) The legal implications of various space applications, such as telecommunications and the role therein of various international organizations; remote sensing by satellites; space stations; commercial and military uses of outer space.

ASPL 639 GOVERNMENT REGULATION OF SPACE ACTIVITIES. (3) (Restriction: Open to undergraduate students with the permission of the Associate Dean.) National public and private law and regulatory regimes governing space activities, particularly those that are carried out by private entities for commercial purposes.

ASPL 690 MASTER'S THESIS 1. (4) Preparation of thesis proposal.

ASPL 691 MASTER'S THESIS 2. (3) Preparation of literature review.

ASPL 692 MASTER'S THESIS 3. (6) Thesis research report.

ASPL 693 MASTER'S THESIS 4. (12) Completion of thesis.

ASPL 694 MASTER'S THESIS 5. (3) Thesis research report.

ASPL 701 COMPREHENSIVE - AIR/SPACE LAW. (0) (Restriction: DCL graduate students in Air and Space Law.) An examination that must be passed by all doctoral candidates in order to continue in the doctoral program.

FACULTY OF LAW 500-700 LEVEL COURSES

BUS2 502 INTELLECTUAL & INDUSTRIAL PROPERTY. (3) (Restrictions: Not open to first year students. Not open to students who have taken BUS2 463.) An examination of private relationships involving inventive and creative activity through an analysis of various conceptions of intellectual property regimes, in the context of public governance of public space, as well as the interrelationship between international and national law.

BUS2 504 SECURITIES REGULATION. (3) (Restriction: Not open to students who have taken BUS2 372.) An introduction to the structure of Canada's capital markets and a review of major features of securities regulation using the Quebec or Ontario scheme as background. An examination of the general regulatory framework for licensing of securities professionals, disclosure to investors and enforcement powers of regulators.

BUS2 505 CORPORATE FINANCE. (3) (Restriction: Not open to students who have taken BUS2 464.) Advanced issues in business and corporate law. Principles underlying decisions about a corporation's capital structure. Distinctive aspects and rights of corporate securities, including common shares, preferred shares.

CMPL 500 ABORIGINAL PEOPLES AND THE LAW. (3) Current legal topics relating to native peoples, including the concept of

aboriginal title, and constitutional aspects of contemporary land claims. Aspects of Canadian law relating to native peoples, their constitutional status, and hunting and fishing rights.

CMPL 506 LEGAL THEORY. (3) The philosophical basis of private law, from a comparative and historical perspective.

CMPL 515 INTERNATIONAL CARRIAGE OF GOODS BY SEA. (3) A comparative study of private international maritime law.

CMPL 516 INTERNATIONAL DEVELOPMENT LAW. (3) The law and economics of development, including the role of agencies of the United Nations in development, the role of UNCTAD in formulating uniform rules of international trade, and the World Bank and the International Monetary Fund and their role in financing development.

CMPL 522 MEDICAL LIABILITY. (3) (Restriction: Not open to students in first year of Law.) Trans-systemic and critical examination of medical liability issues, including doctor-hospital-patient relationship; medical duty of care; medical fault and causation; wrongful life, birth and conception; informed consent and refusal; lack of resources; defective products; nosocomial infections; contaminated blood transfusions; interaction between law and science; future of medical liability.

CMPL 533 RESOLUTION OF INTERNATIONAL DISPUTES. (3) Conflict of jurisdictions and recognition of foreign judgments, as well as arbitration between parties to international contracts, with particular reference to international conventions.

CMPL 536 EUROPEAN COMMUNITY LAW 1. (3) The Treaty of Rome establishing the European Community and current efforts to create a homogenous structure for commerce and competition in Europe.

CMPL 539 INTERNATIONAL TAXATION. (3) Canadian tax treatment of subjects, including the export of goods and services, carrying on business in other countries, international employee transfers, international re-organizations, and international joint ventures and partnerships.

CMPL 543 LAW AND PRACTICE OF INTERNATIONAL TRADE. (3) The fundamental aspects of international law governing international trade, and governmental regulation of international trade in Canada and Canada's major trading partners.

CMPL 546 INTERNATIONAL ENVIRONMENTAL LAW. (3) Introduction to this continuously expanding and evolving branch of international law. It will focus on the particularities of the international legal system and their implications for environmental protection; economic and ethical dimensions of international environmental policy; selected environmental problems; and, discussion of new approaches to solving existing problems.

CMPL 547 CANADIAN LEGAL HISTORY. (3) The history of Canadian law with emphasis on social history of law and legal history of Canadian society.

CMPL 553 INTERNATIONAL MARITIME CONVENTIONS. (3) International maritime conventions in respect of collisions, jurisdiction, limitation of liability, and their domestic interpretation, maritime liens and mortgages, marine insurance, and salvage.

CMPL 565 INTERNATIONAL HUMANITARIAN LAW. (3) (Prerequisite: PUB2 105) (Restriction: Not open to first year students.) Rules governing international and internal armed conflicts; historical and philosophical foundations; constraints on means to wage war; treatment of protected individuals, including prisoners of war, civilians and peacekeepers; enforcement, including belligerent reprisals and criminal prosecution; links with norms protecting human rights, the environment and cultural property; impact of cultural diversity.

CMPL 568 EXTRAJUDICIAL DISPUTE RESOLUTION. (3) (Restriction: Not open to students in the first year of Law.) An examination for the non-adjudicative means of dispute resolution, including mediation and consensual arbitration.

CMPL 571 INTERNATIONAL LAW OF HUMAN RIGHTS. (3) International protection of human rights, particularly by the United Nations, its specialized agencies, and the Council of Europe.

CMPL 575 DISCRIMINATION AND THE LAW. (3) Equality rights and legal protections against discrimination under the Charter of Rights and Freedoms, the Quebec Charter of Human Rights and Freedoms, and human rights legislation.

CMPL 577 COMMUNICATIONS LAW. (3) Regulation of common communication carriers and mass media in Canada, including legal developments initiated by foreign market competition, and the regulatory authority of the C.R.T.C.

CMPL 580 ENVIRONMENT AND THE LAW. (3) Environmental law, with emphasis on ecological, economic, political, and international dimensions.

LAWG 500 COMPLEX LEGAL TRANSACTIONS 1. (3) In-depth case studies of complex legal transactions, to allow students to learn how areas of law interact in a sophisticated, practical environment, and to permit them to develop their analytical and research skills. Transactions may include land development schemes, national and international issues of securities and complex non-commercial transactions.

LAWG 502 SUSTAINABLE DEVELOPMENT. (3) (Restriction: Restricted to Law students.) (Note: Non-Law students require permission from instructor & SAO.) Foundations of sustainable development as a justice claim instantiated in law and policy. Topics of investigation include: theoretical (in)coherence; institutional architecture, principles of international and domestic law; the integration of social, economic and environmental goods, inter-generational justice, precaution and uncertainty, adoption in soft law.

LAWG 511 SPECIALIZED TOPICS IN LAW 1. (1) (Restriction: Must have completed first year Law.) European Social Law. An intensive study of a particular topic in public or private law.

LAWG 514 SPECIALIZED TOPICS IN LAW 4. (2) (Restriction: Must have completed first year Law.) Recours collectifs. An intensive study of a particular topic in public or private law.

LAWG 515 SPECIALIZED TOPICS IN LAW 5. (2) (Restriction: Must have completed first year Law.) Advanced Corporate Law and Securities. An intensive study of a particular topic in public or private law.

LAWG 516 SPECIALIZED TOPICS IN LAW 6. (3) (Restriction: Must have completed first year Law.) Advanced Secured Transactions. An intensive study of a particular topic in public or private law.

LAWG 517 SPECIALIZED TOPICS IN LAW 7. (3) (Restriction: Must have completed first year Law.) Fall: Sports Law/Droit du sport. Winter: Law and Ethics. An intensive study of a particular topic in public or private law.

LAWG 518 SPECIALIZED TOPICS IN LAW 8. (3) (Restriction: Must have completed first year Law.) Fall: Droits de la personnalité. Winter: Troubles de voisinage. An intensive study of a particular topic in public or private law.

LAWG 525 LEGAL EDUCATION SEMINAR. (3) (Note: Open to undergraduate students who have completed four terms in the faculty and to graduate students.) A review of the aims, objectives, methods and techniques of legal education, including design and execution of the curriculum; an inquiry into law's ontology and legal epistemology; an examination of practical issues (attending graduate school, selecting a supervisor, types of legal research and employment as a law teacher).

PUB2 500 LAW AND PSYCHIATRY. (3) (Restriction: Open to a limited number of students in Law, Psychiatry and Psychology. Not open to students who have taken PUB2 419.) The roles of lawyers and psychiatrists in the handling of the mentally ill within the legal process. Consideration of the civil commitment and criminal commitment processes, insanity and "automatism" defences, the psychiatrist as expert witness, mental illness as a problem in relation to legal capacity. Some sessions will be conducted jointly with members of the psychiatric profession.

PUB2 501 ADVANCED CRIMINAL LAW. (3) (Restriction: Not open to students who have taken PUB2 421.) Specific crimes and defenses, and problems in procedure, as a continuation of

Criminal Law and Criminal Procedure. Selected topics will be announced in advance.

PUB2 502 INTERNATIONAL CRIMINAL LAW. (3) (Restriction: Not open to students who have taken PUB2 425.) Crimes against the law of nations, war crimes (the Nuremberg trials, the Eichmann case), genocide and the way in which states co-operate to fight organized crime, terrorism, hijacking, etc. Topics include: jurisdiction (crimes committed in foreign countries, at sea, in aircraft, extradition, international judicial assistance) and the recognition and enforcement of foreign criminal sentences.

PUB2 504 SENTENCING IN CANADIAN LAW. (3) (Not open to students who have taken PUB2 424.) Survey of principles of sentencing and correctional law in Canada. This course reviews general principles such as aims of punishment, matters of procedures and evidence, and review of sentences by appellate courts. A detailed examination of selected topics include participation of victims in sentencing, dangerous offenders, native offenders, homicide cases.

PUB2 505 STATUTORY INTERPRETATION. (3) (Restrictions: Not open to first year law students. Not open to students who have taken PUB2 402.) Legislation as a legal instrument, its various classifications, purposes and forms, styles of legislative drafting, codification, the process of interpretation, the interpretation of statutes and codes and rules of construction.

COURSES OPEN ONLY TO GRADUATE STUDENTS

CMPL 600 LEGAL TRADITIONS. (4) (Restrictions: Restricted to students in the Institute of Comparative Law. Other students by permission only.) Examination of the concept of a legal tradition, including elements of particular legal traditions, their philosophical foundations, their implementation through institutions, and their influence on one another.

CMPL 601 CIVIL LAW PERSPECTIVES. (4) (Restriction: Open only to students who do not have a first degree in the civil law.) Provides students from the common law tradition with a graduate-level perspective on the civil law tradition.

CMPL 602 COMMON LAW PERSPECTIVES. (4) (Restriction: Open only to students who do not have a first degree in the common law.) Provides students from the civil law tradition with a graduate-level perspective on the common law tradition.

CMPL 603 HUMAN RIGHTS & CULTURAL DIVERSITY. (4) Current topics in human rights and cultural diversity.

CMPL 604 INTERNATIONAL BUSINESS LAW. (4) Current topics in international business law.

CMPL 605 REGULATION TECHNOLOGY/SOCIETY. (4) Current topics in regulation, technology, and society.

CMPL 610 LEGAL RESEARCH METHODOLOGY. (4) (Restriction: Open only to graduate law students registered in a non-thesis Master's program or permission of instructor.) A programme of instruction in legal research methodology, including electronic legal research and the formulation of research plans.

CMPL 612 MASTER'S THESIS 1. (3) Preparation of thesis proposal.

CMPL 613 MASTER'S THESIS 2. (3) Preparation of literature review.

CMPL 614 MASTER'S THESIS 3. (3) Thesis Seminar. A seminar bearing on thesis research in progress.

CMPL 615 MASTER'S THESIS 4. (6) Thesis research report.

CMPL 616 MASTER'S THESIS 5. (12) Completion of thesis.

CMPL 617 MASTER'S THESIS 6. (3) Thesis research report.

CMPL 618 MASTER'S THESIS 7. (2) Thesis research project.

CMPL 619 MASTER'S THESIS 8. (1) (Restriction: This course is open only to graduate law students registered in a with-thesis Master's program in the Faculty of Law.) Thesis research project.

CMPL 635 INDEPENDENT STUDY 1. (3)

CMPL 636 INDEPENDENT STUDY 2. (4)

CMPL 637 INDEPENDENT STUDY 3. (3)

CMPL 641 THEORETICAL APPROACHES TO LAW. (4) Introduction to a variety of theoretical approaches to legal scholarship.

CMPL 642 LAW AND HEALTH CARE. (3) (Limited enrolment.) The study of legal and ethical issues raised in medicine and healthcare with a particular focus upon the relationship between patient and healthcare professionals.

CMPL 655 RESEARCH PROJECT 1. (15) (Restriction: This course is only open to students registered in a non-thesis Master's program in the Faculty of Law.) A major research paper on a current topic.

CMPL 656 RESEARCH PROJECT 2. (2) (Prerequisite: CMPL 655.) (Restriction: This course is open only to students registered in a non-thesis Master's program in the Faculty of Law.) Continuation of a major research paper on a current topic.

CMPL 657 RESEARCH PROJECT 3. (1) (Prerequisite: CMPL 655 and/or CMPL 656.) (Restriction: This course is open only to students registered in a non-thesis Master's program in the Faculty of Law.) Continuation of a major research paper on a current topic.

CMPL 701 COMPREHENSIVE EXAMINATION-COMPARATIVE LAW. (0) (Restriction: DCL graduate students in Comparative Law.) An examination that must be passed by all doctoral candidates in order to continue in the doctoral program.

LAWG 659 INTERDISCIPLINARY SEMINAR IN EUROPEAN STUDIES.

(3) (Restriction: Only open to students in European Studies Option.) Interdisciplinary seminar on a theme relevant to the study of Europe.

LAWG 701 COMPREHENSIVE EXAM - LAW. (0) (Restriction: DCL graduate students in Law.) An examination that must be passed by all doctoral candidates in order to continue in the doctoral program.

45 Linguistics

Department of Linguistics
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Canada

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E-mail: gradprogram.linguistics@mcgill.ca

Website: www.mcgill.ca/linguistics

Chair — Glyne L. Piggott

45.1 Staff

Emeritus Professors

C. D. Ellis; B.A.(Cant. & McG.), M.A.(Tor. & Yale), Ph.D.(McG.)

M. Gopnik; M.A., Ph.D.(Penn.)

M. Paradis; B.A.(Montr.), M.A., Ph.D.(McG.), Ph.D.(Montr.)

Professors

Y. Grodzinsky; B.Sc.(Hebrew), Ph.D.(Brandeis) (*Canada*)

Research Chair

G.L. Piggott; B.A.(W.I.), M.A., Ph.D.(Tor.)

L. White; M.A.(Cant.), Ph.D.(McG.) (*James McGill Professor*)

Associate Professors

C. Boberg; B.A.(Alta.), Ph.D.(Penn.)

B. Gillon; B.A., M.A.(Mich.), M.A.(Tor.), Ph.D.(MIT)

H.M. Goad; B.A.(Br. Col.), M.A., Ph.D.(S. Calif.)

B. Schwarz; M.A.(Tubingen), Ph.D.(U Mass-Amherst)

L. de M. Travis; B.A.(Yale), Ph.D.(MIT)

Assistant Professors

J. Nissenbaum; B.A.(Oberlin), Ph.D.(MIT)

J. Shimoyama; B.A., M.A.(Ochanomizu University), Ph.D.(U Mass-Amherst)

M. Wagner; M.A.(Humboldt), Ph.D.(MIT)

45.2 Programs Offered

M.A. (non-thesis) and Ph.D.

Ph.D. Option in Language Acquisition (LAP)

Information about this option is available from the Department and on the following Website: www.psych.mcgill.ca/lap.html.

45.3 Admission Requirements

Applicants to the M.A. or Ph.D. should have completed a B.A. with a specialization in linguistics. Applications are also invited from students with a background in other disciplines. Strong candidates who do not satisfy all requirements may be required to take additional undergraduate courses or may be admitted to a Qualifying Program which permits them to make up the gaps in their background.

45.4 Application Procedures

Applications will be considered upon receipt of:

1. application form;
2. transcripts;
3. letters of reference;
4. statement of purpose;
5. test results for international students: TOEFL (see section 5.4 "Competency in English");
6. application fee of \$80.00 (money order or certified cheque in Canadian funds).

Applications should be submitted to the Department of Linguistics no later than January 15th.

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

45.5 Program Requirements

M.A. in Linguistics (Non-Thesis) (45 credits)

Required Courses (15 credits)

LING 600	(3)	M.A. Research Seminar 1
LING 615	(3)	Logic for Semantics
LING 631	(3)	Phonology 3
LING 660	(3)	Semantics 3
LING 671	(3)	Syntax 3

Complementary Courses (15 credits)

12 - 15 credits in linguistics at the 500, 600, or 700 level
0 - 3 credits in a related field at the 500, 600, or 700 level

Research Paper - Required (15 credits)

LING 607	(15)	M.A. Research Paper
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Ph.D. Programs

Ph.D. in Linguistics

Required Courses (21 credits)

LING 615	(3)	Logic for Semantics
LING 619	(3)	Experimental Foundations
LING 631	(3)	Phonology 3
LING 660	(3)	Semantics 3
LING 671	(3)	Syntax 3
LING 701	(3)	Ph.D. Research Seminar 1
LING 702	(3)	Ph.D. Research Seminar 2

Comprehensives - Required

LING 706	(0)	Ph.D. Evaluation 1
LING 707	(0)	Ph.D. Evaluation 2

Note: LING 706 and LING 707 must be completed before proceeding to thesis research.

Complementary Courses (18 credits)

3 credits from the following:
LING 520 (3) Sociolinguistics 2

LING 521	(3)	Dialectology
LING 555	(3)	Language Acquisition 2
LING 590	(3)	Language Acquisition & Breakdown
LING 651	(3)	Topics in Acquisition of Phonology
LING 655	(3)	Theory of L2 Acquisition
LING 690	(3)	Seminar in Neurolinguistics
LING 720	(3)	Advanced Seminar in Sociolinguistics
LING 755	(3)	Advanced Seminar: Language Acquisition
LING 790	(3)	Advanced Seminar in Neurolinguistics

6 additional credits at the 500, 600, or 700 level, at least one in the student's intended research area.

Note: Students intending to specialize in semantics must take the following course:

LING 560	(3)	Formal Methods in Linguistics.
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9 additional credits from one of the following Streams:

Theory Stream:

LING 635	(3)	Phonology 4
LING 665	(3)	Semantics 4
LING 675	(3)	Syntax 4
OR		

Experimental Stream:

3 credits in statistics at the 500, 600, or 700 level and 6 credits from the following:

LING 635	(3)	Phonology 4
LING 665	(3)	Semantics 4
LING 675	(3)	Syntax 4

Ph.D. in Linguistics – Language Acquisition Option/Concentration

Students must satisfy all program requirements for the Ph.D. in Linguistics. The Ph.D. thesis must be on a topic relating to language acquisition, approved by the LAP committee.

Required Courses for the Language Acquisition Option (8 credits)

EDSL 711	(2)	Language Acquisition Issues 3
LING 710	(2)	Language Acquisition Issues 2
PSYC 709	(2)	Language Acquisition Issues 1
SCSD 712	(2)	Language Acquisition Issues 4

Complementary Courses (9 credits)

3 credits of graduate-level statistics from courses such as: EDPE 676, EDPE 682, PSYC 650, PSYC 651; students who have taken an equivalent course in statistics, or are currently taking an equivalent course as part of their Ph.D. program requirements, will be deemed to have satisfied this requirement for the Language Acquisition Option.

At least 6 credits, two courses, selected from the following list, at least one course must be outside the Department of Linguistics:

EDSL 620	(3)	Critical Issues in Second Language Education
EDSL 623	(3)	Second Language Learning
EDSL 624	(3)	Educational Sociolinguistics
EDSL 627	(3)	Classroom-Centred Second Language Research
EDSL 629	(3)	Second Language Assessment
EDSL 632	(3)	Second Language Literacy Development
EDSL 664	(3)	Second Language Research Methods
LING 555	(3)	Language Acquisition 2
LING 590	(3)	Language Acquisition and Breakdown
LING 651	(3)	Topics in Acquisition of Phonology
LING 655	(3)	Theory of L2 Acquisition
LING 755	(3)	Advanced Seminar: Language Acquisition
PSYC 561	(3)	Methods: Developmental Psycholinguistics
PSYC 734	(3)	Developmental Psychology and Language
PSYC 735	(3)	Developmental Psychology and Language
PSYC 736	(3)	Developmental Psychology and Language
PSYC 737	(3)	Developmental Psychology and Language
SCSD 619	(3)	Phonological Development
SCSD 632	(3)	Phonological Disorders: Children

SCSD 633	(3)	Language Development
SCSD 637	(3)	Developmental Language Disorders 1
SCSD 643	(3)	Developmental Language Disorders 2
SCSD 652	(3)	Advanced Research Seminar 1
SCSD 653	(3)	Advanced Research Seminar 2

45.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click **Class Schedule**) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. **Class Schedule lists courses by term and includes days, times, locations, and names of instructors.**

Term(s) offered (Fall, Winter, Summer) may appear after the credit weight to indicate when a course would normally be taught. Please check Class Schedule to confirm this information.

Courses with numbers ending D1 and D2 are taught in two consecutive terms (most commonly Fall and Winter). Students must register for both the D1 and D2 components. No credit will be given unless both components (D1 and D2) are successfully completed in consecutive terms.

Note: All undergraduate courses administered by the Faculty of Arts (courses at the 100- to 500-level) have limited enrolment.

The course credit weight is given in parentheses after the title.

★ Denotes courses taught only in alternate years.

Undergraduate courses

Students deficient in certain areas may be required to take some of the following undergraduate courses in addition to graduate courses.

LING 330 Phonetics
 LING 331 Phonology 1
 LING 360 Introduction to Semantics
 LING 371 Syntax 1
 LING 440 Morphology

Graduate courses currently scheduled for 2008-09:

★ **LING 520 SOCIOLINGUISTICS 2.** (3) (Fall) (Prerequisite: LING 320 or permission of instructor.) A seminar on variationist "micro-sociolinguistics", including a survey of the most important primary literature on sociolinguistic variation and introduction to sociolinguistic fieldwork.

★ **LING 521 DIALECTOLOGY.** (3) (Prerequisites: LING 330 and LING 320.) An introduction to the theory and methods of dialectology (the study of regional variation in language) with an emphasis on connections with linguistic theory. Students will also acquire a practical knowledge of major differences among dialects of English, and will gain hands-on experience in the planning, implementation and analysis of a dialect survey.

★ **LING 531 PHONOLOGY 2.** (3) (Prerequisites: LING 331 and permission of instructor.) Exploration of current issues in phonology.

LING 555 LANGUAGE ACQUISITION 2. (3) (Winter) (Prerequisites: LING 355 and LING 371 and permission of instructor.) A detailed overview of recent experimental work on first language acquisition of syntax within the principles and parameters framework, concentrating on both theoretical and methodological issues.

LING 560 FORMAL METHODS IN LINGUISTICS. (3) (Fall) (Prerequisites: LING 360 and permission of instructor.) (Restriction: Not open to students who have taken MATH 240.) This course presents the formal methods used in the study of language (namely, the theories of sets, relations, functions, partial orders, and lattices, as well as the principle of mathematical induction).

LING 565 PRAGMATICS. (3) (Winter) (Prerequisites: LING 360 and PHIL 210 or permission of the instructor.) Study of the relationship between language and its contexts of use. Topics to be examined include deixis, presupposition and implicature.

LING 571 SYNTAX 2. (3) (Fall) (Prerequisite: LING 371) This course extends and refines the theory of grammar developed in LING 371, while introducing some primary literature and developments (in certain modules of the grammar such as phrase structure, wh-movement, and binding).

LING 583 SPECIAL TOPICS 4. (3) (Restriction: Not open to students who have taken LING 486) Intensive study of a selected field or topic.

LING 590 LANGUAGE ACQUISITION AND BREAKDOWN. (3) (Fall) (Prerequisites: LING 371 and either LING 355 or LING 390.) Theoretical and experimental perspectives on an imperfect language faculty, in the context of current linguistic theory and state-of-the-art experimental methods and techniques. Comparison of linguistic abilities of normally developing children, children with language disorders (e.g., SLI), and adults with disrupted linguistic abilities (e.g., aphasic patients).

LING 600 M.A. RESEARCH SEMINAR 1. (3) (Fall)

LING 601 M.A. RESEARCH SEMINAR 2. (3) (Winter)

LING 607 M.A. RESEARCH PAPER. (15)

LING 615 LOGIC FOR SEMANTICS. (3) (Corequisite: LING 660.) Introduction to logic as applied to natural language semantics. Basic propositional and predicate logic; with special emphasis on truth functions and models and variable assignments.

LING 619 EXPERIMENTAL FOUNDATIONS. (3) (Winter) Foundations of the relationship between linguistic theory and experimental linguistics (language acquisition, neurolinguistics and psycholinguistics).

LING 631 PHONOLOGY 3. (3) (Fall) Foundations of phonological theory, focusing on issues in segmental and prosodic structure.

LING 635 PHONOLOGY 4. (3) (Winter) (Prerequisite: LING 631) Exploration of current topics in phonological theory.

LING 640 FUNDAMENTALS OF MORPHOLOGY. (3) (Fall) (Restriction: Not open to students who have taken LING 440) Introduction to current theoretical notions that seek to define a well-formed word structure, including headedness, morphological subcategorization, feature percolation and cyclicity.

LING 645 MORPHOLOGY: THEORY AND ANALYSIS. (3) (Prerequisites: LING 631 and LING 671 or permission of instructor.) In-depth investigation of current issues in theoretical morphology.

★ **LING 651 TOPICS IN ACQUISITION OF PHONOLOGY.** (3) (Prerequisites: LING 331 or LING 631 or permission of instructor. A course in language acquisition is highly recommended.) An examination of theoretically informed work on the first language acquisition of phonology.

★ **LING 655 THEORY OF L2 ACQUISITION.** (3) (Fall) (Prerequisite: LING 671 or permission of instructor.) Interlanguage grammars and the role of Universal Grammar in second language acquisition.

LING 660 SEMANTICS 3. (3) (Fall) (Corequisite: LING 615.) Introduction to the basics of natural language semantics.

LING 665 SEMANTICS 4. (3) (Winter) (Prerequisite: LING 660.) Further introduction to the basics of natural language semantics.

LING 671 SYNTAX 3. (3) (Fall) In-depth overview of current issues in theoretical syntax. Emphasis will be placed on the logic and development of argumentation in syntactic theory.

LING 675 SYNTAX 4. (3) (Winter) (Prerequisite: LING 671) Continuation of LING 671.

LING 682 SELECTED TOPICS 1. (3)

LING 683 SELECTED TOPICS 2. (3) (Winter)

LING 688 TUTORIAL 1. (3) (Restriction: Permission of instructor.) Independent study of a selected field or topic.

★ **LING 690 SEMINAR IN NEUROLINGUISTICS.** (3) (Prerequisite: LING 671 or permission of instructor) Survey of methods and results relevant to cerebral representation of grammatical systems.

LING 701 PH.D RESEARCH SEMINAR 1. (3) (Restriction: Not open to students who have taken LING 700.)

LING 702 PH.D RESEARCH SEMINAR 2. (3) (Winter)

LING 706 PH.D. EVALUATION 1. (0) (Fall)

LING 707 PH.D. EVALUATION 2. (0) (Winter)

LING 710 LANGUAGE ACQUISITION ISSUES 2. (2)

LING 731 ADVANCED SEMINAR IN PHONOLOGY. (3) (Prerequisite: LING 631 or permission of instructor.) (Note: Topics vary from year to year.) Current topics in phonological theory.

LING 755 ADVANCED SEMINAR: LANGUAGE ACQUISITION. (3) (Prerequisites: LING 671 and LING 555 or LING 655 or permission of instructor.) (Note: Topics vary from year to year.) Current topics in language acquisition.

LING 760 ADVANCED SEMINAR IN SEMANTICS. (3) (Fall) (Prerequisite: LING 660 or permission of instructor.) (Note: Topics vary from year to year.) Current topics in semantic theory.

LING 771 ADVANCED SEMINAR IN SYNTAX. (3) (Winter) (Prerequisite: LING 671 or permission of instructor.) (Note: Topics vary from year to year.) Exploration and in-depth discussion of a current topic in syntactic theory through reading and discussion of primary literature.

LING 782 SELECTED TOPICS 3. (3).

LING 783 SELECTED TOPICS 4. (3).

46 Management, Desautels Faculty of

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Montreal, QC, Canada H3A 1G5
Telephone: (514) 398-4066
Website: www.mcgill.ca/management

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Associate Dean, (Academic) — Omar Toulan

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Associate Dean (Student Affairs) — Emine Sarigollu

Academic Director, MBA Program — Francesca Carrieri

Director, Ph.D. Program — Kris Jacobs

Program Chair, International Masters Program in Practicing Management (IMPM) — Henry Mintzberg

Program Director, Master of Management (Manufacturing) — Saibal Ray

Director, C.A. Program — Philippe Levy

Director, Masters Programs — Donald Melville

46.1 Staff

Emeritus Professors

D. Armstrong; B.A., B.Com.(Alta.), Ph.D.(McG.), *Economics*

J-L. Goffin; Eng., M.S.(Brussels), M.Sc., Ph.D.(Calif.),
Management Science

R.N. Kanungo; B.A., M.A.(Patna), Ph.D.(McG.), *Organizational Behaviour*

R.J. Loulou; M.Sc., Ph.D.(Calif.), *Management Science*

G.A. Whitmore; B.Sc.(Man.), M.Sc., Ph.D.(Minn.), *Management Science*

Professors

N.J. Adler; B.A., M.B.A., Ph.D.(Calif.-LA), *Organizational Behaviour*

U. Bockenholt; Diploma(Oldenburger, Germany), Ph.D.(Chic.), Ph.D.(Oldenburger, Germany), *Marketing (Bell Professor in EMarketing)*

R. Brenner; B.Sc., M.A., Ph.D.(Hebrew) (*Repap Professor of Economics*)

D.H. Drury; B.Com., M.B.A.(McM.), Ph.D.(N'western), R.I.A.(S.I.A.), *Accounting*

L. Dubé; B.Sc.(Laval), M.B.A.(HEC), M.P.S., Ph.D.(C'nell), *Marketing (James McGill Professor)*

V.R. Errunza; B.Sc.(Tech.)(Bombay), M.Sc., Ph.D.(Calif.), *Finance*
M.D. Lee; B.A.(Eckerd), M.Ed.(Temple), M.A.(S. Florida), Ph.D.(Yale), *Organizational Behaviour*

H. Mintzberg; B.Eng.(McG.), B.A.(Sir G. Wms.), S.M., Ph.D.(MIT), *Strategy and Organization (John Cleghorn Professor of Management Studies)*

A. Pinsonneault; B.C.(C'dia); M.Sc.(HEC); Ph.D.(Calif.), *Information Systems (James McGill Professor)*

Associate Professors

T. Boyaci; B.S.(Middle-East Tech., Turkey), M.S., Ph.D.(Col.), *Management Science*

F. Carrieri; Laurea-Law(Universita'di Bari), M.A., Ph.D.(S. Calif.), *Finance*

P. Christofferson; B.A.(Copen.), M.A., Ph.D.(Penn.), *Finance*

S. Christofferson; B.A.(Qu.), M.A.(Br.Col.), Ph.D.(Penn.), *Finance*

B. Croitoru; DIAF(Institut de Statistique de l'Universite Pierre et Marie Curie-Paris); Ph.D.(Wharton), *Finance*

R. David; B.Eng., M.B.A.(McG.); Ph.D.(C'nell), *Strategy and Organization*

J. Ericsson; M.Sc., Ph.D.(Stockholm Sch. of Econ.), *Finance*

H. Etemad; B.S.C., M.Eng.(Tehran), M.S., M.B.A., Ph.D.(Calif.), *International Business*

S. Faraj; B.S.(Wis.), M.S.(MIT), DBA, *MIS*

S. Fortin; BAA(U. du Queb. à Rimouski); Ph.D.(Wat.), *Accounting*

M. Graham; M.A., M.B.A., Ph.D.(Harv.), *Strategy and Organization*

R. Hebdon; B.A., M.A., Ph.D.(Tor.), *General Management-Industrial Relations*

K. Jacobs; B.A., M.A.(Cath. U. of Louvain), Ph.D.(Pitts.), *Finance*
A.M. Jaeger; B.Sc.(N'western), M.B.A., Ph.D.(Stan.),
Organizational Behaviour

M-S. Jo; B.Com.(Hankuyk U., Korea), M.B.A.(Mich.), M.S.(Ill.), Ph.D.(Colo.), *Marketing*

J. Jorgensen; B.A., M.A.(N.C.), Ph.D.(McG.), *Strategy and Organization*

L. Lapointe; B.A., M.Sc.(Montr.), Ph.D.(HEC), *Information Systems*

S. Li; M.S.(Georgia), Ph.D.(Texas), *Management Science*

S. Maguire; B.Sc.(Qu.), M.B.A.(Br. Col.), *Strategy and Organization*

K. Moore; B.Sc.(Ambassador U.); M.B.A.(U.S.C.); Ph.D.(York), *Marketing/Strategy & Organization (Part-time)*

A. Mukherjee; B.Eng.(Jadavpur), M.B.A.(Indian Inst. Manag.), Ph.D.(Texas-Austin), *Marketing*

W. Oh; B.A.(SUNY), M.B.A.(George Washington). M.Phil, Ph.D. (Stern), *Information Systems*

P. Perez-Aleman; B.Sc.(Calif., Berk.), Ph.D.(MIT), *Strategy and Organization*

S. Ray; B.E.(Jadavpur), M.E.(Asian I.T.), Ph.D.(Wat.), *Management Science*

E. Sarigollu; B.A., M.B.A.(Bogazici), M.A., Ph.D.(Penn.), *Marketing*

S. Sarkissian; M.S.(Calif., Berk.), Ph.D.(Wash.), *Finance*

O. Toulan; B.Sc.(G'town), Ph.D.(MIT), *Strategy and Organization*

D. Vakratsas; B.Sc.(Aristotle U.) M.Sc., Ph.D.(Texas, Dallas), *Marketing*

V. Verter; B.A., M.S.(Bogaziçi), Ph.D.(Bilkent), *Management Science/Operations Management*

G. Vit; B.Com.(McG.), M.B.A.(C'dia), Ph.D.(Bradford-UK), *Strategy and Organization (Part-time)*

M. Yalovsky; B.Sc., M.Sc., Ph.D.(McG.), *Management Science*

Assistant Professors

A. Animesh; B.Com(Delhi), M.I.S.(Carn. Mell.), Ph.D.(Md.), *Decision and Information Systems*

- S. Barlas; B.S.(Hacettepe U., Turkey); M.S.(Illinois-Champaign); Ph.D.(Chic.), *Marketing*
- G. Basselier; B.Com., M.Sc.(HEC), *Information Systems*
- S. Cha; B.A., M.A., Ph.D.(Harv.), *Organizational Behaviour*
- A. Chakrabarti; B.Sc.(Calc.), M.S.(Indian Statistical Inst.), M.Sc.(National), Ph.D.(Duke), *Management*
- A. de Motta; B.A.(Universidad De Valencia, Spain), *Finance*
- A. Durnev; M.A.(New Econ. School-Moscow); M.A.(Penn. St.); Ph.D.(Mich.), *Finance*
- R. Goyenko; B.S.(Ukraine), M.A.(Budapest), M.S.(Italy), Ph.D.(Ind.)
- M. Gumus; B.S.(Naval Academy), M.S., M.A., Ph.D.(Calif.), *Industrial Engineering and Operations Research*
- K. Han; B.S., M.S.(KAIST); Ph.D.(Minn.), *Information Systems*
- E. Heaphy; B.A.(Welles.), Ph.D.(Mich.), *Management and Organizations*
- S. Mishra; B.A., M.A.(Delhi), M.B.A., Ph.D.(Ind.), *Marketing*
- A. Nain; B.A.(Delhi); M.Sc.(Warw.); Ph.D.(Mich.), *Finance*
- I. Okhmatovskiy; B.A.equivalent(Moscow), M.S. equivalent(Academy of National Economy), Ph.D.(USC)
- C. Parsons; B.S., Ph.D.(Texas, Austin), *Finance*
- M. Qiu; B.A.(Huazhong), M.A.(S. Fraser), Ph.D.(Alta.), *Marketing*
- Z. Singer; B.A.(Tel-Aviv), M.B.A.(Wash.), Ph.D.(Calif.), *Accounting*
- D. Tsang; B.Com., M.A.(Tor.), M.S., Ph.D.(Calif., Berk.), *Accounting*
- J. Xu; B.S., M.A.(Beijing), Ph.D.(Duke), *Economics*
- D. Zhang; B.S., M.S.(Chongqing), Ph.D.(Minn.), *Industrial Engineering*

Faculty Lecturers

- S. Basu; B.Sc.(Calc.), M.A.(Tufts), Ph.D.(Pitt.), *General Management*
- R. Cecere; B.Com., G.D.P.A.(McG.), *Accounting*
- M. Chaudhury; B.A., M.A.(Dhaka), M.A.(Wat.), Ph.D.(S. Fraser), *Finance*
- L. Chauvin; B.A.(Ott.), M.A.(C'dia), *Strategy and Organization*
- R. Donovan; B.Com.(McG.), GDIT(C'dia), *Information Systems*
- S. Gagnon; B.A.(Br. Col.), M.Sc.(Oxf.)
- L. Gialloredo; B.A.(UWO), M.B.A.(McG.), B.A. Law(Car.), LL.M.(McG.), *Marketing*
- L. Goldsman; B.Com.(C'dia), D.P.A.(McG.), C.A., *Accounting*
- L. Hammami; B.Com., M.B.A.(Laval), *Finance*
- D. Hart; B.Sc., M.B.A.(McG.), M.Sc.(C'dia), *Management Science*
- D. Lank; CM, AB, F.R.S.A, *General-Industrial Relations*
- P. Levy; B.Com.(C'dia), D.P.A., M.B.A.(McG.), *Accounting*
- S. Madan; B.S.(MIT); MBA Equivalent(Ahmadabad), *Finance*
- B. Smith; B.A., M.A.(Dublin) M.Sc.(Alta.), M.Sc.A.(McG) Ph.D.(Qu.), *Management Science*
- F. Valliant; B.Sc.(Worcester, Mass); C.A.(McG), *Accounting*
- C. Westgate; B.A., M.B.A.(McM.), *General-Industrial Relations*
- G. Zabowski; B.Com., M.B.A.(McG.), *Management Science*

46.2 Programs Offered

McGill University offers eight programs which provide graduate level education in management. All programs have been tailored to meet the special needs and demands of different groups of people. Before embarking on a graduate management education, students should, therefore, be aware of the different and unique features of each program, and select the one which best suits their aspirations and abilities.

- 1) **Master of Business Administration (M.B.A.)** may be taken on either a full-time basis (section 46.7 "M.B.A. Program Requirements") or a part-time basis (section 46.8, "M.B.A. Part-time Studies").
- 2) **Joint Executive Master of Business Administration (M.B.A.) offered jointly with Hautes Études Commerciales (HEC) - Montreal** (section 46.9 "Joint Executive M.B.A.")
- 3) **Joint program: Master of Business Administration (M.B.A.) with integrated Bachelor of Civil Law (B.C.L.) / Bachelor of Laws (L.L.B.)**

offered in cooperation with the Faculty of Law (section 46.10.4 "Joint program in Management and Law – Law/M.B.A.").

- 4) **M.D./M.B.A.** offered in cooperation with the Faculty of Medicine (section 46.10.2 "M.D./M.B.A. Program").
- 5) **Post-M.B.A. Certificate** intended for professional managers who wish to update their skills and/or broaden the base of their education. The certificate may be taken on a full-time or part-time basis. (section 46.13 "Post-M.B.A. Certificate")
- 6) **Ph.D. in Management** offered jointly by the four Montreal universities: Concordia University, École des Hautes Études Commerciales (affiliated with the Université de Montréal), McGill University, and Université du Québec à Montréal (section 46.15 "Joint Ph.D. in Management").
- 7) **Master of Management – Manufacturing Management** a 12-month academic program followed by a four-month industrial internship, offered in collaboration with the Faculty of Engineering (section 46.14.1, "Master of Management Programs (M.M.)").
- 8) **Master of Management – International Master's Program in Practising Management** (section 46.14.1, "Master of Management Programs (M.M.)").
- 9) **Graduate Diploma in Public Accountancy** (section 46.14.2 "Diploma in Public Accountancy (Chartered Accountancy)").

46.3 Admission Requirements

46.3.1 M.B.A. Program – Admission Requirements

Applicants with strong indications of managerial potential are desired. Given below are the minimum entrance criteria. Owing to the large number of applicants to the McGill M.B.A., merely meeting the minimum requirements will not guarantee acceptance.

- a) An undergraduate degree, from an approved college or university, with a Grade Point Average of at least 3.0 out of a possible 4.0, or a B average.
- b) A Graduate Management Admission Test (GMAT) is required, written within the past five years.
- c) Applicants who earned a Bachelor degree outside Canada, the United States, Australia, New Zealand or the United Kingdom, are required to take the Test of English as a Foreign Language. The TOEFL may be waived for graduates of four-year university programs whose language of instruction is English if the university is located in a non-English speaking country. Applicants who are not Canadian citizens and whose mother tongue is not English may be asked to demonstrate an English language competency beyond the submission of the TOEFL score. A minimum score of 600 for paper-based test, 250 for computer-based test, or 100 for the Internet-based test with each component score not less than 20, is required.

Applicants may write the IELTS (International English Language Testing Systems) instead. A minimum overall band of 7.0 is required.

- d) A minimum of two years of full-time work experience, following completion of an undergraduate degree.
- e) Two letters of reference.

46.3.2 M.B.A. Part-time Studies – Admission

The McGill M.B.A. Program may also be completed on a part-time basis. This is meant to accommodate persons with full-time employment. Admission requirements are the same as in section 46.3.1 "M.B.A. Program – Admission Requirements".

Note: Students studying on a part-time basis may transfer to full-time at various stages during their studies. Students wishing to do this must meet with the MBA Student Advisor to review their schedule; see section 46.8.1 "Combined Full-time and Part-time Studies".

46.3.3 M.B.A. Admission – Transfer of Credits

Candidates who have completed some portion of the first year of an M.B.A. program at another recognized institution may be granted CREDIT for equivalent courses up to a maximum of 15 credits. In most cases candidates would be admitted to the first year of the program and will complete the remaining first year courses on a part-time basis.

Candidates must submit a completed application and meet the competitive entrance requirements of the M.B.A. program.

In order to be awarded an M.B.A. from McGill, a minimum of 45 credits must be completed at McGill.

46.3.4 M.B.A. Admission – Accelerated Study Option

OPTION 1

Candidates who hold a Bachelor of Commerce degree from a recognized North American institution with a minimum cumulative grade point average of 3.0 on a four (4) point scale and possess three or more consecutive years of full-time work experience, following completion of their undergraduate degree, may be considered for the accelerated study option. Candidates will be required to complete the core curriculum and take 10 MBA complementary courses. Applicants applying for the accelerated study option must complete and return the application for accelerated study option.

OPTION 2

Students who have a B.Com. and subsequently complete the requirements for the McGill Graduate Diploma in Public Accountancy may choose not to receive the Diploma but instead to use 15 credits towards the M.B.A. and complete 15 credits of MBA Core courses, and an additional 15 credits of M.B.A. complementary courses. To be accepted into the M.B.A. program such students must meet the accelerated study option admission requirements as outlined above.

46.3.5 Visiting Student Admission

Visiting students are graduate students registered at another university taking a course in the Desautels Faculty of Management for credit at their home university.

Quebec students may apply online by going to www.crepuq.qc.ca. Visiting students from outside the province of Quebec must forward an application form and \$100 fee, as well as a letter of permission from their school indicating the course(s) they are permitted to follow and an official transcript. The letter must also confirm that they are in good standing at their home university.

The deadlines for submission of applications are the same as admission deadlines.

46.4 Application Procedures

46.4.1 M.B.A. Admission Procedure

The McGill M.B.A. full-time and part time programs begin in September of each year.

Application deadlines for Canadian/Permanent Resident Students
June 1 (March 15 recommended)

Application deadlines for International Students
March 15

Applications are reviewed on a rolling basis so that the earlier a file is complete, the sooner the applicant may expect to receive an answer. The undergraduate record, GMAT and TOEFL scores (where applicable), work experience, essay, letters of reference and interviews are the criteria used in making admission decisions. Interviews are scheduled by invitation only.

An online application form is available at www.mcgill.ca/applying/graduate for use by those who wish to apply for entry to graduate studies at McGill.

All other documents are to be submitted directly to:
MBA Admissions Office
Desautels Faculty of Management
McGill University

1001 Sherbrooke Street West
Montreal, Quebec H3A 1G5
E-mail: mba.mgmt@mcgill.ca
Website: www.mcgill.ca/mba

Applicants must submit the online application and arrange for the submission of:

- 1) a completed Personal Background Sheet;
- 2) duplicate official transcripts of undergraduate marks (and graduate, if any) **FORWARDED DIRECTLY BY THE APPLICANT'S UNIVERSITY**. For international applicants, the academic records must include: transcripts in the original language with official translations (into English), listing courses and grades for each year of study, verifying conferral of degree. These documents must bear the actual signature of the registrar and the official seal or stamp of the institution.
- 3) the \$100 application fee (see section 46.4.2 "Application Fee Information");
- 4) two letters of reference forwarded directly from individuals who have been responsible for evaluating the applicant's managerial performance and potential.
- 5) the GMAT score (written within the past five years) and the TOEFL score (where applicable) forwarded directly from Pearson Vue for GMAT and the Educational Testing Service (see section 46.4.3 "GMAT and TOEFL Information").

Please note that entrance to the McGill M.B.A. is highly competitive. It is in the applicant's interest to apply as early as possible. Applicants can view their application status via Minerva by visiting www.mcgill.ca/minerva-students.

Note: Admission to Graduate Programs at McGill is competitive and the final decision rests with Graduate and Postdoctoral Studies. Admission decisions are not subject to appeal.

46.4.2 Application Fee Information

The \$100 application fee must be paid by credit card at the time of application (on-line).

- Credit card (online applications must be paid for by credit card).
- Certified Personal cheque in Canadian dollars drawn on a Canadian Bank.
- Certified Personal cheque in U.S. dollars drawn on a U.S. Bank.
- Canadian Money Order in Canadian dollars.
- Money Order in U.S. dollars.
- Bank draft in Canadian dollars drawn on a Canadian Bank.
- Bank draft in U.S. dollars drawn on a U.S. Bank.

In all cases the cheque/money order should be made payable to McGill University.

Please note that a file will not be opened until an official application with the \$100 fee is received.

46.4.3 GMAT and TOEFL Information

Graduate Management Admission Test (GMAT)

The GMAT is administered by Pearson Vue. It is required of all M.B.A. applicants. GMAT Program code for the McGill M.B.A. Program is 58 H-MN-22. Only a GMAT written within the last five years will be considered valid. GMAT test results must be sent to McGill directly from Pearson Vue; photocopies will not be accepted.

All inquiries concerning testing arrangements should be addressed to: Graduate Management Admission Council, www.mba.com.

Test of English as a Foreign Language (TOEFL)

The purpose of this test is to determine the English proficiency of non-Canadian individuals whose native language is not English.

For a copy of the Bulletin of Information, write directly to the Educational Testing Service, Box 6152, Princeton, New Jersey, USA 08541-6151 or visit their Website at www.toefl.org.

46.4.4 Application Procedures for other Programs

Application procedures can be found in each program's section, as follows:

- Joint Executive M.B.A., see section 46.9.
- Master of Management Programs (M.M.), see section 46.14.1.
- Joint program in Management and Law – Law/M.B.A., see section 46.10.4.
- M.D./M.B.A. Program, see section 46.10.2.
- Master in Manufacturing Management, see section 46.14.1, "Master of Management Programs (M.M.)".
- Post-M.B.A. Certificate, see section 46.13.
- Joint Ph.D. in Management, see section 46.15.
- International Master's Programs in Practicing Management (IM-PM), see section 46.14.1, "Master of Management Programs (M.M.)".
- Diploma in Public Accountancy (Chartered Accountancy), see section 46.14.2.

46.5 Procedure for accepting an Offer of Admission to the M.B.A. Program

Those students admitted to the M.B.A. Program should confirm their acceptance via Minerva or forward a registration deposit fee of \$500 (Canadian or U.S. funds; certified cheque or money order) payable to McGill University. Two passport size photographs must also be supplied along with the confirmation form.

- a) This fee is payable by a specified date stated in the letter of acceptance and a place is reserved.
- b) If this fee is not paid by the date specified in the letter of acceptance, no reservation will be made.
- c) The fee is applied towards the tuition fees provided that the candidate informs the Desautels Faculty of Management by the specified date that he/she will be joining the program and if he/she registers by the given date of registration.
- d) The \$500 fee is refundable provided the candidate informs the Faculty by the specified date that he/she does not intend to join the program for the coming academic year.
- e) The \$500 fee is forfeited if the candidate fails to inform the Faculty by the specified date that he/she will not be attending the program.
- f) Students who are unable to begin attending classes in the first week of the first trimester will be required to defer their admission until the next admission period.

Note: International Students should carefully follow all instructions sent to them re applying for their Certificate of Acceptance which is required of all students who wish to study in the Province of Quebec (see section 46.6.1 "Certificat d'acceptation (C.A.Q.)/ (Certificate of Acceptance)").

All of the above is clearly outlined in the letter of acceptance.

46.5.1 Registration

All accepted candidates will receive a package outlining registration procedures as well as deadline dates for fee payment.

Candidates who fail to register during the specified registration period may do so later but will be charged a late registration fee by the University.

For more information on registration, please refer to the General Information section of the Graduate and Postdoctoral Studies Calendar for more information.

46.5.2 Orientation

Orientation for all new M.B.A. students is held during the week before classes begin. **This activity is highly recommended for all incoming M.B.A. students.** During this orientation, students get acquainted with other students and may form initial study groups. There is also an opportunity to meet with professors and to have various facets of the program outlined and clarified. An orientation fee is assessed to each student.

46.6 International Applicants

The University is unable to waive or defer the application fee for international students. Applications received without the application fee will not be processed.

There is no financial aid to bring international students to study in Canada. If an international applicant has been selected to receive an entrance award, it will be credited to the student fee account after registration in September. International applicants must, therefore, rely on their own financial resources to enter Canada.

The regulations governing international students working in Canada should be checked with the nearest Canadian Embassy or Consulate. Visas must also be checked.

46.6.1 Certificat d'acceptation (C.A.Q.)/ (Certificate of Acceptance)

International Students should carefully follow all instructions sent to them when applying for their Certificate of Acceptance (CAQ) which is required of all students who wish to study in the Province of Quebec. **The M.B.A. Office is unable to help students obtain this document.**

All students who are not citizens or Permanent Residents of Canada are required to obtain the necessary Visa and/or Student Authorization documents **prior to entering the country. Do not leave home without proper documentation. You cannot change your status from Visitor to Student in Canada.**

Certificate of Acceptance from Quebec (CAQ) – The process to come to Canada begins with an application for a Certificate of Acceptance from Quebec (CAQ). There is a \$100 processing fee for this document. Details on how and where to apply for the CAQ are provided with the McGill Admissions package.

Student Authorization – Issued by Canada Immigration through a Canadian Embassy or Consulate. (There is a processing fee of \$125 on all applications for Student Authorizations.)

A citizen of the United States, Greenland and/or St.Pierre-Miquelon is permitted to obtain the Student Authorization at a Port of Entry, if in possession of the CAQ.

Applying to McGill from within Canada (outside Quebec) – Students transferring from another Canadian institution outside Quebec to McGill should send their documents and CAQ application to the Montreal address of Immigration Quebec.

Students must normalize their status with Quebec and Canada Immigration prior to attending any classes at McGill.

For further information, or if there is an emergency, contact International Student Services by telephone at (514) 398-4349 during regular office hours, 09:00 to 17:00, or by e-mail at international.students@mcgill.ca.

46.7 M.B.A. Program Requirements

Students studying on a full-time basis must complete this 51-credit program in two years; part-time students have a five-year time limit.

The first semester of the program features an integrated set of core courses with an emphasis on experiential learning. The remaining 3 semesters allow the student to specialize in a particular concentration and participate in an international exchange or complete an elective hands-on component supervised by faculty such as an internship or a practicum.

While the standard components of an M.B.A. curriculum (finance, organizational behaviour, strategy, marketing, operations) remain central to this M.B.A. program, they are combined and recombined in ways that expose students to the cross-functional realities of managing in, across and among organizations.

Required Courses (15 credits)

MGCR 629	(1)	Global Leadership
MGCR 650	(2)	Business Tools
MGCR 651	(4)	Managing Resources
MGCR 652	(4)	Value Creation
MGCR 653	(4)	Markets and Globalization

Complementary Courses (36 credits)

15 to 30 credits from: a choice of 4 concentrations of 15 credits each. Students may select a minimum of 1 concentration and a maximum of 2.

- Finance
- Global Leadership
- Marketing
- Technology and Innovation Management

Remaining courses are chosen from 500 and 600 level offered by the Faculty.

6 credits from the following*:

BUSA 650	(6)	Internship
BUSA 651	(6)	Practicum

*Note: Students electing to participate in an International Exchange (12 credits of complementary courses) are exempt from BUSA 650 and BUSA 651.

M.B.A.; Finance Concentration (15 credits)

Focusing on how firms raise capital and on the optimal allocation of capital for investments, this concentration prepares students for careers in corporate treasury functions, asset management and investment banking.

Required Courses (6 credits)

FINE 622	(3)	Modern Corporate Finance
FINE 646	(3)	Investments and Portfolio Management

Complementary Courses (9 credits)

9 credits selected from the following:

FINE 541	(3)	Applied Investments
FINE 620	(3)	Corporate Mergers
FINE 630	(3)	Fixed Income Markets
FINE 635	(3)	Financial Risk Management
FINE 639	(3)	Derivatives and Risk Management
FINE 645	(3)	Money and Capital Markets
FINE 648	(3)	Applied Corporate Finance
FINE 660	(3)	Global Investment Management
FINE 665	(3)	Investment Strategies and Behavioural Finance
FINE 693	(3)	Global Capital Markets
FINE 694	(3)	International Corporate Finance

M.B.A.; Global Leadership Concentration (15 credits)

This concentration prepares students for the challenges posed by a globalizing market place. The approach is cross-disciplinary and includes courses in strategy, organizational behaviour, and international business. Students will consider questions such as: What issues will the leaders of tomorrow face and how can they best tackle them? How to take a firm international? How to manage a multi-cultural workforce? How to launch a new venture? How to promote sustainable development? Students will develop skills valued by employers in consulting, business development, project management, and related fields.

Required Courses (6 credits)

MGPO 683	(3)	International Business Policy
ORGB 685	(3)	Cross Cultural Management

Complementary Courses (9 credits)

9 credits selected from the following:

BUSA 640	(3)	Launching New Ventures
BUSA 690	(3)	Topics in Management 1
INDR 633	(3)	Creating Wealth and Prosperity
MGPO 615	(3)	Consulting for Change

MGPO 630	(3)	Managing Strategy
MGPO 638	(3)	Managing Organizational Politics
MGPO 640	(3)	Strategies for Sustainable Development
MGPO 651	(3)	Strategic Management: Developing Countries
MGPO 669	(3)	Managing Globalization
ORGB 633	(3)	Managerial Negotiations
ORGB 640	(3)	The Art of Leadership

M.B.A.; Marketing Concentration (15 credits)

This concentration focuses on the development of skills in understanding customers and markets, creating value through products and services, evaluating the effectiveness of marketing programs, and managing customer relationships.

Required Courses (6 credits)

MRKT 657	(3)	Buyer Behaviour
MRKT 658	(3)	Marketing Research

Complementary Courses (9 credits)

9 credits selected from the following:

INSY 645	(3)	Managing Electronic Commerce
MRKT 652	(3)	Marketing Management 2
MRKT 654	(3)	Marketing Communications
MRKT 655	(3)	Marketing Planning
MRKT 659	(3)	Advanced Business Marketing
MRKT 690	(3)	Topics in Marketing 2
MRKT 698	(3)	International Marketing Management

M.B.A.; Technology and Innovation Management Concentration (15 credits)

As technology reshapes the globe and innovations transform markets and organizations, the 21st century manager will be deeply immersed in technology and innovation management. As Information Technology is now present in more products and processes, managers need to understand the processes surrounding its strategic use and development. As manufacturing and service operations now stretch the globe, issues of logistics and supply chain integration become more important. As innovative products increasingly create and transform markets, managers must master the technology development process. This concentration provides tools, frameworks, and integration of all aspects of organizational operations, supply chain, IT processes and innovation management. Students following this concentration will be uniquely qualified to take jobs in new product development, IT strategy, operations and supply chain management, and technology consulting. A unique aspect of the concentration is the capstone project course where students work on solving a real-life technology innovation problem.

Required Courses (6 credits)

INSY 606	(3)	Technology Management
MGSC 616	(3)	Technology in Action

Complementary Courses (9 credits)

INSY 607	(3)	Technology Consulting
INSY 608	(3)	Winning with IT
INSY 609	(3)	Technology Project Management
INSY 633	(3)	IT Knowledge Management
INSY 645	(3)	Managing Electronic Commerce
MGPO 650	(3)	Managing Innovation
MGSC 602	(3)	Strategic Management of Operations
MGSC 603	(3)	Logistics Management
MGSC 605	(3)	Total Quality Management
MGSC 615	(3)	Procurement and Distribution
MGSC 631	(3)	Analysis: Production Operations
ORGB 625	(3)	Managing Organizational Change

46.8 M.B.A. Part-time Studies

The course requirements for students completing their degree on a part-time basis are identical to those studying fulltime. Students will follow a lockstep program, which will allow for completion of the core courses during the first year of the study. Students must then take the number of courses required towards a concentration, electives and one of the experiential components as best suits their schedule. Students may also take elective courses in the summer terms provided they have the necessary prerequisites.

A limit of 5 years is permitted to complete the degree requirements.

46.8.1 Combined Full-time and Part-time Studies

There are two options by which students may combine full-time and part-time studies.

Option 1

Upon completion of the entire first year of core courses on a part-time basis, students may request a status change to full-time to complete the remaining requirements as full-time students.

Option 2

Upon completion of the core requirements on a full-time basis, students may request a status change to part-time to complete the degree requirements.

Students wishing to change their status to full-time must make a written request at least 4 weeks prior to the beginning of the relevant term. These requests should be sent to the M.B.A. Student Advisor.

46.9 Joint Executive M.B.A.

The EMBA program is designed both to teach new managerial tools as well as to allow managers to take a step back from the tools and understand their strengths and limitations. It also aims at presenting different models of management and is designed to meet the training needs of managers who currently hold, or who will hold in the future, senior management positions.

Required Courses (45 credits) I

McGill University courses (33 credits)

BUSA 642	(4)	Reflective Dimension Manager Role
BUSA 643	(4)	Collaborative Dimension Manager
BUSA 644	(4)	Analytic Dimension of Manager Role
BUSA 645	(4)	Worldly Dimension of Manager Role
BUSA 685	(5)	Managing Change
BUSA 689	(12)	Integrative Project

HEC Montréal courses (12 credits)

MHEC 600	(4)	Création de valeur
MHEC 601	(4)	Excellence opérationnelle
MHEC 602	(4)	Outils et pratiques de gestion

46.10 Additional M.B.A. Programs

The following special programs are also available:

- M.B.A. International Exchange, M.D./M.B.A.,
- M.B.A./Japan, M.B.A./Law.

46.10.1 M.B.A. International Exchange Program

Through the McGill M.B.A. Exchange Program there are exciting opportunities to study abroad.

Participation in the program gives McGill students the opportunity to spend part of their M.B.A. studying at a business school abroad. Students successfully completing the program's requirements receive both the Master's Degree from their home university and an International Management Certificate from the foreign institution which they attended. McGill is part of the Program in International Management (PIM), a consortium of the leading business schools in North America, South America, Europe, and Asia. There are exchanges with both PIM and non-PIM schools.

The following schools may exchange students with McGill in 2008-2009:

PIM members:

- Asian Institute of Management, Manila, Philippines
- Copenhagen Business School, Denmark
- Erasmus University, Rotterdam, The Netherlands
- ESADE (Escuela Superior de Administracion y Direccion de Empresas), Barcelona, Spain
- Fundacao Getulio Vargas, Sao Paulo, Brazil
- HEC (Hautes Études Commerciales), Jouy-en-Josas, France
- Institut Supérieur des Affaires (I.S.A.), France
- ITAM, Mexico
- ITESM, Mexico
- Luigi Bocconi, Milan, Italy
- Manchester Business School, England
- Norwegian School of Economics, Norway
- Stockholm School of Economics, Sweden
- Thammasat University, Bangkok, Thailand
- University of Cologne, Germany
- University of Louvain, Louvain-La-Neuve, Belgium
- University of Melbourne, Australia
- University of St. Gallen, Switzerland
- University of Texas at Austin, U.S.A.
- University of Witwatersrand, South Africa

Non-PIM members:

- Solvay Business School, Brussels, Belgium

46.10.2 M.D./M.B.A. Program

The M.D./M.B.A. program recognizes that physicians will be increasingly involved in the growing partnership between business and health/sickness care. The program will graduate a group of doctors with skills uniquely directed towards management in the health care sector. This will provide opportunity to compete for positions in a growing niche of physician managers who will be found in all facilities from the smallest clinic to the largest tertiary health care facility, from research laboratory to university or hospital medical departments.

With an integrated curriculum covering five years and two distinct disciplines, the Joint Program distinguishes itself from alternative programs by situating students firmly within the Desautels Faculty of Management for their first year. This gives students an appreciation of the unique infrastructure foundational to modern health care and equips them with the means to make the critical inquiries and managerial decisions required of true leaders.

In their second year of study, students join the regular Medicine cohort at McGill, beginning a four-year program in medical studies integrated with specialised management courses focusing on contemporary health care issues.

Upon graduation, students receive an MBA from the Desautels Faculty of Management and M.D., C.M. degrees from the Faculty of Medicine.

Application for the MD-MBA program must be submitted no later than November 15. Following the evaluation of the complete application package, selected candidates are invited to interviews, after which final admissions decisions are made.

Program Administrator M.D./M.B.A. Program,
McIntyre Medical Sciences Building,
3655 Promenade Sir William Osler,
Montreal, QC H3G 1Y6
Telephone: (514) 398-3521, Fax: (514) 398-3595

46.10.3 M.B.A./Japan

This two-year M.B.A. program – delivered by McGill faculty at the campus of the prestigious Sophia University in downtown Tokyo, Japan – provides local students with a world-class North American style graduate business education in International Business or Finance while maintaining full-time employment. For more information visit our Website at www.mcgillmbajapan.com.

46.10.4 Joint program in Management and Law – Law/M.B.A.

A unique program capitalizing on McGill's long and successful tradition of simultaneously integrating common and civil law training with advanced management education, this challenging program prepares students for an active and diverse career. Students master successively greater challenges in legal and administrative theory and practice.

The combined degree program has been designed for those students who are interested in both the legal and administrative aspects of business and will help prepare them for careers in private and public enterprises as well as government service. The joint program may be completed in 4 or 5 years as indicated in the table provided below.

Students who are interested in applying for the joint program must apply to both the Faculty of Law and the Desautels Faculty of Management. They must meet the admission requirements for both Faculties. A minimum of one year of full-time work experience is required for admission to the M.B.A. For Law, students must demonstrate a substantial fluency in both the French and English languages.

If accepted, students will begin their first year in the M.B.A. program with a guarantee of admission to Law the following year, providing they successfully complete the first year M.B.A. program requirements. Alternatively, students already enrolled in Law may apply to the joint program during their 2nd year of Law studies.

The breakdown of these two options is:

Option A

Year 1: MBA Courses

Year 2: Law Courses

Year 3: Mixed Law and MBA Courses

Year 4: Mixed Law and MBA Courses

Option B

Year 1: Law Courses

Year 2: Law Courses (with option to take some MBA courses)

Year 3: MBA courses

Year 4: Mixed Law and MBA Courses

Year 5: Mixed Law and MBA courses

The application deadline for Law is January 15th. Students wishing information on the Law program should contact:

Faculty of Law, Admissions Office,

3544 Peel Street, Montreal, Quebec H3A 1W9

Telephone: (514) 398-6666

E-mail: undergradadmissions.law@mcgill.ca

46.11 Policies and Regulations of the M.B.A. (Full-time)

The following is a brief overview of the rules and regulations of the M.B.A. program. All attending students will be given a copy of the "Official Rules and Regulations" from the M.B.A. office. Students are responsible for reading and abiding by these rules and regulations.

The McGill M.B.A. (full-time) is designed as a two-year program. The academic year begins in September and ends in May. Students admitted to the Accelerated Study Option may complete the program in a shorter period of time.

46.11.1 Withdrawal from the M.B.A. Program

Students wishing to withdraw from the McGill M.B.A. program must complete a "Withdrawal Form" available from the M.B.A. office. Students will not be considered as officially withdrawn until this form is completed. Students who drop out of the program but do not complete this form will be billed for the full tuition. Refer to the General Information section of the *Graduate and Postdoctoral Studies Calendar* for further information. The form is available at www.mcgill.ca/gps/documents/records.

46.11.2 Grading and Promotion Standards

The pass mark for each course is B- (65%).

Failures

Students are permitted one failure in the M.B.A. Program. Any subsequent failure, including an unsuccessful supplemental examination, will result in the student being asked to withdraw from the M.B.A. Program.

46.11.3 Outside Elective Courses

An outside elective is any course which is not part of the M.B.A. program. This includes courses in other faculties within McGill University or outside McGill University.

Students wishing to take an elective offered in another department at McGill must first obtain approval from the Program Director. Once approval is obtained, students must obtain permission from the department offering the course before registering for the elective with their Faculty.

All Quebec Universities have agreed to permit transfer of academic credit and fees among themselves up to a maximum of two courses (6 credits) in any one year. However, this agreement (for Canadians and Permanent Residents) includes only those courses not offered at the home university and which fit into the student's program. Authorization for an M.B.A. student to transfer courses must be obtained from the Director.

There are, however, limitations to the number of courses an M.B.A. student can take outside the Desautels Faculty of Management during the M.B.A. Program:

- Students completing a 51-credit program may take 15 credits maximum outside the Desautels Faculty of Management. This does not include courses offered by other faculties at McGill.
- Students may not take courses outside the Faculty if they are offered within the Faculty unless there are exceptional circumstances.
- Students may not take language courses as credit toward the M.B.A.

46.12 M.B.A. Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click on Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Single term and Multi-term Courses (D1/D2, N1/N2, J1/J2/J3)

The same course may be available as a single term offering and also as a multi-term offering. The course content and credit weight is equivalent in all modes; the only difference being the scheduling.

46.12.1 Core M.B.A.: Course Descriptions

MGCR 629 GLOBAL LEADERSHIP. (1) An introduction to the leadership challenges of the 21st century in a rapidly changing global environment at the intersection of business and society.

MGCR 650 BUSINESS TOOLS. (2) (Intensive course: 13 hours per week for 2 weeks, for a total of 26 contact hours.) An introduction to the practical usage of standard business tools and frameworks.

MGCR 651 MANAGING RESOURCES. (4) (Prerequisite: MGCR 650.) (Intensive course: 7.5 hours per week, over 7 weeks for a total of 52 contact hours.) An introduction to the challenges of acquiring and developing various resources in the firm, including financial capital, human talent, and information technology.

MGCR 652 VALUE CREATION. (4) (Prerequisite: MGCR 650.) (Intensive course: 7.5 hours per week, over 7 weeks for a total of 52 contact hours.) Offers a comprehensive overview of the value creation process in business sectors by exploring the inter-relationships among the partners in the value chain.

MGCR 653 MARKETS AND GLOBALIZATION. (4) (Intensive course: 13 hours per week over 4 weeks for a total of 52 contact hours.) A review of macro-environment in which firms compete, and the linkages which exist between the domestic and global economies. Topics such as trade, fiscal and monetary policy, interest rates, exchange rates, and balance of payments will be covered.

Applicable to MBA/Japan Students ONLY:

MGCR 611 FINANCIAL ACCOUNTING. (2) The understanding and use of published financial statements as a primary source of accounting information. The concepts, conventions and techniques involved in the preparation of financial statements leading to the analysis and interpretation of this information.

MGCR 612 ORGANIZATIONAL BEHAVIOUR. (2) Overview of the many issues that influence the management of complex organizations. Understanding of individual and group attitudes, cognitions, and behaviours, providing the essential core knowledge for day-to-day managerial activity.

MGCR 613 MANAGERIAL ECONOMICS. (2) The course provides an understanding of how economic systems and markets work, a command of how concepts and models developed by economists can be used in managerial decisions, a familiarity with the more practical aspects of competitive behaviour and the structure of competition, and a good appreciation of issues arising in the development of corporate goals and strategies. The emphasis of the course is on the use of economic analysis in strategy formulation.

MGCR 614 MANAGEMENT STATISTICS. (2) The course aims to provide students with the appropriate skills that will allow them to use up-to-date statistical analysis to extract information from a set of data. The emphasis will be placed on the application and interpretation of results rather than on formal statistical theory; the challenge will be in the selection of the appropriate statistical methodology to address the problem and an understanding of the limitations of this answer. The course will fully integrate the use of statistical software with statistical analysis.

MGCR 616 MARKETING. (2) The course concentrates on what may be the most scarce resource for most corporations today - the customer. The course examines how organizations research what the customer wants and needs. The course also looks at the social and psychological backgrounds of consumer choice and looks at the methods for grouping consumers into segments according to the heterogeneity of their desires. The firm's response to consumers is then considered. First, the need satisfying item is considered - the product. Following this, the elements of the marketing mix, distribution, pricing and promotion, are considered.

MGCR 617 OPERATIONS MANAGEMENT. (2) (Change in description awaiting University approval.) A comprehensive introduction to the fundamental decisions and tradeoffs associated with the management of a firm's production and service activities will be examined. It is a study of how production and service systems can be effectively designed, utilized and managed in order for them to compete successfully on the basis of different parameters.

MGCR 618 MANAGING PEOPLE THROUGH TEAMWORK. (1) Developing competencies critical to working in teams, whether in the role of team leader or team member.

MGCR 619 RESEARCH, DEVELOPMENT AND ENGINEERING. (1) While technology per se exists in many domains of the firm, this course focuses on the research and development domain of the firm. This is an essential function - even in low-tech industries, well managed RD&E is essential because this is what provides the attributes and performance capabilities that customers desire in the products and services sold by the firm. Thus, every manager must understand how RD&E applies knowledge to achieve new performance capabilities, producing new products or services or enhancing existing ones. In addition, managers must be aware of the special and challenging issues faced by managers of this domain. Finally, managers must be aware of how they can provide a more effective link with the RD&E function.

MGCR 620 INFORMATION SYSTEMS. (2) Overview of the information systems issues that influence the management of

organizations. Understanding (as opposed to computation) of the impact of information technology on firm operations and benefits and limitations of information technology, as it relates to the essential core knowledge needed for day-to-day managerial activity.

MGCR 621 INTERNATIONAL ENVIRONMENT. (2) Overview of the international issues that influence the management of organizations. Understanding of the international environment as it relates to the essential core knowledge needed for day-to-day managerial activity.

MGCR 622 ORGANIZATIONAL STRATEGY. (2) Organizational strategy concerns the process through which managers position their business or unit favorably against competitors, with customers, and in accordance with societal needs. This course emphasizes the skills that managers need to assess strategic threats and opportunities, match them with internal competencies to develop a strategy, devise action plans to realize the strategy, and continually develop capabilities to keep the organization viable.

MGCR 628 INTEGRATIVE COURSE. (6) This course provides an integrative perspective to the topics in the first year core, building on progressive stages of integrative understanding from basic management skills looking inward to basic and specialized management skills looking both inward and outward. The emphasis is on pedagogic tools which focus on a holistic view of the organization, forcing an understanding of the management of the enterprise from multiple perspectives and the resolution of conflicting viewpoints.

MGCR 628D1 (3), MGCR 628D2 (3) INTEGRATIVE COURSE. (Students must register for both MGCR 628D1 and MGCR 628D2) (No credit will be given for this course unless both MGCR 628D1 and MGCR 628D2 are successfully completed in consecutive terms) (MGCR 628D1 and MGCR 628D2 together are equivalent to MGCR 628) This course provides an integrative perspective to the topics in the first year core, building on progressive stages of integrative understanding from basic management skills looking inward to basic and specialized management skills looking both inward and outward. The emphasis is on pedagogic tools which focus on a holistic view of the organization, forcing an understanding of the management of the enterprise from multiple perspectives and the resolution of conflicting viewpoints.

MGCR 640 MANAGEMENT ACCOUNTING. (2) The use of internally generated accounting information for decision making, planning and control purposes. The concepts and techniques involved in developing and interpreting accounting information that is relevant and useful for managers.

MGCR 641 ELEMENTS OF MODERN FINANCE 1. (2) Topics: appropriate evaluation criteria for projects, risk and return; how to construct efficient portfolios; rigorous techniques for valuing financial assets. Corporate financing strategies, efficient market theories and investment banking; principles of debt financing and Modigliani-Miller propositions.

MGCR 642 ELEMENTS OF MODERN FINANCE 2. (2) Topics: asset pricing theories; organization and structure of bond markets; yield curves, term structure of interest rates; bootstrapping techniques, bond pricing; concepts of duration; corporate debt market; structure and covenant features; tax effects; innovations and project finance; derivative markets; futures and forward pricing; options trading strategies.

46.12.2 M.B.A. Elective/Concentration Course Descriptions

ACCT 618 FINANCIAL REPORTING: STRUCTURE & ANALYSIS. (3) An in-depth analysis of corporate financial reporting principles and practices, with emphasis on developing the abilities of the student to discriminate between the form and substance of corporate financial reports. Analysis of all components of the financial statements with the effect of reference to alternative practices on financial reports.

ACCT 619 FINANCIAL REPORTING: VALUATION. (3) Analysis of financial statements and their uses. A financial statement analysis framework will be developed and applied to: (1) development of

business and securities valuations, (2) the prediction of bankruptcy, (3) the strategic planning process, (4) the interpretation of consolidated financial statements.

ACCT 622 INTERMEDIATE FINANCIAL REPORTING 1. (3) (Prerequisite: MGCR 611) Theoretical foundation for financial reporting concepts such as asset measurement, revenue recognition and disclosure of financial information.

ACCT 623 INTERMEDIATE FINANCIAL REPORTING 2. (3) (Prerequisite: ACCT 622.) Theoretical foundation for financial reporting concepts such as liability and equity measurement, intercorporate investments.

ACCT 624 MANAGEMENT ACCOUNTING: PLANNING & CONTROL. (3) (Prerequisite: MGCR 611) Preparation and analysis of management accounting information, effective design and implementation of management accounting systems.

ACCT 625 CANADIAN TAXATION. (3) (Prerequisite: MGCR 611.) An overview of the income tax system; emphasis on its impact on selected business decisions. Topics include: individual and corporate taxation, tax shelters, tax planning and international operations.

BUSA 615 GLOBAL COMPETITIVENESS. (3) Review of theories and practical case applications on the dynamics of global competitiveness; study of how countries develop and sustain competitive advantage in the rapidly expanding global economy; in-depth analysis by groups of the evolution and status of world competitiveness in selected countries.

BUSA 625 ASIA/PACIFIC MANAGEMENT. (3) An in-depth study of business relationships and management practices in the world's most dynamic region. Principal focus is on the dominant Asian economy, Japan, with discussion also of China, Korea and ASEAN countries. Emphasis is placed throughout on underlying cultural differences and how they influence the ways in which organizations are managed. The course is built on a variety of readings, case studies, reports and films in a seminar format emphasizing interaction between students, professor, and invited guest speakers.

BUSA 626 INTERNATIONAL BUSINESS LAW. (3) Introduction to the law regulating international business. The world's three main legal systems and procedure of civil trials before their courts. The main business organizations used in world trade. Forms and documentation of various types of foreign trade contracts. Conflict avoidance, arbitration and international transaction litigation. Specific analysis of trade terms, international commercial transactions (export sales, marketing through distributors, licensing) and international conventions (tax treaties, industrial and intellectual property, GATT, etc.).

BUSA 627 NORTH AMERICA: GLOBAL MARKETS. (3) As trade barriers diminish and worldwide communications expand, North America can no longer consider itself an isolated haven of prosperity. But it is still one of the current "triad" of economic powers, centered on the dominating strength of the United States. This course focuses on how the other two North American nations, Canada and Mexico, are adjusting to the realities of global competitiveness and to the often overwhelming regional role of the United States. The evolution of NAFTA and the possible next steps in trade accords are examined, as are continuing efforts to preserve elements of meaningful national autonomy in a rapidly changing global marketplace.

BUSA 640 LAUNCHING NEW VENTURES. (3) Application of the knowledge acquired in graduate business education to the launching of a new product or service through venture capital funding.

BUSA 664 CREATING THE SMALL BUSINESS. (3) Focusing on the strategies and operating policies of small business enterprises, the course is designed for individuals who are considering entrepreneurial careers either as owners or managers. Provides a practical approach to the many problems likely to be encountered in the evolving life cycle of the small business.

BUSA 665 MANAGING THE SMALL ENTERPRISE. (3) The course is designed to teach students the concepts of entrepreneurship and

the fundamentals of managing small businesses. It will explore, within the context of small entrepreneurial companies, the various interactions between financing, accounting, marketing, strategic planning, operations and human resources.

BUSA 690 TOPICS IN MANAGEMENT 1. (3) Topic: Pharmaceutical Entrepreneurship

BUSA 691 TOPICS IN MANAGEMENT 2. (3) Current topics in management.

BUSA 692 TOPICS IN MANAGEMENT 3. (3) Current topics in management.

BUSA 697 EUROPEAN ECONOMY AND MANAGEMENT. (3) Overview of current social, economic and business developments in Europe; examination of cultures, practices and institutional arrangements underpinning business in both the EU and Eastern Europe; opportunities and challenges in conducting business in Europe.

BUSA 698 HEALTH CARE SYSTEMS. (3) Overview and study of the Quebec, Canadian and international health care systems within the Canadian context. Brief historical overview and analysis of its major elements: Quebec Ministry of Social Affairs, Regional Health Councils, Social Service Centres, hospitals, etc. Critical issues examined: planning health care needs and resources, financing health care, labour relations, patterns of power and assessing quality of care.

BUSA 699 HEALTH CARE MANAGEMENT. (3) Course is divided into hospital goals and priorities; the basic elements and functioning of administrative and medical organization structure; the complexity of hospital management; assessment of overall as well as departmental performance. Course material, approach and assignments are strongly practice-oriented.

FINE 541D1 (1.5), FINE 541D2 (1.5) APPLIED INVESTMENTS. (Prerequisite: MGCR 341) (Students must register for both FINE 541D1 and FINE 541D2.) (No credit will be given for this course unless both FINE 541D1 and FINE 541D2 are successfully completed in consecutive terms) (FINE 541D1 and FINE 541D2 together are equivalent to FINE 541) Students are exposed to practical aspects of managing investment portfolios. A principal activity of students is participation in the management of a substantial investment fund.

FINE 547 ADVANCED FINANCE SEMINAR. (3) (Prerequisite: MGCR-651 Managing Resources.) (Corequisites: FINE-646 and FINE-622.) (Restriction: Not open to students who have taken FINE 647.) (Note: Lectures for this course span both the fall and winter semesters.) Selected topics will be discussed by Faculty members, invited guest speakers, and the students. Each student is required to select a topic for study and prepare a written report for presentation.

FINE 620 CORPORATE MERGERS. (3) (Prerequisite: FINE-622.) (Restriction: MBA students only.) (Note: This course requires advance preparation based on each new case study presented each week.) This course deals with the rationale, structuring, shareholder value creation, financial implications and management of corporate joint ventures, alliances, mergers and acquisitions, including discussion of the external and internal reasons for these alliances and combinations and the steps taken to create structure and value and then to manage their implementation.

FINE 621 RESTRUCTURING TO CREATE SHAREHOLDER VALUE. (3) (Prerequisite: FINE-622.) (Restriction: MBA students only.) (Note: Students require a good grounding in the use of financial information, ratios and finance concepts such as the cost of capital and discounted cash flow.) Methods of creating and measuring value for the shareholders of a business, emphasizing the practical use of valuation in the context of making business decisions.

FINE 630 FIXED INCOME MARKETS. (3) (Prerequisite: FINE 646.) Fixed income securities and their uses for financial engineering as well as risk management at both the trading desk and the aggregate firm level. This will involve a treatment of basic fixed income mathematics, risk management concepts, term structure modeling, derivatives valuation theory and credit risk analysis.

FINE 635 FINANCIAL RISK MANAGEMENT. (3) (Prerequisite: FINE 646.) Latest techniques of market risk management including volatility and correlational modelling, extreme value theory, Monte Carlo simulation, historical simulation and filtered historical simulation. Option pricing with time varying volatility and option risk management. Backtesting and Stress testing.

FINE 639 DERIVATIVES AND RISK MANAGEMENT. (3) (Prerequisite: MGCR-651.) This course studies the field of investments related to options and futures. The course will concentrate on trading strategies and analytical models for valuing options and futures contracts.

FINE 645 MONEY AND CAPITAL MARKETS. (3) (Prerequisite: MGCR-651.) Demand for and supply of money and other financial instruments by and to banks and near banks. Simple analytical models integrating the Canadian Institutional aspects. The role of the banking sector in the money creation process. International aspects of monetary policy.

FINE 646 INVESTMENTS AND PORTFOLIO MANAGEMENT. (3) (Prerequisite: MGCR-651 Managing Resources.) The prime objective is to provide the student with a rational framework for investment. The portfolio and capital market theory of FINE 650 is extended and the empirical evidence supporting these and competing hypotheses is investigated for both individual securities and portfolios.

FINE 648 APPLIED CORPORATE FINANCE. (3) (Prerequisite: FINE-622 Modern Corporate Finance.) Concepts and techniques developed in earlier courses are extended and/or applied to problems faced by managers in Corporate Finance. Such problems include: working capital management, capital budgeting, capital structure, dividend policy, cost of capital and mergers and acquisitions. Stresses the application of theory and techniques and extensive use is made of case studies.

FINE 660 GLOBAL INVESTMENT MANAGEMENT. (3) (Prerequisite: FINE 646 - Investments and Portfolio Management.) Primary focus will be on global investments. The course will deal with the theoretical foundations of modern international portfolio theory and empirical evidence in a real world setting. It will span the developed markets of Europe and Japan, NICS of the Pacific rim and emerging markets. The primary objective is to prepare a new generation of managers who can operate effectively in the new global investment environment.

FINE 665 INVESTMENT STRATEGIES AND BEHAVIOURAL FINANCE. (3) (Prerequisite: FINE 646 - Investments and Portfolio Management.) (Restriction: MBA students only.) (Note: This course requires usage of various financial databases.) To gain understanding of the interrelation between fundamental and behavioural approaches in exploring financial market dynamics, investment strategies and performance.

FINE 690 TOPICS IN FINANCE 1. (3)

FINE 691 TOPICS IN FINANCE 2. (3) Current topics in finance.

FINE 692 TOPICS IN FINANCE 3. (3) Topics in finance.

FINE 693 GLOBAL CAPITAL MARKETS. (3) (Prerequisite: MGCR-651 Managing Resources.) The international financial environment as it affects the multinational manager. In-depth study of the various balance of payments concepts, adjustment of the external balance, and the international monetary system will be followed by a review of theory and institutional aspects of the foreign exchange and the international (Eurodollar) markets.

FINE 694 INTERNATIONAL CORPORATE FINANCE. (3) (Prerequisite: FINE-622 Modern Corporate Finance.) Focus on the operational problems of financial management in the multinational enterprise: financing of international trade, determining the firm's exposure to foreign exchange rate changes, protection against exchange losses, international capital budgeting, multinational cost of capital, working capital management and international portfolio diversification.

INDR 603 INDUSTRIAL RELATIONS. (3) The goal of this course is to develop student's understanding of law, institutions, current practices, and power relations affecting the workplace. Topics

include: regulation of employment, relationships in the unionized and nonunionized sectors, managerial approaches to labour relations, collective bargaining, union organizing, negotiation of collective agreements, dispute resolution and grievance procedures.

INDR 604 COLLECTIVE BARGAINING IN THEORY AND PRACTICE. (3) Theory, structure and activity of collective bargaining and arbitration as practiced in Canada and the Western industrial societies in general: how collective bargaining works; why it does or sometimes doesn't work. Emphasis on the realities of actual practice. Contract structure, grievance and arbitration procedures and bargaining practices, including costing of contracts.

INDR 605 ROLE OF GOVERNMENT: LABOUR RELATIONS. (3) Role of government, both as legislator and as employer. Development of public policy toward industrial relations and collective bargaining in the private and public sectors as well as other government policies that affect employment and industrial relations. The private sector model of collective bargaining and the peculiarities of public employment.

INDR 633 CREATING WEALTH AND PROSPERITY. (3) The objective of the course is to show the similarities and differences between the ways governments can create prosperity, and the ways companies can create wealth. The first part of the course covers topics in economic policy (what makes some countries, regions prosper and others fall behind), the second part covers financial, managerial and strategic topics companies face (what makes their market value increase and what makes this value diminish).

INSY 605 SYSTEMS ANALYSIS AND MODELING. (3) Techniques for conducting systems requirements analysis and project management using structured analysis for specifying both manual and automated systems. Focuses on the role of the analyst in investigating the current organizational environment, defining information system requirements, working with technical and non-technical staff, and making recommendations for system improvement. Analysis project.

INSY 633 IT KNOWLEDGE MANAGEMENT. (3) Types of organizational knowledge and their value for organizations, analysing knowledge processes, and assessing tools and technologies for managing knowledge.

INSY 636 INFORMATION SYSTEMS ADMINISTRATION. (3) This course covers the issues relating to managing information systems resources. A combination of lecture and class discussions covers topics such as the role of the Information Systems department within the corporation, staff organization and leadership, strategic systems, planning, end user computing, and other areas of importance to information systems managers.

INSY 638 DATA & DATABASE MANAGEMENT. (3) Focus on the management of organizational data and database management systems. Practice in database design. Examination of different models of representing data with emphasis on the relational model.

INSY 645 MANAGING ELECTRONIC COMMERCE. (3) This course will provide students with an understanding of e-commerce. The most important concepts, models, tools and applications related to e-commerce will be studied. The primary objective of the course is to explore the knowledge and the skills that an IS professional should develop to face this new reality in business organizations.

INSY 690 TOPICS IN MANAGEMENT INFORMATION SYSTEMS 1. (3)

INSY 691 TOPICS IN MANAGEMENT INFORMATION SYSTEMS 2. (3) Current topics in management information systems.

INSY 692 TOPICS IN MANAGEMENT INFORMATION SYSTEMS 3. (3) Current topics in management information systems.

MGCR 610 RESEARCH PAPER. (6) The process and problems of independent research. Choice of topic may be a normative or descriptive study based on primary or secondary data. Opportunity to work on a one-to-one basis with a faculty member. Members of the Montreal business community may act as resource consultants.

MGPO 615 CONSULTING FOR CHANGE. (3) (Prerequisite: MBA One.) Consultation in the area of assisting firms to introduce

strategic change including approaches that are used to assess, understand and advise firms whose status quo is no longer considered satisfactory.

MGPO 630 MANAGING STRATEGY. (3) This course examines the organizational issues associated with strategic change. It focuses on how managers can orchestrate organizational changes in order to realize strategic intentions and exploit environmental opportunities. Students examine how the strategic change in process works and how to tackle key strategic transitions faced by organizations.

MGPO 637 CASES IN COMPETITIVE STRATEGY. (3) The course applies the techniques for analyzing industries to a number of industries (electronics, photocopy, bicycles, chain saws, securities, fibre optics) through the use of specific company cases. The objective is to develop skills and techniques in a competitive environment and define competitive strategies through practical application.

MGPO 638 MANAGING ORGANIZATIONAL POLITICS. (3) The course examines how organization politics impacts on the individual and how the individual can impact on the political system. We draw on some of the classic works on power, politics, decision making, and bureaucracy. We then apply the concepts derived from the theory to explicit organizational situations, to develop practical frameworks that will help and benefit the student.

MGPO 640 STRATEGIES FOR SUSTAINABLE DEVELOPMENT. (3) This course aims to produce new knowledge about the multidimensional nature of sustainable development; develop skills required to formulate and implement policies that integrate economic progress with quality of life and the preservation of the biosphere.

MGPO 650 MANAGING INNOVATION. (3) To survive competitively, many organizations need to develop new products successfully and consistently, yet established firms often face difficulties responding to new opportunities. This course examines the strategic, organizational, and interdepartmental aspects of the new product development process to understand why problems occur and what managers can do about them. Topic areas include (1) the creative synthesis of market possibilities with technological potential; (2) the collaborative coordination of diverse functions in the firm; and (3) the strategic connection between the project and the firm's strategy and structure.

MGPO 651 STRATEGIC MANAGEMENT: DEVELOPING COUNTRIES. (3) The course examines strategic management challenges in developing countries using lectures and discussion of readings and cases. Topics include economic policy management (national development strategies, structural adjustment, privatization), economic cost/benefit analysis, technology choice and transfer, negotiations between multinational firms and host governments, and strategic management for public enterprise, family-owned firms, economic groups, and developmental organizations.

MGPO 669 MANAGING GLOBALIZATION. (3) MBAs need to understand international competitive issues, such as: forces for industry globalization, a firm's international expansion process, and international competitive strategies. Many types of firms will be analyzed, from small U.S. and Canadian firms beginning to explore internationally to large multinationals that are managing investments around the world.

MGPO 683 INTERNATIONAL BUSINESS POLICY. (3) Development and application of conceptual approaches to general management policy and strategy formulation in multinational enterprises. Alternative forms of international business involvement (licenses, contractual arrangements, turnkey projects, joint ventures, full direct investment); formulation and implementation of international, multinational and transnational competitive strategies; technology transfer; ownership strategy; international collaborative arrangements. A combination of conceptual readings and applied case analyses.

MGPO 690 TOPICS: STRATEGIC MANAGEMENT 1. (3)

MGPO 691 TOPICS: STRATEGIC MANAGEMENT 2. (3)

MGPO 692 TOPICS: STRATEGIC MANAGEMENT 3. (3) Current topics in strategic management.

MRKT 652 MARKETING MANAGEMENT 2. (3) Its orientation is one of decision making and problem solving. Focuses on the decision areas of marketing management. Emphasizes the application of marketing theory, concepts and methods to the solution of real life marketing problems.

MRKT 654 MARKETING COMMUNICATIONS. (3) The design and implementation of advertising and promotions. Draws on theories of persuasion to develop a managerially oriented decision making framework. Links the framework to decisions pertaining to creative strategy, media planning, consumer promotions and trade promotions.

MRKT 655 MARKETING PLANNING. (3) The design and implementation of marketing plans. Emphasis on management decision-making; approaches and techniques for formulating marketing objectives; identifying alternate strategies; preparing the marketing plan; implementing and controlling the plan.

MRKT 657 BUYER BEHAVIOUR. (3) Research approaches focusing on the behaviour of the consumer in the market place. Intended to sensitize the students to human behaviour in general so they may carry their understanding of basic processes over to the more specific area of the consumer.

MRKT 658 MARKETING RESEARCH. (3) The basic problems of searching for additional information for better marketing decisions. Designed from the marketing manager's point of view. Placed in a cost-benefit perspective. All steps of the research process (problem definition, data collection methods, sample design, etc.) are covered.

MRKT 659 ADVANCED BUSINESS MARKETING. (3) Advanced decision-making and management of the marketing effort in a business to business (b-to-b) context, including the b-to-b marketing system; segmentation; customer relationship management; products, services, price, distribution, selling and advertising decisions; strategies for business markets and both electronic and traditional approaches to each.

MRKT 690 TOPICS IN MARKETING 2. (3) Topic: Winning at Brands Current topics in marketing.

MRKT 691 TOPICS IN MARKETING 3. (3) Topic: Asia Pacific. Current topics in marketing.

MRKT 692 TOPICS IN MARKETING 4. (3) Current topics in marketing.

MRKT 698 INTERNATIONAL MARKETING MANAGEMENT. (3) Marketing management considerations of a company seeking to extend beyond the confines of its domestic market. A review of product, pricing, channels of distribution and communications policies to develop an optimum strategy (between adapting completely to each local environment and standardizing across them) for arriving at an integrated and profitable operation. Particular attention to international marketing and exporting in the Canadian context.

ORGB 525 COMPENSATION MANAGEMENT. (3) (Prerequisite (Undergraduate): ORGB 423) (Prerequisite (Continuing Education): MGCR 222) Compensation policies and practices, consistent with motivational theories, are examined. Topics include: design and evaluation of job evaluation systems, salary structures, and performance-based pay; compensation of special employee groups; and current pay equity laws. Projects and simulations provide "hands-on" experience in the use of compensation techniques.

ORGB 625 MANAGING ORGANIZATIONAL CHANGE. (3) Examine strategies of organizational development (OD) that enhance the organization's capacity to respond to change, maximize productivity and allow employees to experience dignity and meaning in their work. Explores the strategic, techno-structural, human process, and human resource management types of OD interventions. In addition, the course will provide opportunities for the practice of various OD skills (process consultation, feedback, observation) which enable managers to identify dysfunctional policies or behaviours. The fundamental theoretical framework of the course will draw upon developments in the behavioural and socio-technical systems approaches to organizational change.

ORGB 632 MANAGING TEAMS IN ORGANIZATIONS. (3) The dynamics of group and interpersonal behaviour. As well as learning conceptual frameworks, participants will examine their own interpersonal style and behaviour in group processes.

ORGB 633 MANAGERIAL NEGOTIATIONS. (3) (Note: Intensive two-lecture-per-day format; add/drop will be Aug 9 (four lectures, two calendar days) and withdraw will be Aug 16 (eight lectures, four calendar days)) Negotiating is a critical managerial skill. The purpose of this course is to allow students to learn to be more effective negotiators. The class environment used to accomplish this goal includes many exercises, personality inventories, and cases. The focus of the course will be on the processes of bargaining and the emphasis is "hands on" learning, although theories of negotiation and research examining negotiation will also be covered. Each student will have a great deal of control over how much he or she will develop into a better negotiator as a result of participating in this course.

ORGB 634 CAREER DEVELOPMENT. (3) The broad objective of this course is to increase students' understanding of the phenomenon of careers, in the business world as well as other spheres. Students will be exposed to "state of the art" theory and research on careers, and will then be expected to examine the usefulness and relevance of current theory by analyzing the careers of "real life" individuals, from novels, films, biographies, and case histories. The course will focus on the evolution of careers over time, and will consider in depth the many factors which influence (and are influenced by) career development, including such things as individual characteristics and background: age and family, status; occupational, job, and organizational characteristics etc. Career development will be considered both from the perspective of the individual and the organization.

ORGB 640 THE ART OF LEADERSHIP. (3) Influence of personality, situational and cultural factors on strategic decision making. The role of power and political behaviour in organizational life. Topics include: managerial style, superior-subordinate relationships, organizational stress, entrepreneurial behaviour patterns, power and politics in decision making.

ORGB 685 CROSS CULTURAL MANAGEMENT. (3) Cross-cultural awareness and communication skills necessary to manage in multicultural organizations. The focus of the course is on the relationship between cultural values and communication styles as they affect inter-and-intra cultural communication of managers, personnel and clients of multinational and multicultural corporations and organizations.

ORGB 690 TOPICS: ORGANIZATIONAL BEHAVIOR. (3) (Note: Intensive two-lecture-per-day format; add/drop will be Aug 9 (four lectures, two calendar days) and withdraw will be Aug 18 (eight lectures, four calendar days))

46.13 Post-M.B.A. Certificate

The Post-M.B.A. Certificate will be awarded after the equivalent of one term of residence and the successful completion of 15 credits of M.B.A. courses. Students will be permitted to take a maximum of 15 credits.

The certificate meets the needs of two groups of professional managers: (1) managers who graduated from an M.B.A. program several years ago and would like to take a series of courses to update their skills; and, (2) managers who graduated from an M.B.A. program recently and who would like to broaden the base of their education with a selection of courses that complement their major field of studies. The certificate may be taken on a full-time or part-time basis.

The entrance requirement is an M.B.A. degree from a recognized university with a CGPA that meets the minimum requirements of the Graduate and Postdoctoral Studies Office. Two official transcripts of marks and degree confirmations from all universities attended are required. This includes universities attended on exchange or as visiting students. For international applicants, the academic records and verifying degree conferrals must be submitted in the original language with official

translations, listing courses and grades for each year of study. These documents must bear the actual signature of the registrar and the official seal or stamp of the institution.

A TOEFL test is also required to determine the English proficiency of applicants whose mother tongue is not English. Applicants are additionally expected to have completed two years of full-time work experience, before submitting their application to the Post-MBA program.

For more information visit our Website at www.mcgill.ca/post-mba or call the Master Programs Office at (514) 398-4130.

46.14 Other Master and Graduate Diploma Programs

46.14.1 Master of Management Programs (M.M.)

MASTER IN MANUFACTURING MANAGEMENT (56-57 credits)

The Master in Manufacturing Management program (MMM) is offered to students who wish to have a career as manufacturing managers. The curriculum is a balance between manufacturing and management subjects and provides exposure to industry through case studies, seminars, tours and a paid industry internship. The MMM program is a 12-month academic program starting in September followed by a 4-month industrial internship. The program is a collaboration between the Faculties of Engineering and Management, which jointly grant the Master of Management degree.

Students should hold an undergraduate degree in engineering or science. Two or more years of industrial experience is preferred, but not mandatory. Students with other academic backgrounds and appropriate industrial experience will be considered, but may have to take one or two qualifying courses. The program is intended for full-time as well as part-time students. Enrolment is limited.

The MMM program is a self-funded program. Tuition is \$25,000.

General Business and Management – Required Courses (11 credits)

MGCR 651	(4)	Managing Resources
MGCR 652	(4)	Value Creation
MGSC 608	(3)	Data Decisions and Models

General Business and Management – Complementary Courses (6 credits)

Two of the following courses:

ACCT 624	(3)	Management Accounting: Planning & Control
INDR 603	(3)	Industrial Relations
ORGB 625	(3)	Managing Organizational Change
ORGB 632	(3)	Managing Teams in Organizations
ORGB 633	(3)	Managerial Negotiations
ORGB 640	(3)	The Art of Leadership
ORGB 685	(3)	Cross Cultural Management

Manufacturing and Supply Chain – Required Courses (15 credits)

MECH 524	(3)	Computer Integrated Manufacturing
MGSC 602	(3)	Strategic Management of Operations
MGSC 603	(3)	Logistics Management
MGSC 605	(3)	Total Quality Management
MGSC 631	(3)	Analysis: Production Operations

Manufacturing and Supply Chain – Complementary Courses (12-13 credits)

Two of the following four courses (6 credits):

MECH 526	(3)	Manufacturing and the Environment
MGSC 575	(3)	Applied Time Series Analysis Managerial Forecasting
MGSC 601	(3)	Management of Technology in Manufacturing
MGSC 615	(3)	Procurement and Distribution

and one of the following two options (6-7 credits):

Discrete Manufacturing Option

MECH 528	(3)	Product Design
MECH 529	(3)	Discrete Manufacturing Systems

Process Manufacturing Option

CHEE 571 (3) Small Computer Applications: Chemical Engineering

CHEE 641 (4) Chemical Reaction Engineering

Industry – Required Courses (12 credits)

MECH 627 (9) Manufacturing Industrial Stage

MECH 628 (2) Manufacturing Case Studies

MECH 629 (1) Manufacturing Industrial Seminar

For more information, contact:

Program Coordinator, Mechanical Engineering

Telephone: (514) 398-7201

E-mail: mmm.mecheng@mcgill.caWebsite: www.mcgill.ca/mmm

or the Masters Programs Office, Desautels Faculty of Management.

Telephone: (514) 398-4130

INTERNATIONAL MASTERS PROGRAMS IN PRACTISING MANAGEMENT (IMPM)

Functioning within an authentically international context, this cooperative venture of business schools located in five different countries allows mid-career executives to study topical international business problems on site at universities in France, England, India, Japan and Canada.

For more information visit our Website at www.impm.org.**IMPM – (for Health Leaders)**

Applying an experience based approach to leadership development, the program will recruit practising managers and professionals throughout the health field, and from all parts of the world to learn from each other and gain a better understanding of their own leadership styles, the systems they work in, their organizational contexts, and the work relationships they must build in order to achieve change. For more information visit our Website at www.imhl.ca.

International Masters Programs in Practising Management Courses

BUSA 666 THE PRACTICE OF MANAGEMENT. (5) Examination of the philosophy, the history, and the practice of management, with introduction to personal competences necessary to carry out the complex role of general manager effectively. Latest developments in management theory and practice will be examined, in the context of the history, role of managers, and personal competence.

BUSA 668 THE VENTURE. (5) An introduction to the tools of the analytic disciplines such as managerial economics, accounting, statistics and finance. Students will apply tools to specific problems or activities within their organization, and complete an analysis that integrates these concepts and competences with a work situation.

BUSA 670 MANAGING ORGANIZATIONS. (5) Provides a basic understanding of the key processes and configurations of organizing, alternate systems and structures. Examines practical and theoretical aspects of measurement, data classification, reporting, practical analysis, cost accounting, performance measurement and forecasting.

BUSA 672 MANAGERIAL EXCHANGE. (3) A field experience that exposes the student to critical managerial challenges faced by an organization other than his/her own. Requires application of concepts, and competences.

BUSA 675 MANAGING CONTEXT. (5) Examination of the role of "outsiders," and review of the competences needed by general managers to effectively manage contextual relationships such as with government bodies, capital markets, customers and suppliers. Also, examination of cultures, emerging issues in global management, and perspectives on ethics and human rights.

BUSA 680 MANAGING PEOPLE. (5) Examination of different models of individual behaviour and of similarities and differences among them. Review of interpersonal competences, including ability to communicate, lead individuals and groups, create com-

mitment, develop trust for strategic alliances, and coaching employees rather than directing them.

BUSA 685 MANAGING CHANGE. (5) Examination of major kinds of organizational transformations that managers must deal with including starting a new business, turning around a moribund company, restructuring, downsizing, and regrouping businesses around the world. Review of new product/service development, and development of competences that help create flexible organizations.

BUSA 689 INTEGRATIVE PROJECT. (12) An examination of a major managerial issue facing their organization. Working with supervisors in weekly exchange, they will prepare a report that integrates the relevant concepts from the program to explain and/or evaluate the issue and recommend a course of action.

46.14.2 Diploma in Public Accountancy (Chartered Accountancy)

The Diploma in Public Accountancy Program is under the academic supervision of the Graduate and Postdoctoral Studies Office, and is offered by the Desautels Faculty of Management.

The faculty is made up of professionally active C.A.s with specific areas of expertise. Students benefit from a program of academic counselling, tutoring and monitoring as they progress through a program in which they are exposed to the latest concepts and practice-related issues.

Chartered Accountants play leadership roles in public practice, business, industry, government and education.

ADMISSION REQUIREMENTS**Option 1:**

Students completing a Bachelor's degree from a recognized institution are required to obtain a minimum CGPA of 3.0 out of 4.0*, and successfully complete the nine qualifying courses listed below, or their equivalent:

ACCT 351	Intermediate Financial Accounting 1
ACCT 352	Intermediate Financial Accounting 2
ACCT 361	Intermediate Management Accounting 1
ACCT 362	Intermediate Management Accounting 2
ACCT 385	Principles of Taxation
ACCT 453	Advanced Financial Accounting
ACCT 455	Development of Accounting Thought
ACCT 475	Principles of Auditing
ACCT 486	Business Taxation 2

* Admission to the program is very competitive and meeting the minimum requirement does not secure admission.

Option 2:

Graduates of programs other than Bachelor of Commerce or graduates with foreign degrees must complete the following courses through the Centre for Continuing Education's Diploma in Accounting prior to admission to the Graduate Diploma program. Please note that obtaining the minimum requirements does not secure admission to program.

CCAU 511	Auditing 1
CCFC 511	Financial Accounting 1
CCFC 512	Financial Accounting 2
CCFC 513	Financial Accounting 3
CCFC 514	Accounting Theory and Practice
CCTX 511	Taxation 1
CCTX 532	Taxation 2
CCMA 511	Management Accounting 1
CCMA 522	Management Accounting 2

For more information, the Centre for Continuing Education can be contacted by telephone at (514) 398-6161, or by e-mail at info.conted@mcgill.ca.

ADMISSION PROCEDURES

Application forms are available online from our Website.

Application deadlines for Canadian Students:

- March 1 for the May admission (Summer term)

Application deadlines for International Students:

- December 15 for the May admission (Summer term)
- 1) Applicants must have an undergraduate university degree from a recognized institution.
- 2) All students wishing to take courses in the Diploma in Public Accountancy must complete the Application for Admission form available on the Web at www.mcgill.ca/applying/graduate.
- 3) All students must make arrangements to have two copies of the official transcripts of marks and degree confirmations from all universities attended. This includes universities attended on exchange or as visiting students. For international applicants, the academic records must include transcripts and verifying degree conferrals, in the original language as well as the official English translations.
- 4) An evaluation will be made granting credits in the program for equivalent courses completed (B- required) within the last five years. Academic advising is available to assist the student.
- 5) Applicants must have secured employment with an accredited chartered accounting firm, beginning on the October of the year for which they intend to apply.
- 6) Applicants who have been accepted to the program are required to make a \$250 (certified cheque or money order) deposit. This fee is non-refundable and will be applied to the student's fee account.

A deferral of admission may be considered in exceptional cases upon evidence of extenuating circumstances for one year only. A written request should be submitted to the Director of the CA Program. If approved, students wishing to defer their admission will be required to submit a confirmation deposit of \$500 Canadian to secure a place for the following year/term. This fee is non-refundable.

TIME LIMITS

The program must be completed within three years of admission. Time limits will be adjusted accordingly for those students who are granted advanced standing or who transfer from one program to another. Students exceeding the time limits may request an extension, in writing, which may be granted under special circumstances with the approval of the Department. Where appropriate a revised program of study may be recommended.

PROFESSIONAL REQUIREMENTS FOR ADMISSION TO L'ORDRE DES COMPTABLES AGRÉÉS DU QUÉBEC (C.A.)

Membership in the l'Ordre des comptables agréés du Québec and the Canadian Institute of Chartered Accountants entitles Chartered Accountants to practice the profession of Chartered Accountancy.

Admission is based upon meeting the following requirements as indicated in the Chartered Accountants Act (Bill 264).

- 1) possession of a university degree from a recognized institution;
- 2) possession of the Graduate Diploma in Public Accountancy;
- 3) passing of the national Uniform Final Examination given by the Ordre and the CICA;
- 4) completion of an articling period with a firm of Chartered Accountants which is registered with the Order (minimum of two years), this can be done while registered in the CA Program;
- 5) a working knowledge of French;
- 6) Canadian citizenship or Permanent Resident status.

Further information can be obtained from: Ordre des comptables agréés du Québec, 680 Sherbrooke West, 18th floor, Montreal, Quebec, H3A 2S3. Tel: (514) 288-3256. E-mail: info@ocaq.qc.ca.

ADVANCED STANDING**Credit / Exemptions**

An official course outline of the courses taken elsewhere, and the marks obtained, must be submitted. Students who have been

granted credits and/or exemptions are not permitted to register for the courses for which they have been granted credits and/or exemptions. Credits or exemptions will NOT be granted for courses taken more than five years before the date of application.

PROGRAM REQUIREMENTS

The program requires completion of 9 courses (six 3-credit courses, and three 4-credit courses). It is composed of the courses, which cover the theoretical and technical knowledge for entry-level Chartered Accountancy practitioners, and the Uniform Final Examination (C.A. exam).

Required Courses (30 credits) I

Summer Year 1 (May - July 15)

ACCT 651	(3)	Performance Measurement and Reporting
ACCT 657	(4)	Governance and Control
ACCT 659	(3)	Business Analysis & Communications

Fall Year 1

ACCT 655	(3)	Assurance
ACCT 683	(3)	Tax Planning and Decision Making
ACCT 660D1/D2*	(6)	Internship

*Students in this course will work from October to April in an accredited chartered accounting firm with set deliverables of a journal and the authoring of a case.

Winter Year 1

ACCT 685	(4)	Engagement Management
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Summer Year 2

ACCT 689	(4)	Business Advisory Services - Cases
ACCT 699	(0)	Uniform Final Exam Prep Seminar

Students are reminded that the courses in the Diploma in Accounting are prerequisites to the Diploma Program in Public Accountancy courses, and knowledge of prerequisite course content is presumed.

COURSES

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click on Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

The course credit weight is given in parentheses after the title.

ACCT 651 PERFORMANCE MEASUREMENT AND REPORTING. (3) (Restriction: Entry to Program. Open only to students enrolled in the Graduate Diploma in Public Accountancy.) Entities measure and report on their performance. Divisional financial statements, balanced scorecard reporting, general-purpose financial statements, components of the management discussion and analysis in the annual report, generally accepted accounting principles.

ACCT 655 ASSURANCE. (3) (Restriction: Entry to Program. Open only to students enrolled in the Graduate Diploma in Public Accountancy.) The role of the attest auditor. The topics covered include professional practice environment, engagement management, internal control, audit evidence, testing, reporting and general coverage of the professional services. Detailed study of the CICA Auditing recommendations, exposure drafts and guidelines. Research studies and current literature will be reviewed.

ACCT 657 GOVERNANCE AND CONTROL. (4) (Restriction: Entry to Program. Open only to students enrolled in the Graduate Diploma in Public Accountancy.) Governance structures including internal control systems and how they relate to corporate strategy and the role of information systems within an engagement context.

ACCT 659 BUSINESS ANALYSIS & COMMUNICATIONS. (3) (Corequisite: ACCT 651 or ACCT 657) Written and oral business communication techniques to inform and persuade others.

ACCT 660D1 (3), ACCT 660D2 (3) INTERNSHIP. (Prerequisite(s): ACCT 651, ACCT 657, ACCT 659) (Restriction(s): Graduate Diploma in Public Accountancy students only) (Note: This course is graded as pass or fail.) Experiential on-the-job learning, focusing on pervasive qualities and skills relating to three categories of ethical behaviour and professionalism, personal attributes and skills pertaining to the creation, analysis, communication, evaluation and synthesis of information and ideas.

ACCT 683 TAX PLANNING & DECISION MAKING. (3) (Prerequisites: ACCT 385 and ACCT 462.) (Note: Has to taken in last year of the program.) The theory, techniques and considerations in taxation will be analyzed in a situational context. Tax planning is addressed integrating personal and corporate taxation issues. Topics such as sale of a business, rollovers and personal tax planning will be addressed.

ACCT 685 ENGAGEMENT MANAGEMENT. (4) (Prerequisites: ACCT 655 and ACCT 659) The theoretical basis of current Canadian auditing practice. Current Canadian and International recommendations, exposure drafts, guidelines, research studies, principles and conventions, and current literature will be used to develop an understanding of the theory and to develop the ability to apply this theory in practical situations. Current issues in auditing practice will be discussed.

ACCT 689 BUSINESS ADVISORY SERVICES - CASES. (4) (Prerequisite: completion of the other eight program courses. Through the use of the case method, this course examines the processes and considerations used in the business advisory services area of professional practice. Complex scenarios integrate topics in financial accounting, auditing, managerial accounting, taxation and finance. Central themes such as mergers and acquisitions, litigation support, financing are addressed.

ACCT 699 UNIFORM FINAL EXAM PREP SEMINAR. (0) (Prerequisites: ACCT 651, ACCT 655, ACCT 657, ACCT 659, ACCT 679, ACCT 681, ACCT 683, ACCT 685.) (Corequisite: ACCT 689.) This course consists of lectures and case writing relating to performance management, assurance, organizational effectiveness, information technology and finance. The cases emphasizes the application of theory to practical situations.

46.15 Joint Ph.D. in Management

The Ph.D. Program in Management is offered jointly by the four Montreal universities: Concordia University, École des Hautes Études Commerciales (affiliated with the Université de Montréal), McGill University, and Université du Québec à Montréal. The program is intended to educate competent researchers and to stimulate research on management problems.

The program represents a number of innovations in doctoral work in the field of administration. First, by cooperating, the four universities are able to make available to the students a diverse pool of approximately 250 professors qualified to direct doctoral level study and research. Second, the program has been carefully developed to encourage independent, creative work on the part of its students, with close, personal contact with the professors. This program will appeal especially to the mature, experienced candidate with relatively well-defined interests. Across the four member universities, some courses are offered in English and some in French. (All papers may, however, be written in English or French.) This is viewed as a definite advantage of the program for those students who expect to work in Canada or francophone countries after graduation.

The program places considerable emphasis on the theoretical foundations of management and its underlying disciplines. Graduates of the program are expected to have: (1) some knowledge of all the main areas of management, (2) a thorough knowledge of one applied area of management, and one support discipline, (3) a complete command of the research methodologies used in management, and (4) some familiarity with modern theories and methods of the pedagogy of management.

The program consists of three phases: preparation, specialization and dissertation.

Phase I – Preparation

The preparation phase is intended to give each student some understanding of the range of subject matter that makes up contemporary administrative theory. On entering the program, the background of each student will be assessed. Deficiencies, if any, are to be made up by graduate-level courses, papers, or assigned readings in:

- Behavioural Science
- Economics
- Operations Management
- Marketing
- Finance
- Strategy and Organization
- Accounting

Some students – notably those with strong Master's degrees in administration or related disciplines – have a minimum of work in Phase I; others require up to one academic year of work.

Phase II – Specialization

In Phase II, students probe deeply into their chosen area of specialization. With their advisory committee, students work out an individual program of study which takes about 18 months. The phase focuses on a specialization area and a support field. The specialization area could be one of the basic ones listed in Phase I (for example, marketing or operations management), a sub-area within one of these (such as organizational development within organizational behaviour), or an interdisciplinary area that combines two or more of these (such as behaviour aspects of accounting or international marketing).

The support field is selected to help the student develop a foundation of knowledge in a fundamental discipline that underlies the theory in administration. For example, a student in marketing might select psychology, sociology, or statistics. One in management policy might select political science or general systems theory or perhaps even philosophy. Other choices are possible.

Students officially enter Phase II of the program when their advisory committee has been established and, together with the student, formally agrees on a proposal for the work to be done in Phase II. Phase II must be approved by the McGill and the Joint Doctoral Committees. This includes the following:

- Doctoral seminars in the specialization area; minimum four courses.
- Any other existing graduate level courses in the specialization area and support field deemed appropriate by the advisory committee; minimum two courses in support field.
- Seminar on Research Methodology (MGMT 707, 3 credits) or equivalent course as defined by Program Committee.
- Seminar in Pedagogy (MGMT 706, 3 credits), or Teaching and Learning in Higher Education (EDPH 689, 3 credits).
- Comprehensive Examination (MGMT 701, 0 credits).
- A publishable research paper (MGMT 720, 3 credits)*, equivalent to about 3 months of full-time work.

* *Subject to approval.*

The advisory committee will normally consist of at least three or four persons; a chair and others decided upon jointly by the chair and the student. One of these members will typically come from the support field. Every student's advisory committee must have representation from at least two universities in the joint program.

Phase III – Dissertation

The third phase of the program consists of the dissertation in the course of which the student probes deeply into a well-defined research topic. The topic is developed with the thesis committee (at least three members), which may be the same as the Phase II advisory committee or may be reconstituted, again with representation from at least one of the other participating universities. The topic is approved formally by the thesis committee and, once the

research is completed and the dissertation written, the student publicly defends the completed thesis.

46.15.1 Admission – Joint Ph.D.

Candidates normally hold a Master's level degree, with a strong academic record from a recognized university. In rare cases, North American candidates without a related Master's degree but with exceptional backgrounds may be considered for the program.

GMAT (or GRE-General Test) results are required for applications to the Doctoral Program; this includes McGill Master's students applying to the Ph.D. The minimum score required is 600. Tests must have been written within the past five years.

Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English. Before acceptance, appropriate exam results must be submitted directly from the TOEFL (Test of English as a Foreign Language) or IELTS (International English Language Testing Systems) Office. An institutional version of TOEFL is not acceptable. Applications will not be considered if a TOEFL or IELTS test result is not available. A minimum score of 250 on the computer-based test or 100 for the Internet-based test with each component score not less than 20, is required for admission. Tests must have been written within the past two years.

Files will not be considered unless GMAT (or GRE-General Test) and TOEFL scores are received by the application deadline.

Students may apply for admission to one or more of the participating universities. These applications will be processed by the individual university where applicant has applied to and by the joint committee of the four schools. Students' preferences will prevail when more than one participating university is prepared to accept them. The Ph.D. degree will be granted by the university that admits the student. The program requires a minimum fulltime residency of six terms.

Applications will be considered upon the receipt of:

1. Online application form;
2. Two copies of official transcripts of all undergraduate and graduate degrees forwarded directly by originating universities;
3. At least two letters of reference from individuals who can assess research potential (free format and submitted on original letterhead);
4. Test results: TOEFL (where applicable) written within the last two years, and, GMAT (or GRE-General Test) written within the last five years) - Test scores must be forwarded directly from the Educational Testing Service;
5. Personal background form (specific questions pertaining to our program); and
6. C.V.

No documents submitted as part of the application package will be returned to the applicant.

Applications and all supporting documents must be submitted by February 1st for September admission.

All documents are to be submitted directly to:

Ph.D. Program Office
Desautels Faculty of Management
McGill University
1001 Sherbrooke Street West
Montreal, QC H3A 1G5
Telephone: (514) 398-4074
Fax: (514) 398-3876
E-mail: phd.mgmt@mcgill.ca
Website: www.mcgill.ca/management-phd

The addresses of the three other institutions are:

Concordia University,
John Molson School of Business,
1455 de Maisonneuve Blvd West, Montreal, QC H3G 1M8
École des Hautes Études Commerciales,
3000 Chemin de la Cote Ste-Catherine,
Montréal, QC H3T 2A7
Université du Québec à Montréal,
Département des Sciences Administratives,
315 Ste-Catherine Est, Montréal, QC H3C 4R2

46.15.2 Doctoral Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click on Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

The course credit weight is given in parentheses after the title.

BEHAVIOURAL SCIENCE SPECIALIZATION

ORGB 705 SEMINAR IN BEHAVIOURAL SCIENCE. (3)

ORGB 706 GROUP BEHAVIOUR AND PROCESSES. (3) Introductory into behavioural science that studies groups, including organizational teams (work teams operating in organizations) and small group phenomena.

FINANCE SPECIALIZATION

FINE 702 CONTINUOUS-TIME FINANCE. (3)

FINE 703 EMPIRICAL RESEARCH IN FINANCE. (3)

FINE 704 OPTIONS AND RISK MANAGEMENT. (3) The course covers topics in derivative pricing and financial risk management. Examples include volatility and correlation models, extreme value distributions, Monte Carlo simulation, option pricing under GARCH and stochastic volatility, option risk management using delta, gamma and full valuation, and risk model backtesting.

FINE 705 SEMINAR IN FINANCE. (3)

FINE 706 INTRODUCTORY FINANCIAL ECONOMICS. (3)

FINE 707 CORPORATE FINANCE. (3) Course will review mainly theoretical foundations, in addition to some empirical contributions to corporate finance and financial intermediation.

FINE 709 INTERNATIONAL FINANCE SEMINAR. (3) Recent advances in international finance.

FINE 710 FIXED INCOME SECURITIES THEORY. (3) Theoretical framework to deal with the analysis of fixed income securities and derivatives.

FINE 711 RESEARCH TOPICS IN FINANCIAL MARKETS DEVELOPMENT. (3) Research topics in the development of financial markets.

INFORMATION SYSTEMS SPECIALIZATION

INSY 704 ORGANIZATIONAL IMPACTS OF INFORMATION TECHNOLOGY. (3)

INSY 706 INFORMATION TECHNOLOGY ACCEPTANCE AND USAGE. (3) Individual and organizational acceptance of information technologies (IT), including how users react to the implementation of new IT.

INSY 707 STRATEGIC MANAGEMENT OF IT. (3) Strategic management of information technology and the potential use of information technology to improve organizational competitive advantage.

MARKETING SPECIALIZATION

MRKT 701 MODELS IN CONSUMER RESEARCH. (3)

MRKT 702 ADVANCES IN CONSUMER BEHAVIOUR. (3)

MRKT 703 ADVANCES IN SERVICES MARKETING. (3)

MRKT 705 SEMINAR IN MARKETING. (3)

MRKT 706 AUTOMATIC CONSUMER BEHAVIOUR. (3) Automatic psychological processes underlying consumer judgements and decisions.

MRKT 707 MULTILEVEL MODELLING. (3) Basic conception ideas of hierarchical linear and non-linear models, including various extensions of hierarchical models that are useful in applied work.

MRKT 708 JUDGEMENT AND DECISION MAKING. (3) Individual decision making, alternative representations of preferences and choices; as well as strategic decisions and social factors in decision making, game theory, social dilemmas, and negotiations.

OPERATIONS MANAGEMENT SPECIALIZATION

MGSC 701 DECOMP.-LRG SCALE OPTIMIZATION. (3)

MGSC 702 OPERATIONS MANAGEMENT SEMINAR. (3) Advanced research training in operations management.

MGSC 703 STOCHASTIC PROCESSES AND APPLICATIONS. (3)

MGSC 706 MANAGEMENT RESEARCH STATISTICS. (3) (Prerequisite: Permission of instructor.) Fundamental concepts, theory and methods of statistics essential to undertaking and evaluating research in the field of management.

MGSC 707 ADVANCED RESEARCH STATISTICS. (3) (Prerequisite: MGSC 706 or permission of the instructor.) Theory and methods of linear statistical models, emphasizing statistical understanding and application in management research. Topics covered include regression, analysis of variance and experimental design.

MGSC 709 MANUFACTURING SYSTEMS. (3) Manufacturing and attributes operations and the models used to design, evaluate and optimize these operations.

MGSC 710 APPLIED OPTIMIZATION. (3) Algorithmic developments in optimization and advanced software applications for modelling.

STRATEGY AND ORGANIZATION SPECIALIZATION

MGPO 701 SEMINAR IN QUALITATIVE METHODS. (3)

MGPO 702 NEW PARADIGMS: STRATEGIC MANAGEMENT. (3)

MGPO 704 ORGANIZATIONAL THEORY SEMINAR. (3)

MGPO 706 PERSPECTIVES ON INNOVATION. (3)

47 Mathematics and Statistics

Department of Mathematics and Statistics
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805 Sherbrooke Street West
Montreal, QC H3A 2K6
Canada

Telephone: (514) 398-3800
Fax: (514) 398-3899
E-mail: grad.mathstat@mcgill.ca
Website: www.math.mcgill.ca

Chair — David Wolfson

Graduate Program Director — Georg Schmidt

47.1 Staff

Emeritus Professors

Michael Barr; A.B., Ph.D.(Penn.) (*Peter Redpath Emeritus*)

Professor of Pure Mathematics)

Marta Bunge; M.A., Ph.D.(Penn.)

Jal R. Choksi; B.A.(Cant.), Ph.D.(Manc.)

Joachim Lambek; M.Sc., Ph.D.(McG.), F.R.S.C. (*Peter Redpath*)

Emeritus Professor of Pure Mathematics)

Sherwin Maslowe; B.Sc.(Wayne St.), M.Sc., Ph.D.(Calif.)

Arak M. Mathai; M.Sc.(Kerala), M.A., Ph.D.(Tor.)

William O.J. Moser; B.Sc.(Man.), M.A.(Minn.), Ph.D.(Tor.)

Vanamamalai Seshadri; B.Sc, M.Sc.(Madr.), Ph.D.(Okl.)

George P.H. Styan; M.A., Ph.D.(Col.)

John C. Taylor; B.Sc.(Acad.), M.A.(Qu.), Ph.D.(McM.)

Professors

William J. Anderson; B.Eng., Ph.D.(McG.)

William G.Brown; B.A.(Tor.), M.A.(Col.), Ph.D.(Tor.)

Henri Darmon; B.Sc.(McG.), Ph.D.(Harv.), F.R.S.C. (*James McGill Professor*)

Stephen W. Drury; M.A., Ph.D.(Cant.)

Kohur N. GowriSankaran; B.A., M.A.(Madr.), Ph.D.(Bom.)

Pengfei Guan; B.Sc.(Zhejiang), M.Sc., Ph.D.(Princ.) (*Canada Research Chair*)

Jacques C. Hurtubise; B.Sc.(Montr.), D.Phil.(Oxf.) F.R.S.C.

Vojkan Jaksic; B.S.(Belgrade), Ph.D.(Cal. Tech.)

Niky Kamran; B.Sc., M.Sc.(Bruxelles), Ph.D.(Wat.), F.R.S.C. (*James McGill Professor*)

Olga Kharlampovich; M.A.(Ural St.), Ph.D.(Lenin.), Dr. of Sc., (Steklov Inst.)

Michael Makkai; M.A., Ph.D.(Bud.) (*Peter Redpath Professor of Pure Mathematics*)

Alexei Miasnikov; M.Sc.(Novosibirsk), Ph.D., Dr. of Sc.(Lenin.) (*Canada Research Chair*)

Charles Roth; M.Sc.(McG.), Ph.D.(Hebrew)

Karl Peter Russell; Vor. Dip.(Hamburg), Ph.D.(Calif.)

Georg Schmidt; B.Sc.(Natal), M.Sc.(S.A.), Ph.D.(Stan.)

F. Bruce Shepherd; B.Sc.(Vic., Tor.), M.Sc., Ph.D.(Wat.) (*James McGill Professor*)

David A. Stephens; B.Sc., Ph.D.(Nott.)

John A. Toth; B.Sc., M.Sc.(McM.), Ph.D.(MIT) (*William Dawson Scholar*)

David Wolfson; B.Sc., M.Sc.(Natal), Ph.D.(Purd.)

Keith J. Worsley; B.Sc., M.Sc., Ph.D.(Auck.), F.R.S.C. (*James McGill Professor*)

Jian-Ju Xu; B.Sc., M.Sc.(Beijing), M.Sc., Ph.D.(Renss.)

Associate Professors

Masoud Asgharian; B.Sc.(Shahid Beheshti), M.Sc., Ph.D.(McG)

Peter Bartello; B.Sc.(Tor.), M.Sc., Ph.D.(McG.) (*joint appt. with Atmospheric and Oceanic Sciences*)

Eyal Z. Goren; B.A., M.S., Ph.D.(Hebrew)

Antony R. Humphries; B.A., M.A.(Cant.), Ph.D.(Bath)

Dmitry Jakobson; B.Sc.(MIT), Ph.D.(Princ.) (*William Dawson Scholar*)

Wilbur Jonsson; M.Sc.(Man.), Dr.Rer.Nat.(Tübingen)

Ivo Klemes; B.Sc.(Tor.), Ph.D.(Cal.Tech.)

James G. Loveys; B.A.(St. Mary's), M.Sc., Ph.D.(S. Fraser)

Neville G.F. Sancho; B.Sc., Ph.D.(Belf.)

Alain Vandal; B.Sc., M.Sc.(McG.), Ph.D.(Auck.)

Daniel T. Wise; B.A.(Yeshiva), Ph.D.(Princ.)

Assistant Professors

Nilima Nigam; B.Sc.(IIT, Bom.), M.S., Ph.D.(Delaware)

Russell Steele; B.S., M.S.(Carn. Mell), Ph.D.(Wash.)

Paul Tupper; B.Sc.(S. Fraser), Ph.D.(Stan.)

A. Vetta; B.Sc., M.Sc.(LSE), Ph.D.(MIT) (*joint appt. with SOCS*)

Thomas P. Wihler; M.S., Ph.D.(ETH)

Associate Members

Xiao-Wen Chang (*Computer Science*), Luc P. Devroye (*Computer Science*),

Pierre R.L. Dutilleul (*Plant Science*), Leon Glass

(*Physiology*), Jean-Louis Goffin (*Management*), James A. Hanley

(*Epidemiology & Biostatistics*), Lawrence Joseph (*Epidemiology & Biostatistics*),

Michael Mackey (*Physiology*), Lawrence A. Mysak

(*AOS*), Christopher Paige (*Computer Science*), Prakash

Panangaden (*Computer Science*), Robert Platt (*Epidemiology & Biostatistics*),

James O. Ramsay (*Psychology*), Peter Swain

(*Physiology*), George Alexander Whitmore (*Management*),

Christina Wolfson (*Epidemiology & Biostatistics*)

Adjunct Professors

Donald A. Dawson; Martin Gander; Andrew Granville; Ming Mei;

Ram Murty; Vladimir Remeslennikov; Robert A. Seely

Faculty Lecturers

José Correa; Axel Hundemer

47.2 Programs Offered

The Department of Mathematics and Statistics offers programs which can be focused on applied mathematics, pure mathematics and statistics leading to Masters degrees (M.A. or M.Sc.), as well as M.Sc. program options in Bioinformatics and in CSE (Computational Science and Engineering). In the basic Masters programs students must choose between the thesis option and the non-thesis option, which requires a project. The Bioinformatics and CSE Options require a thesis. In addition to the Ph.D. Program in Mathematics and Statistics, there is a Ph.D. option in Bioinformatics.

The department Website (www.math.mcgill.ca) provides extensive information on the department and its facilities, including the research activities and the research interests of individual faculty members. It also provides detailed information, supplementary to the calendar, concerning our programs, admissions, funding of graduate students, thesis requirements, advice concerning the choice of courses, etc.

Students are urged to consult the Website (www.math.uqam.ca/ISM) of the Institut des Sciences Mathématiques (ISM), which coordinates intermediate and advanced level graduate courses among Montreal and Quebec universities. A list of courses available under the ISM auspices can be obtained from the ISM Website. The ISM also offers fellowships and promotes a variety of joint academic activities greatly enhancing the mathematical environment in Montreal and in the province of Quebec.

47.3 Admission Requirements

In addition to the general Graduate and Postdoctoral Studies Office requirements, the Department requirements are as follows:

Master's Degree

The normal entrance requirement for the Master's programs is a Canadian Honours degree or its equivalent, with high standing, in mathematics, or a closely related discipline in the case of applicants intending to concentrate in statistics or applied mathematics.

Applicants wishing to concentrate in pure mathematics should have a strong background in linear algebra, abstract algebra, and real and complex analysis.

Applicants wishing to concentrate in statistics should have a strong background in linear algebra and basic real analysis. A calculus based course in probability and one in statistics are required, as well as some knowledge of computer programming. Some knowledge of numerical analysis and optimization is desirable.

Applicants wishing to concentrate in applied mathematics should have a strong background in most of the areas of linear algebra, analysis, differential equations, discrete mathematics and numerical analysis. Some knowledge of computer programming is also desirable.

Students whose preparation is insufficient for the program they wish to enter may, exceptionally, be admitted to a Qualifying Year.

Ph.D. Degree

A Master's degree with high standing is required, in addition to the requirements listed above for the Masters program. Students may transfer directly from the Masters program to the Ph.D. program under certain conditions. Students without a Master's degree, but with exceptionally strong undergraduate training, may be admitted directly to Ph.D. 1.

47.4 Application Procedures

Online application is preferred and is available at www.mcgill.ca/applying/online. Applicants unable to apply online can request a paper or PDF form from the department.

Applications will be considered upon receipt of:

1. application form;
2. \$80 application fee;
3. two official or certified copies of transcripts;
4. two letters of reference on letterhead with original signatures;
5. one page statement outlining research interests and identifying possible supervisor;
6. TOEFL/IELTS test results (if applicable);
7. applicants in pure and applied mathematics should provide a GRE score report, if available.

For more details, especially concerning items 6 and 7, please consult the Website at www.math.mcgill.ca/students/grad_app.php#necessarybackground.

All information is to be submitted directly to the Graduate Program Secretary in the Department of Mathematics and Statistics.

Deadline: Applicants are urged to submit complete applications by March 1 for September admission, or by July 1 for January admission.

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

47.5 Program Requirements

M.A. in Mathematics and Statistics (Non-Thesis) (45 credits)
or
M.Sc. in Mathematics and Statistics (Non-Thesis) (45 credits)
Complementary Courses (minimum 29 credits)

At least 8 approved graduate courses, at the 500 level or above, of 3 or more credits each.

Project Component - Required (16 credits)

MATH 640 (8) Project 1

MATH 641 (8) Project 2

M.A. in Mathematics and Statistics (Thesis) (45 credits)
or

M.Sc. in Mathematics and Statistics (Thesis) (45 credits)

Complementary Courses (minimum 21 credits)

At least 6 approved graduate courses, at the 500 level or above, of 3 or more credits each.

Thesis Component - Required (24 credits)

MATH 600 (6) Master's Thesis Research 1

MATH 601 (6) Master's Thesis Research 2

MATH 604 (6) Master's Thesis Research 3

MATH 605 (6) Master's Thesis Research 4

M.Sc. in Mathematics and Statistics (Thesis) – Bioinformatics (48 credits)

Required Course (3 credits)

COMP 616 (3) Bioinformatics Seminar

Complementary Courses (21 credits)

6 credits from the following:

BINF 621 (3) Bioinformatics: Molecular Biology

BMDE 652 (3) Bioinformatics: Proteomics

BTEC 555 (3) Structural Bioinformatics

COMP 618 (3) Bioinformatics: Functional Genomics

PHGY 603 (3) Systems Biology and Biophysics

15 credits of approved courses at the 500 or 600 level. Additional courses may be required at the discretion of the candidate's supervisory committee.

Thesis Component - Required (24 credits)

MATH 600 (6) Master's Thesis Research 1

MATH 601 (6) Master's Thesis Research 2

MATH 604 (6) Master's Thesis Research 3

MATH 605 (6) Master's Thesis Research 4

M.Sc. in Mathematics and Statistics (Thesis) – Computational Science and Engineering (CSE) (47 credits)**Required Course** (1 credit)

MATH 669D1/D2(1) CSE Seminar

Complementary Courses (minimum 22 credits)

Two courses from List A, two courses from List B, and the remaining credits to be chosen from graduate (500 or 600 level) courses in the Department of Mathematics and Statistics. Two complementary courses must be taken outside the Department of Mathematics and Statistics.

List A - Scientific Computing Courses:

CIVE 602 (4) Finite Element Analysis
 COMP 522 (4) Modelling and Simulation
 COMP 540 (3) Matrix Computations
 COMP 566 (3) Discrete Optimization 1
 MATH 578 (4) Numerical Analysis 1
 MATH 579 (4) Numerical Differential Equations

List B - Applications and Specialized Methods Courses:

ATOC 512 (3) Atmospheric and Oceanic Dynamics
 ATOC 513 (3) Waves and Stability
 ATOC 515 (3) Turbulence in Atmosphere and Oceans
 CIVE 514 (3) Structural Mechanics
 CIVE 572 (3) Computational Hydraulics
 CIVE 603 (4) Structural Dynamics
 CIVE 613 (4) Numerical Methods: Structural Engineering
 COMP 505 (3) Advanced Computer Architecture
 COMP 557 (3) Fundamentals of Computer Graphics
 COMP 558 (3) Fundamentals of Computer Vision
 COMP 567 (3) Discrete Optimization 2
 COMP 621 (4) Optimizing Compilers
 COMP 642 (4) Numerical Estimation Methods
 COMP 767 (4) Advanced Topics: Applications 2
 ECSE 507 (3) Optimization and Optimal Control
 ECSE 532 (3) Computer Graphics
 ECSE 547 (3) Finite Elements in Electrical Engineering
 ECSE 549 (3) Expert Systems in Electrical Design
 MATH 555 (4) Fluid Dynamics
 MATH 560 (4) Optimization
 MATH 651 (4) Asymptotic Expansion and Perturbation Methods
 MATH 761 (4) Topics in Applied Mathematics 1
 MECH 533 (3) Subsonic Aerodynamics
 MECH 537 (3) High-Speed Aerodynamics
 MECH 538 (3) Unsteady Aerodynamics
 MECH 539 (3) Computational Aerodynamics
 MECH 541 (3) Kinematic Synthesis
 MECH 545 (3) Advanced Stress Analysis
 MECH 572 (3) Introduction to Robotics
 MECH 573 (3) Mechanics of Robotic Systems
 MECH 576 (3) Computer Graphics and Geometrical Modelling
 MECH 577 (3) Optimum Design
 MECH 610 (4) Fundamentals of Fluid Dynamics
 MECH 620 (4) Advanced Computational Aerodynamics
 MECH 632 (4) Theory of Elasticity
 MECH 642 (4) Advanced Dynamics
 MECH 650 (4) Heat Transfer
 MECH 654 (4) Compt. Fluid Flow and Heat Transfer

Thesis Component - Required (24 credits)

MATH 600 (6) Master's Thesis Research 1
 MATH 601 (6) Master's Thesis Research 2
 MATH 604 (6) Master's Thesis Research 3
 MATH 605 (6) Master's Thesis Research 4

Ph.D. Degree in Mathematics and Statistics**Complementary Courses**

12 approved courses beyond the Bachelor's level

Comprehensives - Required

MATH 700 (0) Ph.D. Preliminary Examination Part A
 MATH 701 (0) Ph.D. Preliminary Examination Part B

Thesis - Required

The student must submit a thesis judged to be an original contribution to knowledge.

Ph.D. in Mathematics and Statistics – Bioinformatics

Students will meet the Ph.D. degree requirements of the Department of Mathematics and Statistics and the following requirements for the option.

Required Course (3 credits)

COMP 616 (3) Bioinformatics Seminar

Complementary Courses

The twelve one-semester complementary courses for the Ph.D. degree must include at least two from the list below, unless a student has completed the M.Sc. level option in Bioinformatics, in which case only one course from the list below must be chosen:

BINF 621 (3) Bioinformatics: Molecular Biology
 BMDE 652 (3) Bioinformatics: Proteomics
 BTEC 555 (3) Structural Bioinformatics
 COMP 618 (3) Bioinformatics: Functional Genomics
 PHGY 603 (3) Systems Biology and Biophysics

Comprehensives - Required

MATH 700 (0) Ph.D. Preliminary Examination Part A
 MATH 701 (0) Ph.D. Preliminary Examination Part B

Thesis - Required

The student must submit a thesis judged to be an original contribution to knowledge.

47.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Approximately 15 of the 600- and 700-level courses will be given.

Term(s) offered (Fall, Winter, Summer) may appear after the credit weight to indicate when a course would normally be taught. Please check Class Schedule to confirm this information.

Notes:

All undergraduate courses administered by the Faculty of Science (courses at the 100- to 500-level) have limited enrolment.

With the permission of the instructor, prerequisites and corequisites for courses may be waived in individual cases.

The course credit weight is given in parentheses after the title.

★ Denotes courses taught only in alternate years.

MATH 523 GENERALIZED LINEAR MODELS. (4) (Winter) (Prerequisite: MATH 423 or EPIB 697.) (Restriction: Not open to students who have taken MATH 426.) Modern discrete data analysis. Exponential families, orthogonality, link functions. Inference and model selection using analysis of deviance. Shrinkage (Bayesian, frequentist viewpoints). Smoothing. Residuals. Quasi-likelihood. Sliced inverse regression. Contingency tables: logistic regression, log-linear models. Censored data. Applications to current problems in medicine, biological and physical sciences. GLIM, S, software.

MATH 524 NONPARAMETRIC STATISTICS. (4) (Fall) (Prerequisite: MATH 324 or equivalent.) (Restriction: Not open to students who have taken MATH 424.) Distribution free procedures for 2-sample problem: Wilcoxon rank sum, Siegel-Tukey, Smirnov tests. Shift model: power and estimation. Single sample procedures: Sign, Wilcoxon signed rank tests. Nonparametric ANOVA: Kruskal-Wallis, Friedman tests. Association: Spearman's rank correlation, Kendall's tau. Goodness of fit: Pearson's chi-square, likelihood

ratio, Kolmogorov-Smirnov tests. Statistical software packages used.

MATH 525 SAMPLING THEORY AND APPLICATIONS. (4) (Winter) (Prerequisite: MATH 324 or equivalent.) (Restriction: Not open to students who have taken MATH 425.) Simple random sampling, domains, ratio and regression estimators, superpopulation models, stratified sampling, optimal stratification, cluster sampling, sampling with unequal probabilities, multistage sampling, complex surveys, nonresponse.

MATH 533 HONOURS REGRESSION AND ANALYSIS OF VARIANCE. (4) (Prerequisites: MATH 357, MATH 247 or MATH 251.) (Restriction: Not open to have taken or are taking MATH 423.) (Note: An additional project or projects assigned by the instructor that require a more detailed treatment of the major results and concepts covered in MATH 423.) This course consists of the lectures of MATH 423 but will be assessed at the 500 level.

★ **MATH 550 COMBINATORICS.** (4) (Intended primarily for honours and graduate students in mathematics.) (Restriction: Permission of instructor.) Enumerative combinatorics: inclusion-exclusion, generating functions, partitions, lattices and Moebius inversion. Extremal combinatorics: Ramsey theory, Turan's theorem, Dilworth's theorem and extremal set theory. Graph theory: planarity and colouring. Applications of combinatorics.

MATH 552 COMBINATORIAL OPTIMIZATION. (4) (Prerequisite: MATH 350 or COMP 362 (or equivalent).) (Restriction: Not open to students who have taken or are taking COMP 552.) Algorithmic and structural approaches in combinatorial optimization with a focus upon theory and applications. Topics include: polyhedral methods, network optimization, the ellipsoid method, graph algorithms, matroid theory and submodular functions.

★ **MATH 555 FLUID DYNAMICS.** (4) (Fall) (Prerequisite (Undergraduate): MATH 315 and MATH 319 or equivalent.) Kinematics. Dynamics of general fluids. Inviscid fluids, Navier-Stokes equations. Exact solutions of Navier-Stokes equations. Low and high Reynolds number flow.

MATH 556 MATHEMATICAL STATISTICS 1. (4) (Fall) (Prerequisite: MATH 357 or equivalent.) Probability and distribution theory (univariate and multivariate). Exponential families. Laws of large numbers and central limit theorem.

MATH 557 MATHEMATICAL STATISTICS 2. (4) (Winter) (Prerequisite: MATH 556) Sampling theory (including large-sample theory). Likelihood functions and information matrices. Hypothesis testing, estimation theory. Regression and correlation theory.

MATH 560 OPTIMIZATION. (4) (Prerequisite: Undergraduate background in analysis and linear algebra, with instructor's approval.) Classical optimization in n variables. Convex sets and functions, optimality conditions for single-objective and multi-objective nonlinear optimization problems with and without constraints. Duality theories and their economic interpretations. Optimization with functionals. Connections with calculus of variations and optimal control. Stability of mathematical models. Selected numerical methods.

MATH 564 ADVANCED REAL ANALYSIS 1. (4) (Fall) (Prerequisites: MATH 354, MATH 355 or equivalents.) Review of theory of measure and integration; product measures, Fubini's theorem; L_p spaces; basic principles of Banach spaces; Riesz representation theorem for $C(X)$; Hilbert spaces; part of the material of MATH 565 may be covered as well.

MATH 565 ADVANCED REAL ANALYSIS 2. (4) (Winter) (Prerequisite: MATH 564) Continuation of topics from MATH 564. Signed measures, Hahn and Jordan decompositions. Radon-Nikodym theorems, complex measures, differentiation in \mathbb{R}^n , Fourier series and integrals, additional topics.

MATH 566 ADVANCED COMPLEX ANALYSIS. (4) (Winter) (Prerequisites: MATH 366 (formerly MATH 466), MATH 564.) Simple connectivity, use of logarithms; argument, conservation of domain and maximum principles; analytic continuation, monodromy theorem; conformal mapping; normal families, Riemann mapping theorem;

harmonic functions, Dirichlet problem; introduction to functions of several complex variables.

MATH 570 HIGHER ALGEBRA 1. (4) (Fall) (Prerequisite: MATH 371 or equivalent.) Review of group theory; free groups and free products of groups. Sylow theorems. The category of R -modules; chain conditions, tensor products, flat, projective and injective modules. Basic commutative algebra; prime ideals and localization, Hilbert Nullstellensatz, integral extensions. Dedekind domains. Part of the material of MATH 571 may be covered as well.

MATH 571 HIGHER ALGEBRA 2. (4) (Winter) (Prerequisites: MATH 570 or consent of instructor.) Completion of the topics of MATH 570. Rudiments of algebraic number theory. A deeper study of field extensions; Galois theory, separable and regular extensions. Semi-simple rings and modules. Representations of finite groups.

★ **MATH 574 DYNAMICAL SYSTEMS.** (4) (Winter) (Prerequisites: MATH 325 and MATH 354 or permission of the instructor.) Dynamical systems, phase space, limit sets. Review of linear systems. Stability. Liapunov functions. Stable manifold and Hartman-Grobman theorems. Local bifurcations, Hopf bifurcations, global bifurcations. Poincare Sections. Quadratic maps: chaos, symbolic dynamics, topological conjugacy. Sarkovskii's theorem, periodic doubling route to chaos. Smale Horseshoe.

MATH 575 INTERMEDIATE PARTIAL DIFFERENTIAL EQUATIONS. (4) (Prerequisite: MATH 375) A continuation of topics introduced in MATH 375.

MATH 576 GEOMETRY AND TOPOLOGY 1. (4) (Fall) (Prerequisite: MATH 354) Basic point-set topology, including connectedness, compactness, product spaces, separation axioms, metric spaces. The fundamental group and covering spaces. Simplicial complexes. Singular and simplicial homology. Part of the material of MATH 577 may be covered as well.

MATH 577 GEOMETRY AND TOPOLOGY 2. (4) (Winter) (Prerequisite: MATH 576) Continuation of the topics of MATH 576. Manifolds and differential forms. De Rham's theorem. Riemannian geometry. Connections and curvatures 2-Manifolds and imbedded surfaces.

MATH 578 NUMERICAL ANALYSIS 1. (4) (Fall) (Prerequisites: MATH 247 or MATH 251; and MATH 387; or permission of the instructor.) Development, analysis and effective use of numerical methods to solve problems arising in applications. Topics include direct and iterative methods for the solution of linear equations (including preconditioning), eigenvalue problems, interpolation, approximation, quadrature, solution of nonlinear systems.

MATH 579 NUMERICAL DIFFERENTIAL EQUATIONS. (4) (Winter) (Prerequisites: MATH 375 and MATH 387 or permission of the instructor.) Numerical solution of initial and boundary value problems in science and engineering: ordinary differential equations; partial differential equations of elliptic, parabolic and hyperbolic type. Topics include Runge Kutta and linear multistep methods, adaptivity, finite elements, finite differences, finite volumes, spectral methods.

MATH 580 APPLIED PARTIAL DIFFERENTIAL EQUATIONS 1. (4) (Fall) (Prerequisites: MATH 316, MATH 375 or equivalent.) (Restrictions: Not open to students who have taken MATH 586.) Linear and nonlinear partial differential equations of applied mathematics. Uniqueness, regularity, well posedness and classification for elliptic, parabolic and hyperbolic equations. Method of characteristics, conservation laws, shocks. Fundamental solutions, weak and strong maximum principles, representation formulae, Green's functions.

MATH 581 APPLIED PARTIAL DIFFERENTIAL EQUATIONS 2. (4) (Winter) (Prerequisite: MATH 580.) Continuation of topics from MATH 580. Transform methods. Weak solutions. Advanced topics in partial differential equations.

MATH 587 ADVANCED PROBABILITY THEORY 1. (4) (Fall) (Prerequisite: MATH 356 or equivalent and approval of instructor.) Probability spaces. Random variables and their expectations. Convergence of random variables in L_p . Independence and

conditional expectation. Introduction to Martingales. Limit theorems including Kolmogorov's Strong Law of Large Numbers.

MATH 589 ADVANCED PROBABILITY THEORY 2. (4) (Winter) (Prerequisites: MATH 587 or equivalent.) Characteristic functions: elementary properties, inversion formula, uniqueness, convolution and continuity theorems. Weak convergence. Central limit theorem. Additional topic(s) chosen (at discretion of instructor) from: Martingale Theory; Brownian motion, stochastic calculus.

★ **MATH 590 ADVANCED SET THEORY.** (4) (Prerequisites: MATH 318, either MATH 355 or MATH 371, or permission of the instructor.) (Restriction: Not open to students who have taken or are taking MATH 488.) Students will attend the lectures and fulfill all the requirements of MATH 488. In addition, they will study an advanced topic agreed on with the instructor. Topics may be chosen from combinatorial set theory, Goedel's constructible sets, forcing, large cardinals.

★ **MATH 591 MATHEMATICAL LOGIC 1.** (4) (Winter) (Prerequisites: MATH 488 or equivalent or consent of instructor.) Propositional logic and first order logic, completeness, compactness and Löwenheim-Skolem theorems. Introduction to axiomatic set theory. Some of the following topics: introduction to model theory, Herbrand's and Gentzen's theories, Lindström's characterization of first order logic.

★ **MATH 592 MATHEMATICAL LOGIC 2.** (4) (Winter) (Prerequisites: MATH 488 or equivalent or consent of instructor.) Introduction to recursion theory; recursively enumerable sets, relative recursiveness. Incompleteness, undecidability and undefinability theorems of Gödel, Church, Rosser and Tarski. Some of the following topics: Turing degrees, Friedberg-Muchnik theorem, decidable and undecidable theories.

MATH 600 MASTER'S THESIS RESEARCH 1. (6) (Restriction: Not open to students who have taken or are taking MATH 640.) Thesis research under supervision.

MATH 601 MASTER'S THESIS RESEARCH 2. (6) Thesis research under supervision.

MATH 604 MASTER'S THESIS RESEARCH 3. (6) Thesis research under supervision.

MATH 605 MASTER'S THESIS RESEARCH 4. (6) Thesis research under supervision.

MATH 606 ALGEBRAIC TOPOLOGY. (4) (Prerequisite: MATH 577) Homology and Cohomology theories. Duality theorems. Higher homotopy groups.

MATH 626 ADVANCED GROUP THEORY 1. (4) The structure of groups. Special classes of groups. Representation theory. Additional topics to suit the class.

MATH 627 ADVANCED GROUP THEORY 2. (4) A continuation of the topics listed in the description of MATH 626.

MATH 635 FUNCTIONAL ANALYSIS 1. (4) (Prerequisite: MATH 564, MATH 565, and MATH 566.) Banach spaces. Hilbert spaces and linear operators on these. Spectral theory. Banach algebras. A brief introduction to locally convex spaces.

MATH 640 PROJECT 1. (8) (Restriction: Not open to students who have taken or are taking MATH 600.) Project research under supervision.

MATH 641 PROJECT 2. (8) Project research under supervision.

MATH 651 ASYMPTOTIC EXPANSION AND PERTURBATION METHODS. (4) Asymptotic series. Summation. Asymptotic estimation of integrals. Regular and singular perturbation problems and asymptotic solution of differential equations.

MATH 666 SEMINAR MATHEMATICS AND STATISTICS 1. (2) (Restriction: Departmental approval required.) Study on an advanced topic in mathematics or statistics.

MATH 667 SEMINAR MATHEMATICS AND STATISTICS 2. (2) (Restriction: Departmental approval required.) Study on an advanced topic in mathematics or statistics.

MATH 690 READING COURSE IN NUMBER THEORY. (4) A highly specialized study.

MATH 669D1 (0.5), MATH 669D2 (0.5) CSE SEMINAR. (Restriction: This seminar course is open only to students who were admitted to the CSE Program Option.) (No credit will be given for this course unless both MATH 669D1 and MATH 669D2 are successfully completed in consecutive terms) (Students must register for both MATH 669D1 and MATH 669D2) Techniques and applications in computational science and engineering.

MATH 669N1 CSE SEMINAR. (0.5) (Restriction: This seminar course is open only to students who were admitted to the CSE Program Option.) (Students must also register for MATH 669N2) (No credit will be given for this course unless both MATH 669N1 and MATH 669N2 are successfully completed in a twelve month period) Techniques and applications in computational science and engineering.

MATH 669N2 CSE SEMINAR. (0.5) (Prerequisite: MATH 669N1) (No credit will be given for this course unless both MATH 669N1 and MATH 669N2 are successfully completed in a twelve month period) See MATH 669N1 for course description.

MATH 671 APPLIED STOCHASTIC PROCESSES. (4) Discrete parameter Markov chains, including branching processes and random walks. Limit theorems and ergodic properties of Markov chains. Continuous parameter Markov chains, including birth and death process. Topics selected from the following areas: renewal processes, Brownian motion, statistical inference for stochastic processes.

MATH 674 EXPERIMENTAL DESIGN. (4) Review of one-way and two-way analyses of variance; randomized block, Latin square and incomplete block designs; factorial designs, confounding, fractional replications; random and mixed models; split-plot designs; nested and hierarchical designs; response surface analysis. Weighted least squares. Analysis of variance with equal and unequal numbers in cells. Latin squares, complete factorial designs. Prediction and confidence bands, multiple comparisons. Random effects models.

MATH 678 APPLIED STATISTICAL METHODS 1. (4) Statistical data analysis, with special reference to applications of the main statistical methods to problems in medicine, biology, chemistry, etc. Extensive use of computer methods, especially subroutine packages for statistical data description, display and analysis.

MATH 680 COMPUTATION INTENSIVE STATISTICS. (4) (Prerequisites: MATH 556, MATH 557 or permission of instructor.) (Restriction: Not open to students who have taken or are taking EPIB 680) Introduction to a statistical computing language, such as S-PLUS; random number generation and simulations; EM algorithm; bootstrap, cross-validation and other resampling schemes; Gibbs sampler. Other topics: numerical methods; importance sampling; permutation tests.

MATH 681 TIME SERIES ANALYSIS. (4) Stationary stochastic processes. Autocovariance and autocovariance generating functions. The periodogram. Model estimation. Likelihood function. Estimation for autoregressive moving average and mixed processes. Computer simulation; diagnostic checking, tests with residuals. Estimation of spectral density; Bartlett, Daniell, Blackman-Tukey spectral windows. Asymptotic moments of spectral estimates.

MATH 685D1 (2), MATH 685D2 (2) STATISTICAL CONSULTING. (Prerequisites: MATH 423, MATH 523, MATH 556, MATH 557. Equivalents may be substituted at instructor's discretion) (Pass-word required) (Students must register for both MATH 685D1 and MATH 685D2) (No credit will be given for this course unless both MATH 685D1 and MATH 685D2 are successfully completed in consecutive terms) Statistical consultation skills; overview of widely used statistical techniques; understanding the client's problem; suggesting designs and statistical analyses; performing statistical analyses; communicating with clients orally and in writing. Format: Simulated and real consultations with clients.

MATH 686 SURVIVAL ANALYSIS. (4) (Prerequisites: MATH 556, MATH 557 or permission of instructor.) (Restriction: Not open to students who have taken or are taking EPIB 686.) Parametric survival models. Nonparametric analysis: Kaplan-Meier estimator and its properties. Covariates with emphasis on Cox's proportional

hazards model. Marginal and partial likelihood. Logrank tests. Residual analysis. Homework assignments a mixture of theory and applications. In-class discussion of data tests.

MATH 687 READING COURSE IN MATHEMATICAL LOGIC. (4) A highly specialized study.

MATH 689 READING COURSE IN ALGEBRA. (4) A highly specialized study.

MATH 690 READING COURSE IN NUMBER THEORY. (4) A highly specialized study.

MATH 691 READING COURSE IN GEOMETRY/TOPOLOGY. (4) A highly specialized study.

MATH 693 READING COURSE IN ANALYSIS. (4) A highly specialized study.

MATH 695 READING COURSE IN APPLIED MATHEMATICS. (4) A highly specialized study.

MATH 697 READING COURSE IN STATISTICS. (4) A highly specialized study.

MATH 698 READING COURSE IN PROBABILITY. (4) A highly specialized study.

MATH 699 READING COURSE IN DISCRETE MATHEMATICS. (4) A highly specialized study.

MATH 700 PH.D. PRELIMINARY EXAMINATION PART A. (0)

MATH 701 PH.D. PRELIMINARY EXAMINATION PART B. (0)

MATH 704 TOPICS IN MATHEMATICAL LOGIC. (4)

MATH 706 TOPICS IN GEOMETRY AND TOPOLOGY 1. (4)

MATH 707 TOPICS IN GEOMETRY AND TOPOLOGY 2. (4)

MATH 720 TOPICS IN ALGEBRA 1. (4) This course covers an advanced topic in some branch of algebra.

MATH 721 TOPICS IN ALGEBRA 2. (4) This course covers an advanced topic in some branch of algebra.

MATH 722 TOPICS IN ALGEBRAIC GEOMETRY. (4) This course covers an advanced topic in some branch of algebra.

MATH 723 TOPICS IN GROUP THEORY. (4) This course covers an advanced topic in some branch of algebra.

MATH 726 TOPICS IN NUMBER THEORY. (4) This course covers an advanced topic in number theory.

MATH 727 TOPICS IN ARITHMETIC GEOMETRY. (4) This course covers an advanced topic in number theory.

MATH 740 TOPICS IN ANALYSIS 1. (4) This course covers an advanced topic in some branch of analysis.

MATH 741 TOPICS IN ANALYSIS 2. (4) This course covers an advanced topic in some branch of analysis.

MATH 742 TOPICS IN MATHEMATICAL PHYSICS. (4) This course covers an advanced topic in some branch of analysis.

MATH 743 TOPICS IN MICROLOCAL ANALYSIS. (4) This course covers an advanced topic in some branch of analysis.

MATH 744 TOPICS IN SPECTRAL THEORY. (4) This course covers an advanced topic in some branch of analysis.

MATH 756 TOPICS IN OPTIMIZATION. (4) This course covers an advanced topic in Optimization.

MATH 758 TOPICS IN DISCRETE MATHEMATICS. (4) This course covers an advanced topic in Optimization.

MATH 761 TOPICS IN APPLIED MATHEMATICS 1. (4) This course covers an advanced topic in applied mathematics.

MATH 762 TOPICS IN APPLIED MATHEMATICS 2. (4) This course covers an advanced topic in applied mathematics.

MATH 763 TOPICS IN DIFFERENTIAL EQUATIONS. (4) This course covers an advanced topic in applied mathematics.

MATH 764 TOPICS IN PARTIAL DIFFERENTIAL EQUATIONS. (4) This course covers an advanced topic in applied mathematics.

MATH 765 TOPICS IN NUMERICAL ANALYSIS. (4) This course covers an advanced topic in applied mathematics.

MATH 782 TOPICS IN STATISTICS 1. (4) This course covers an advanced topic.

MATH 783 TOPICS IN STATISTICS 2. (4) This course covers an advanced topic.

MATH 784 TOPICS IN PROBABILITY. (4) This course covers an advanced topic.

48 Mechanical Engineering

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Graduate Program Director — D.L. Frost

Graduate Recruitment and Fellowship Director — L. Mongeau

Graduate Aerospace Director — P. Hubert

Graduate MMM Co-Director — V. Thomson

48.1 Staff

Emeritus Professors

A. M. Ahmed; B.Sc.(Dhaka), Ph.D.(McG.), Ing. (*Thomas Workman Emeritus Professor of Mechanical Engineering*)

R. Knystautas; B.Eng., M.Eng., Ph.D.(McG.), Ing.

M.P. Païdoussis; B.Eng.(McG.), Ph.D.(Camb.), Ing., F.I. Mech.E., F.A.S.M.E., F.A.A.M., F.C.S.M.E., F.R.S.C., F.C.A.E. (*Thomas Workman Emeritus Professor of Mechanical Engineering*)

Post-Retirement

G. Bach; B.Sc.(Alta), M.Sc.(Birm), Ph.D.(McG.)

L. Kops; B.Eng., M.Eng., D.Sc., Eng.(Krakow Tech U.), Ing., F.C.I.R.P., F.A.S.M.E., F.C.S.M.E., M.S.M.E.

Professors

J. Angeles; B.Sc., M.Sc.(UNAM Mexico), Ph.D.(Stan.), Eng. F.A.S.M.E., F.C.S.M.E., F.R.S.C. (*James McGill Professor (NSERC Design Engineering Chair)*)

B.R. Baliga; B.Tech.(I.I.T. Kanpur), M.Sc.(Case), Ph.D.(Minn.)

W.G. Habashi; B.Eng., M.Eng.(McG.), Ph.D.(C'nell), Ing., F.A.S.M.E., F.C.A.E. (*NSERC-J. Armand Bombardier Industrial Research Chair*)

J.H.S. Lee; B.Eng.(McG.), M.Sc.(MIT), Ph.D.(McG.), Ing., F.R.S.C.

D.F. Mateescu; M.Eng.(Poli. U. Buch.), Ph.D.(Rom. Acad. Sci.), Doctor Honoris Causa (Poli. U. Buch.), AFAIAA, FCASI

A.K. Misra; B.Tech.(I.I.T., Kgp.), Ph.D.(Br. Col.), P.Eng., F.A.A.S., A.F.A.I.A.A. (*Thomas Workman Professor of Mechanical Engineering*)

L. Mongeau; B.Sc., M.Sc.(École Poly., Montr.), Ph.D.(Penn St.), Ing. (*Canada Research Chair*)

C. Pierre; B.Eng.(École Cent. Paris), M.Sc.(Princ.), Ph.D.(Duke), F.A.S.M.E. (*Canada Research Chair*)

Associate Professors

L. Cortelezzi; M.Sc., Ph.D.(Cal.Tech.)

D.L. Frost; B.A.Sc.(Br. Col.), M.S., Ph.D.(Cal.Tech.), P.Eng.

A.J. Higgins; B.Sc.(Ill.), M.S., Ph.D.(Wash.)

P. Hubert; B.Eng., M.A.Sc.(École Poly., Montr.), Ph.D.(Br. Col.), Ing. (*Canada Research Chair*)

T. Lee; M.S.(Portland St.), Ph.D.(Idaho)

L. Lessard; B.Eng.(McG.), M.Sc., Ph.D.(Stan.), Ing.

R. Mongrain; B.Sc., M.Sc.(Montr.), Ph.D.(École Poly., Montr.), Ing., (*William Dawson Scholar*)

L. Mydlarski; B.Sc.(Wat.), Ph.D.(C'nell)

M. Nahon; B.Sc.(Qu.), M.Sc.(Tor.), Ph.D.(McG.), Ing.

P. Radziszewski; B.Sc.(Br. Col.), M.Sc., Ph.D.(Laval), Ing.

I. Sharf; B.A.Sc., Ph.D.(Tor.)
 V. Thomson; B.Sc.(Windsor), Ph.D.(McM.), (*Werner Graupe Professor of Manufacturing Automation*)
 P.J. Zsombor-Murray; B.Eng., M.Eng., Ph.D.(McG.), Ing., F.C.S.M.E.

Assistant Professors

F. Barthelat; M.Sc.(Roch), Ph.D.(N'western)
 J. M. Bergthorson; B.Sc.(Man.), M.Sc., Ph.D.(Cal. Tech.)
 J. Kövecses; M.Sc.(U. Miskolc), Ph.D.(Hung. Acad. Sci.), Ing.
 S. Nadarajah; B.Sc.(Kansas), M.S., Ph.D.(Stan.)
 D. Pasini; M.Sc.(Pavia), Ph.D.(Bristol), Ing.
 E.V. Timofeev; M.Sc., Ph.D.(S.T.U. St. Petersburg), Eng.
 S. Vengallatore; B.Tech. (B.H.U), Ph.D.(MIT) (*Canada Research Chair*)

Assistant Professor (Special Category)

A. Baggag; B. Eng.(École Poly., Algiers), M.A.Sc.(École Poly., Montr.), Ph.D.(Minn.)

Associate Members

R.E. Kearney (Biomedical Engineering), B.H.K. Lee

Non-Tenure Track Faculty

H. Attia, S. Girgis, K. MacKenzie, J.A. Nemes, C.A. Rabbath, R. Sumner, T. Yee, D. Zorbas

48.2 Programs Offered

M.Eng., M.Sc. and Ph.D. degrees in Mechanical Engineering.

Advanced courses and laboratory facilities are available for graduate study leading to the M.Eng. and Ph.D. degrees in Mechanical Engineering. Some of the specific areas of research are as follows:

Aerodynamics; fluids and thermal engineering:

Experimental fluid mechanics and aerodynamics, aeroelasticity, aeroacoustics; theoretical fluid mechanics; turbulence, mixing in turbulent flows; fluid flow control; fluid-structure interactions; computational fluid dynamics, multidisciplinary optimization, computer flow visualization; heat transfer; combustion, shock wave physics, energetic materials, high-speed reacting flows, hypersonic propulsion, alternative fuels.

Mechanics of materials and structures:

Composite materials: structural design, analysis, manufacturing and processing; micro/nano mechanics; MEMS/NEMS; adaptive structures; thermomechanics, wave propagation, computational mechanics.

Dynamics and control:

Multibody systems, legged and wheeled vehicles, compliant mechanisms, kinematic geometry; tethered systems, lighter-than-air craft, underwater vehicles; spacecraft dynamics, space robotics; modeling and simulation; fluid-structure interactions, nonlinear and chaotic dynamics; dynamics of bladed assemblies.

Design and manufacturing:

Design theory and methodology, design optimization; biomimetics; machine tools and systems, manufacturing processes, management and control; micro/nano machining; wear and comminution processes.

Bioengineering:

Biomechanics, biomaterials, blood and respiratory flows, mechanics of soft tissues, cardiovascular devices, image processing for medical diagnostics, voice production.

A Master in Manufacturing Management is jointly offered by the Faculty of Engineering and the Desautels Faculty of Management.

48.3 Admission Requirements

The general rules of the Graduate and Postdoctoral Studies Office apply. Candidates who come from other institutions are expected to have an academic background equivalent to the undergraduate curriculum in mechanical engineering at McGill or to make up any deficiencies in a qualifying year.

Applicants to the M.Eng. (Thesis) program, including the CSE Option, must hold an undergraduate engineering degree (or equivalent). Applicants who hold an undergraduate degree in a non-engineering discipline---typically the Physical Sciences---may apply for the M.Sc. (Thesis) program which is governed by the same regulations as the M.Eng. (Thesis) program.

Applicants to the M.Eng. (non-Thesis) program must hold an undergraduate degree in Mechanical Engineering (or equivalent). Applicants to the M.Eng. (Aerospace) program must be citizens or permanent residents of Canada and hold an undergraduate engineering degree (or equivalent). In addition, applicants should be fluent in French.

Applicants to the Ph.D. program must have successfully completed a Master's degree program (or equivalent) in Engineering or the Physical Sciences. Students are not admitted directly from an undergraduate program.

In the case of all programs, applicants must have successfully completed their prior degree(s) with a minimum CGPA equivalent to 3.3 on a scale of 4.0. Satisfaction of these minimum requirements does not guarantee admission. Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit official results of either a TOEFL or an IELTS test. The minimum score required is 580 for the TOEFL test (or 237 on the computer-based test or 92 on the Internet-based test, with each component score not less than 20); or a minimum overall band of 7.0 on the IELTS test. In addition, applicants must obtain a minimum score of 4.0 on the 'Test of Written English'.

48.4 Application Procedures

Applications will be considered upon receipt of:

1. application form
2. \$80 application fee
3. 2 official versions of ALL University transcripts, including transfer-credit transcripts
4. 2 official Referee Reports
5. Proof of English Proficiency test results (TOEFL or IELTS)
6. A 1-page statement of interest
7. An updated list of publications
8. A list of extra-curricular activities
9. A current CV

Please consult www.mcgill.ca/mecheng/grad/admissions/doc for further details on required application documents.

The application form for graduate program candidates is available at www.mcgill.ca/applying/graduate/physical. All additional information is to be submitted directly to the Graduate Admissions Coordinator in the Mechanical Engineering Department

Deadlines:

Fall Admission:

February 1 for ALL candidates

Winter Admission:

May 1 for ALL candidates

48.5 Program Requirements

MASTER'S PROGRAMS

The minimum residence requirement for the M.Eng. degree is three terms of full-time study, one of which may be a Summer term. In the case of M.Eng. (non-Thesis) a part-time program is available.

Applicants who hold an undergraduate degree in a non-engineering discipline - typically the Physical Sciences - may apply for the M.Sc. (Thesis) program which is governed by the same regulations as the M.Eng. (Thesis) program.

M.Eng. in Mechanical Engineering (Thesis) (45 credits)

or

M.Sc. in Mechanical Engineering (45 credits)

A thesis describing the candidate's research is to be submitted in accordance with the regulations of the Graduate and Postdoctoral Studies Office and is the major requirement for the degree.

Required Course (1 credit)

MECH 609 (1) Seminar

Complementary Courses (minimum 16 credits)

A minimum of 16 credits (500 level or above), at least 8 of which must be from within the Faculty of Engineering. FACC courses will not count toward the complementary course credits.

Thesis Component - Required (28 credits)

MECH 691* (3) M.Eng. Thesis Literature Review
 MECH 692 (4) M.Eng. Thesis Research Proposal
 MECH 693 (3) M.Eng. Thesis Progress Report 1
 MECH 694 (6) M.Eng. Thesis Progress Report 2
 MECH 695 (12) M.Eng. Thesis

* To be completed in the first term of the student's program.

M.Eng. (Thesis) Degree - Computational Science and Engineering (CSE) Option/Concentration (46 credits)**Required Courses (2 credits)**

MECH 609 (1) Seminar
 MECH 669D1D2 (.5) CSE Seminar

Complementary Courses 16 credits)

A minimum of 16 credits (500 level or above), at least 8 of which must be from within the Faculty of Engineering. Two courses (minimum 6 credits) from List A, and two courses (minimum 6 credits) from List B. At least two of the courses taken from Lists A and B must be from outside the Department of Mechanical Engineering. FACC courses will not count toward the complementary course credits.

List A - Scientific Computing Courses:

CIVE 602 (4) Finite Element Analysis
 COMP 522 (4) Modelling and Simulation
 COMP 540 (3) Matrix Computations
 COMP 566 (3) Discrete Optimization 1
 MATH 578 (4) Numerical Analysis 1
 MATH 579 (4) Numerical Differential Equations

List B - Applications and Specialized Methods Courses:

ATOC 512 (3) Atmospheric and Oceanic Dynamics
 ATOC 513 (3) Waves and Stability
 ATOC 515 (3) Turbulence in Atmosphere and Oceans
 CIVE 514 (3) Structural Mechanics
 CIVE 572 (3) Computational Hydraulics
 CIVE 603 (4) Structural Dynamics
 CIVE 613 (4) Numerical Methods: Structural Engineering
 COMP 505 (3) Advanced Computer Architecture
 COMP 557 (3) Fundamentals of Computer Graphics
 COMP 558 (3) Fundamentals of Computer Vision
 COMP 567 (3) Discrete Optimization 2
 COMP 621 (4) Optimizing Compilers
 COMP 642 (4) Numerical Estimation Methods
 COMP 767 (3) Advanced Topics: Applications 2
 ECSE 507 (3) Optimization and Optimal Control
 ECSE 532 (3) Computer Graphics
 ECSE 547 (3) Finite Elements in Electrical Engineering
 ECSE 549 (3) Expert Systems in Electrical Design
 MATH 555 (4) Fluid Dynamics
 MATH 560 (4) Optimization
 MATH 651 (4) Asymptotic Expansion and Perturbation Methods
 MATH 761 (4) Topics in Applied Mathematics 1
 MECH 533 (3) Subsonic Aerodynamics
 MECH 537 (3) High-Speed Aerodynamics
 MECH 538 (3) Unsteady Aerodynamics

MECH 539 (3) Computational Aerodynamics
 MECH 541 (3) Kinematic Synthesis
 MECH 545 (3) Advanced Stress Analysis
 MECH 572 (3) Introduction to Robotics
 MECH 573 (3) Mechanics of Robotic Systems
 MECH 576 (3) Computer Graphics and Geometrical Modelling
 MECH 577 (3) Optimum Design
 MECH 610 (4) Fundamentals of Fluid Dynamics
 MECH 620 (4) Advanced Computational Aerodynamics
 MECH 632 (4) Theory of Elasticity
 MECH 642 (4) Advanced Dynamics
 MECH 650 (4) Heat Transfer
 MECH 654 (4) Compt. Fluid Flow and Heat Transfer

Thesis Component - Required (28 credits)

MECH 691* (3) M.Eng. Thesis Literature Review
 MECH 692 (4) M.Eng. Thesis Research Proposal
 MECH 693 (3) M.Eng. Thesis Progress Report 1
 MECH 694 (6) M.Eng. Thesis Progress Report 2
 MECH 695 (12) M.Eng. Thesis

* To be completed in the first term of the student's program.

M.Eng. in Mechanical Engineering (Non-Thesis) (45 credits)

This is a course-type Master's degree which requires 12 graduate courses for completion.

Required Courses (16 credits)

MECH 605 (4) Applied Mathematics 1
 MECH 610 (4) Fundamentals of Fluid Dynamics
 MECH 632 (4) Theory of Elasticity
 MECH 642 (4) Advanced Dynamics

Complementary Courses (16 credits)

A minimum of 16 credits (500 level or above) from the Faculty of Engineering may be selected by the student, based on interest and the choice of area of concentration. Courses at the graduate level from other faculties may also be taken, with prior approval from the student's project supervisor and the Graduate Program Director. A maximum of 3 credits of FACC courses at the 500 level or higher may be credited toward the degree.

Project Component - Required (13 credits)

MECH 603 (9) M. Eng. Project 1
 MECH 604 (3) M. Eng. Project 2
 MECH 609 (1) Seminar

Industrial liaison is encouraged in these courses taken near the end of the program.

M.Eng. in Aerospace Engineering (Non-Thesis) (minimum 45 credits)

The M.Eng. Aerospace Degree is offered to the students who wish to specialize in the general area of aerospace engineering. This degree is given in conjunction with Concordia University, École Polytechnique, Université Laval, Université de Sherbrooke, and École de Technologie Supérieure. Students registered at McGill are required to take two courses from two other institutions.

Depending on their background, students would specialize in one of the four areas:

1. Aeronautics and Space Engineering;
2. Avionics and Control;
3. Aerospace Materials and Structures.
4. Virtual Environment

Required Courses (9 credits)

MECH 687 (3) Aerospace Case Studies (or equivalent at the graduate level)
 MECH 688 (6) Industrial Stage

Complementary Courses (36 credits)

The other courses, depending on the area of concentration, will be chosen in consultation with an Aerospace Engineering Advisor. A maximum of 3 credits of FACC courses at the 500 level or higher may be credited toward the degree.

Master in Management (Manufacturing) (56 credits)

The Master in Manufacturing Management program (MMM) is offered to students who wish to have a career as manufacturing managers. The curriculum is a balance between manufacturing and management subjects and provides exposure to industry through case studies, seminars, tours and a paid industry internship. The MMM program is a 12-month academic program starting in September followed by a 4-month industrial internship. The program is a collaboration between the Faculty of Engineering and the Desautels Faculty of Management, which jointly grant the Master of Management degree.

Students should hold an undergraduate degree in engineering or science. Two or more years of industrial experience is preferred, but not mandatory. Students with other academic backgrounds and appropriate industrial experience will be considered, but may have to take one or two qualifying courses. The program is intended for full-time as well as part-time students. Enrolment is limited.

The MMM program is a self-funded program. Tuition is \$25,000.

General Business and Management – Required Courses (11 credits)

MGCR 611	(2)	Financial Accounting
MGCR 612	(2)	Organizational Behaviour
MGCR 616	(2)	Marketing
MGCR 641	(2)	Elements of Modern Finance 1
MGSC 608	(3)	Data Decisions and Models

General Business and Management – Complementary Courses (6 credits)

Two of the following courses:

INDR 603	(3)	Industrial Relations
ORGB 625	(3)	Managing Organizational Change
ORGB 632	(3)	Managing Teams in Organizations
ORGB 633	(3)	Managerial Negotiations
ORGB 640	(3)	The Art of Leadership
ORGB 685	(3)	Cross Cultural Management

Manufacturing and Supply Chain – Required Courses (15 credits)

MECH 524	(3)	Computer Integrated Manufacturing
MGSC 602	(3)	Manufacturing Strategy
MGSC 603	(3)	Logistics Management
MGSC 605	(3)	Total Quality Management
MGSC 631	(3)	Analysis of Manufacturing Systems

Manufacturing and Supply Chain – Complementary Courses (12 credits, chosen as described below)

Two of the following four courses (6 credits):

MECH 526	(3)	Manufacturing and the Environment
MGSC 601	(3)	Management of Technology in Manufacturing
MGSC 615	(3)	The Internet and Manufacturing
MGSC 575	(3)	Applied Time Series Analysis Managerial Forecasting

and one of the following two options (6 credits):

Discrete Manufacturing Option

MECH 528	(3)	Product Design
MECH 529	(3)	Discrete Manufacturing Systems

Process Manufacturing Option

CHEE 571	(3)	Small Computer Applications: Chemical Engineering
CHEE 641	(4)	Chemical Reaction Engineering

Industry – Required Courses (12 credits)

MECH 627	(9)	Manufacturing Industrial Stage
MECH 628	(2)	Manufacturing Case Studies
MECH 629	(1)	Manufacturing Industrial Seminar

For more information, contact:

Program Coordinator, Mechanical Engineering
Telephone: (514) 398-7201
E-mail: mmm.mecheng@mcgill.ca
Website: www.mcgill.ca/mmm

or the Masters Program Office, Desautels Faculty of Management
Telephone: (514) 398-4648

Ph.D. Degree in Mechanical Engineering

Candidates normally register for the M.Eng. degree in the first instance. However, in exceptional cases where the research work is proceeding very satisfactorily, or where the equivalent of the M.Eng. degree has been completed at another university, candidates may be permitted to proceed directly to the Ph.D. degree without submitting a Master's thesis as long as they have satisfied the course requirements for the M.Eng. degree.

Courses will be selected by a committee, which includes the supervisor, in consultation with the student. The course selection will depend on the existing academic qualifications of the student and those needed to conduct the proposed research.

Candidates are required to pass a preliminary oral examination within 12 to 16 months of their initial registration for the Ph.D. degree.

The residence requirement for Ph.D. candidates is outlined in the General Information section of the *Graduate and Postdoctoral Studies Calendar*.

Required Course (0 credits)

MECH 701	(0)	Ph.D. Comprehensive Preliminary Oral Examination
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48.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

The course credit weight is given in parentheses after the title.

□ Denotes limited enrolment.

MECH 500 SELECTED TOPICS IN MECHANICAL ENGINEERING. (3) (3-0-6) A course to allow the introduction of new topics in Mechanical Engineering as needs arise, by regular and visiting staff.

MECH 501 SPECIAL TOPICS: MECHANICAL ENGINEERING. (3) (3-0-6) A course to allow the introduction of new topics in Mechanical Engineering as needs arise, by regular and visiting staff.

MECH 513 CONTROL SYSTEMS. (3) (3-1-5) (Prerequisite: MECH 412 or MECH 419.) (Restriction: Not open to students who have taken MECH 413.) Stability: Lyapunov, Routh-Hurwitz and Nyquist criteria. Root-locus design of feedback control systems. Controller design based on polynomial methods and internal model principle. Frequency-response controller design. State feedback control. Controllability, observability, LQR, full- and reduced-order observer design. Robust control design. Optimization problems in control.

MECH 515 UNSTEADY GASDYNAMICS 1. (3) (3-1-5) (Prerequisites: MECH 341, MECH 430.) (Restriction: Not open to students who have taken MECH 615) Fundamentals of unsteady gasdynamics. Shock and detonation waves in gases and condensed material. Condensed explosives: hydrodynamic theory, equations of state, initiation. Shock interactions. Blast wave theory, similarity methods, blast scaling.

MECH 522 PRODUCTION SYSTEMS. (3) (3-0-6) Characteristics of production systems. System boundaries, input-output, feedback time-lag effects, dynamics of production systems. Design for manufacturability. Process planning, process/machine tool selection, break-even analysis, CAPP. Production planning, scheduling and control of operations; quality management. Competitive strategies;

FMS, CIM. Hands-on experience with production modelling and industrial simulation software.

□ **MECH 524 COMPUTER INTEGRATED MANUFACTURING.** (3) (3-0-6) (Prerequisite: Permission of the instructor) A study of the present impact of computers and automation on manufacturing. Computer-aided systems. Information modelling. Information system structures. Study of several types of production systems. Integration issues: inter-and intra-enterprise. Laboratory experience with manufacturing software systems.

□ **MECH 526 MANUFACTURING AND THE ENVIRONMENT.** (3) (3-0-6) (Prerequisite (Undergraduate): Permission of the instructor) Course topics include: clean manufacturing, product and process design for minimizing materials and energy use, the product life cycle, impact of technology on the environment, environmental impact assessment, regulatory process, and managing the "political" process.

□ **MECH 528 PRODUCT DESIGN.** (3) (3-0-6) (Prerequisite (Undergraduate): Permission of the instructor) A study of the design issues present in product life cycle demands. Computer-aided systems. Rapid prototyping. Design for manufacturability. Integration of mechanics, electronics and software in products. Effect on design of product cost, maintainability, recycling, marketability.

□ **MECH 529 DISCRETE MANUFACTURING SYSTEMS.** (3) (3-0-6) (Prerequisite (Undergraduate): Permission of the instructor) An overview of present day production machines and systems with special emphasis on automation, computer control and integration techniques. Material handling, automatic inspection, process monitoring, maintenance. Socio-economic and environmental issues. Laboratory experience with factory simulation.

MECH 530 MECHANICS OF COMPOSITE MATERIALS. (3) (3-0-6) (Corequisite: MECH 321 or equivalent/instructor's permission.) Fiber-reinforced composites. Stress, strain, and strength of composite laminates and honeycomb structures. Failure modes and failure criteria. Environmental effects. Manufacturing processes. Design of composite structures. Computer modelling of composites. Computer techniques are utilized throughout the course.

MECH 531 AEROELASTICITY. (3) (3-1-5) (Prerequisite (Undergraduate): MECH 419 or MECH 315 and MECH 533) (Prerequisite (Graduate): MECH 533) Wing divergence using strip-theory aerodynamics. Effect of aircraft flexibility on the control and stability. Flutter calculations for two-dimensional wings with discussion of three-dimensional effects. Some examples of aeroelastic instability, and the relevant analysis of non-aeronautical problems.

MECH 532 AIRCRAFT PERFORMANCE, STABILITY AND CONTROL. (3) (3-1-5) (Prerequisite (Undergraduate): (MECH 412 or MECH 419), MECH 533) (Prerequisite (Graduate): MECH 533) Aircraft performance criteria such as range, endurance, rate of climb, maximum ceiling for steady and accelerated flight. Landing and take-off distances. Static and dynamic stability in the longitudinal (stick-fixed and stick-free) and coupled lateral and directional modes. Control response for all three modes.

MECH 533 SUBSONIC AERODYNAMICS. (3) (3-1-5) (Prerequisite (Undergraduate): MECH 331) Kinematics: equations of motion; vorticity and circulation, conformal mapping and flow round simple bodies. Two-dimensional flow round aerofoils. Three-dimensional flows; high and low aspect-ratio wings; airscrews. Wind tunnel interference. Similarity rules for subsonic irrotational flows.

MECH 534 AIR POLLUTION ENGINEERING. (3) (3-0-6) (Prerequisite (Undergraduate): MECH 331, MECH 341.) Pollutants from power production and their effects on the environment. Mechanisms of pollutant formation in combustion. Photochemical pollutants and smog, atmospheric dispersion. Pollutant generation from internal combustion engines and stationary power plants. Methods of pollution control (exhaust gas treatment, absorption, filtration, scrubbers, etc.).

MECH 537 HIGH-SPEED AERODYNAMICS. (3) (3-0-6) (Pre/Corequisite (Undergraduate): MECH 533) Equations of compressible flows. Planar and conical shock waves. Expansion and shock wave interference; shock tubes. Method of characteristics. Supersonic nozzle design. Aerofoil theory in high subsonic, supersonic

and hypersonic flows. Conical flows. Yawed, delta and polygonal wings; rolling and pitching rotations. Wing-body systems. Elements of transonic flows.

MECH 538 UNSTEADY AERODYNAMICS. (3) (3-0-6) (Prerequisite (Undergraduate): MECH 533) Fundamental equations of unsteady compressible flows in fixed or moving reference frames. Unsteady flows past bodies in translation and having oscillatory motions. Oscillations of cylindrical pipes or shells subjected to internal flows. Vortex theory of oscillating aerofoils in incompressible flows. Theodorsen's method. Unsteady compressible flow past oscillating aerofoils.

MECH 539 COMPUTATIONAL AERODYNAMICS. (3) (3-0-6) (Prerequisite: MECH 309 or MATH 317, MECH 533.) Fundamental equations. Basic flow singularities. Boundary element methods. Source, doublet and vortex panel methods for 2D and 3D incompressible and compressible flows. Method of characteristics. Euler equations for inviscid rotational flows. Finite-difference and finite-volume methods. Explicit and implicit time-integration methods. Quasi 1D solutions. Nozzle and confined aerofoil applications.

MECH 541 KINEMATIC SYNTHESIS. (3) (3-0-6) (Prerequisite: MECH 309 or MATH 317 or permission of the instructor.) The role of kinematic synthesis within the design process. Degree of freedom. Kinematic pairs and bonds. Groups and subgroups of displacements. Applications to the qualitative synthesis of parallel-kinematics machines with three and four degrees of freedom. Function, motion and path generation problems in planar, spherical and spatial four-bar linkages. Extensions to six-bar linkages. Cam mechanisms.

MECH 542 SPACECRAFT DYNAMICS. (3) (3-0-6) (Prerequisite (Undergraduate): MECH 220. Corequisite: MECH 412 or MECH 419) Review of central force motion; Hohmann and other coplanar transfers, rotation of the orbital plane, patched conic method. Orbital perturbations due to the earth's oblateness, solar-lunar attraction, solar radiation pressure and atmospheric drag. Attitude dynamics of a rigid spacecraft; attitude stabilization and control; attitude manoeuvres; large space structures.

MECH 543 DESIGN WITH COMPOSITE MATERIALS. (3) (3-3-3) (Prerequisite: MECH 530) Material systems/selection process. Cost vs performance. Laminate layup procedures. Theory and application of filament winding of composite cylinders. Regular oven and autoclave oven curing, analysis of resulting material performance. Practical design considerations and tooling. Analysis of environmental considerations. Joining techniques. Analysis of test methods. Theory of repair techniques.

MECH 544 PROCESSING OF COMPOSITE MATERIALS. (3) (3-0-6) (Prerequisite: MECH 530 or permission of instructor.) (Restriction: This course requires the use of a finite element software, so experience with finite elements is recommended.) Composite processing science basic principles. Reinforcement properties; permeability, compaction. Resin properties; curing, viscosity, shrinkage. Heat transfer and cure kinetics; cure cycle optimization. Resin flow; infusion, thickness variations, fiber volume fraction distribution. Residual stresses; tool-part interaction, warpage control, spring-back, tool design. Thermoplastic composites; crystallization control, melting and consolidation.

MECH 545 ADVANCED STRESS ANALYSIS. (3) (3-1-5) (Prerequisite (Undergraduate): CIVE 207 and MECH 321) Tensor Analysis: Review of continuum mechanics. Equilibrium and constitutive equations in tensor form. Finite element methods. Torsion of non-circular cross-sections; spherical problems; advanced Airy stress function problems. Introduction to plates and shells. Thermal deformations and stresses. Introduction to plasticity and viscoelasticity.

MECH 546 FINITE ELEMENT METHODS IN SOLID MECHANICS. (3) (3-0-6) (Prerequisites: MECH 315 or MECH 419, and MECH 321, or Instructor's permission.) (Restriction: Not open to students who have taken MECH 645.) Discrete systems; variational formulation and approximation for continuous systems; direct and variational methods of element formulation in 1- 2- and 3 dimensions; formulation of isoparametric finite elements; plate and shell elements;

finite element method for static analysis, vibration analysis and structural dynamics; introduction to nonlinear problems.

MECH 553 DESIGN AND MANUFACTURE OF MICRODEVICES. (3) (3-0-6) (Prerequisite: Instructors' Permission.) Introduction to microelectromechanical systems (MEMS). Micromachining techniques (thin-film deposition; lithography; etching; bonding). Microscale mechanical behaviour (deformation and fracture; residual stresses; adhesion; experimental techniques). Materials- and process-selection. Process integration. Design of microdevice components to meet specified performance and reliability targets using realistic manufacturing processes.

MECH 554 MICROPROCESSORS FOR MECHANICAL SYSTEMS. (3) (2-3-4) (Prerequisite (Undergraduate): MECH 383 and COMP 208) Digital logic and circuits - asynchronous and synchronous design. Microcontroller architectures, organization and programming - assembly and high-level. Analog/ digital/hybrid sensors and actuators. Sensing and conditioning subsystems. Interfacing issues. Real-time issues. Operator interfaces. Laboratory exercises on digital logic design, interfacing and control of peripherals with a final team project.

MECH 557 MECHATRONIC DESIGN. (3) (3-1-5) (Prerequisite (Undergraduate): ECSE 461, MECH 383 and (MECH 412 or MECH 419)) Team project course on the design, modelling, model validation, and control of complete mechatronic systems, constructed with modern sensors, actuators, real-time operating systems, embedded controllers, and intelligent control.

MECH 561 BIOMECHANICS OF MUSCULOSKELETAL SYSTEMS. (3) (3-0-6) (Prerequisite (Undergraduate): MECH 321 and (MECH 315 or MECH 419)) The musculoskeletal system; general characteristics and classification of tissues and joints. Biomechanics and clinical problems in orthopaedics. Modelling and force analysis of musculoskeletal systems. Passive and active kinematics. Load-deformation properties of passive connective tissue, passive and stimulated muscle response. Experimental approaches, case studies.

MECH 562 ADVANCED FLUID MECHANICS. (3) (3-0-6) (Prerequisite: MATH 271 or permission of instructor.) Conservation laws, control volume analysis, Navier Stokes equations, dimensional analysis and limiting forms of N-S equation, laminar viscous flows, boundary layer theory, inviscid potential flows, lift and drag, introduction to turbulence.

MECH 563 BIOFLUIDS AND CARDIOVASCULAR MECHANICS. (3) (3-0-6) (Prerequisites: CHEE 314 or MECH 331 or permission of instructor) (Restriction: Not open to students who have taken CHEE 563) Basic principles of circulation including vascular fluid and solid mechanics, modeling techniques, clinical and experimental methods and the design of cardiovascular devices.

MECH 565 FLUID FLOW AND HEAT TRANSFER EQUIPMENT. (3) (3-1-5) (Prerequisite (Undergraduate): MECH 240, MECH 309 or MATH 317, MECH 331, MECH 341, MECH 346 or permission of the instructor.) Pipes and piping systems, pumps, and valves. Fans and building air distribution systems. Basic thermal design methods for fins and heat exchangers. Thermal design of shell-and-tube and compact heat exchangers.

MECH 566 FLUID-STRUCTURE INTERACTIONS. (3) (3-0-6) (Prerequisite: MECH 315 or MECH 419 or equivalent.) Pipes and cylindrical shells containing flow: fundamentals and applications in ocean mining, Coriolis mass-flow meters, heat exchangers, nuclear reactors and aircraft engines; chaos. Cylinders in axial flow and in cross-flow; vortex-shedding and galloping. Cylinder arrays in cross-flow; fluidelastic instabilities. Ovaling of chimneys.

MECH 572 INTRODUCTION TO ROBOTICS. (3) (3-0-6) (Prerequisite (Undergraduate): (MATH 266 or MATH 271) and MECH 220 or permission of the instructor) (Restriction: Not open to students who have taken MECH 573) Overview of the field of robotics. Kinematics, statics, singularity analysis and workspace of serial robots with decoupled architecture. Direct and inverse kinematics and dynamics. Algorithms for manipulator kinematics and dynamics.

MECH 573 MECHANICS OF ROBOTIC SYSTEMS. (3) (3-0-6) (Prerequisite: MECH 309 or MATH 317, and MECH 572 or permission of the instructor.) (Since the course is open to both undergraduate and graduate students, and B- is the minimum passing mark for graduate students, this minimum mark will be relaxed for undergraduates. The regulations applicable to undergraduates will apply accordingly.) Manipulator performance and design. Pick-and-place and continuous-path operations. Computation of rigid-body angular velocity and acceleration from point-data measurements. Inverse kinematics of serial manipulators with coupled architectures; kinestatics of multifingered hands and walking machines. Kinematics and dynamics of parallel manipulators and wheeled mobile robots.

MECH 576 COMPUTER GRAPHICS AND GEOMETRICAL MODELLING. (3) (2-3-4) (Prerequisite (Undergraduate): (MATH 266 or MATH 271) and (MECH 309 or MATH 317) and (MECH 289 or MECH 290 or MECH 291) or permission of the instructor.) Review of pertinent linear algebra and projective geometry. Explicit, implicit and parametric polynomial forms. Splines: curves and surfaces. Properties: curvature, twist, continuity. Ruled surfaces and other quad patches. Constructive solid models; Octree/Voxel, sweep wire frame, Boolean, boundary representation. Mechanical Engineering applications.

MECH 577 OPTIMUM DESIGN. (3) (2-3-4) (Prerequisite: MECH 309 or MATH 317 or permission of the instructor) The role of optimization within the design process: Design methodology and philosophy. Constrained optimization: The Kuhn-Tucker conditions. Techniques of linear and non-linear programming. The simplex and the complex methods. Sensitivity of the design to manufacturing errors. Robustness of the design to manufacturing and operation errors.

MECH 578 ADVANCED THERMODYNAMICS. (3) (3-0-6) Review of classical mechanics; Boltzmann statistics, thermodynamics of ideal gases; Fermi-Dirac and Bose-Einstein statistics, Gibbsian ensembles; elementary kinetic theory of transport processes, Boltzmann equation, Boltzmann H-theorem and entropy, KBG approximation, discussion on the solution of Boltzmann equation; Maxwell transport equations, derivation of Navier Stokes equations.

MECH 593 DESIGN THEORY AND METHODOLOGY. (3) (3-0-6) (Prerequisite: Permission of instructor.) The overall design process is scrutinized within a discipline-independent framework. The nature of design as a creative engineering activity. The polarity of design. The role of knowledge in design. Design representation. History of design and design schools. Design trends in the 21st century. Design engineering schools. Design models.

MECH 600 ADVANCED TOPICS IN MECHANICAL ENGINEERING 1. (4) (3-1-8) New developments related to mechanical engineering.

MECH 602 ADVANCED TOPICS IN MECHANICAL ENGINEERING 2. (3) New developments related to Mechanical Engineering will be presented either by staff or by visiting professors.

MECH 603 M. ENG. PROJECT 1. (9) Supervised project.

MECH 604 M. ENG. PROJECT 2. (3) Supervised project.

MECH 605 APPLIED MATHEMATICS 1. (4) Tensor Analysis, Gauss and Stokes Theorems, Complex Functions, Laplace and Fourier transforms, Linear Algebra, Initial and Boundary Value Problems for ODE's, Partial Differential Equations including elliptic, parabolic and hyperbolic, Sturm-Liouville theory, Eigenvalue problems, Galerkin Method, Green's Functions and transform methods.

MECH 609 SEMINAR. (1) All candidates for a Master's degree (except those in the Aerospace Program) are required to participate and to deliver one paper dealing with their particular area of research or interest.

MECH 610 FUNDAMENTALS OF FLUID DYNAMICS. (4) (Prerequisite: MECH 605 or permission of instructor) Conservation laws control volume analysis, Navier Stokes Equations and some exact solutions, dimensional analysis and limiting forms of Navier Stokes Equations. Vorticity, Potential flow and lift, boundary layer theory, drag, turbulence.

MECH 616 VISCOUS FLOW AND BOUNDARY LAYER THEORY. (4) (3-0-9) (Prerequisite: MECH 610 or permission of instructor.) Navier-Stokes equations. Laminar boundary layer equations. Similarity, approximate and exact solutions, including wakes and jets. Boundary layer separation. Stability of laminar flow. Transition to turbulence. Lubrication theory. Low Reynolds numbers flows, Oseen approximation.

MECH 620 ADVANCED COMPUTATIONAL AERODYNAMICS. (4) (Evening course) Explicit and implicit time-integration methods; 2D and 3D finite-difference and finite-volume formulations for subsonic, transonic and supersonic rotational flows. Shock-fitting versus shock-capturing methods. Solution of the Navier-Stokes equations using artificial compressibility. Spectral methods. Lagrangian formulation. Time-accurate methods for unsteady flows with oscillating boundaries.

MECH 627 MANUFACTURING INDUSTRIAL STAGE. (9) (Restriction: students in the M.M.M. Program) An industrial work term is an integral component of the M.M.M. program which is to be completed under the supervision of an experienced engineer in the facilities of a sponsoring company.

MECH 628 MANUFACTURING CASE STUDIES. (2) (Restriction: students in the M.M.M. Program) Case studies on a variety of manufacturing topics are given by industry experts. To be attended by all students in the M.M.M. program.

MECH 628D1 (1), MECH 628D2 (1) MANUFACTURING CASE STUDIES. (Students must register for both MECH 628D1 and MECH 628D2) (No credit will be given for this course unless both MECH 628D1 and MECH 628D2 are successfully completed in consecutive terms) (MECH 628D1 and MECH 628D2 together are equivalent to MECH 628) Case studies on a variety of manufacturing topics are given by industry experts. To be attended by all students in the M.M.M. program.

MECH 629 MANUFACTURING INDUSTRIAL SEMINAR. (1) (Restriction: students in the M.M.M. Program) A series of presentations by industry experts and manufacturing managers. To be attended by all students in the M.M.M. program.

MECH 629D1 (0.5), MECH 629D2 (0.5) MANUFACTURING INDUSTRIAL SEMINAR. (Students must register for both MECH 629D1 and MECH 629D2) (No credit will be given for this course unless both MECH 629D1 and MECH 629D2 are successfully completed in consecutive terms) (MECH 629D1 and MECH 629D2 together are equivalent to MECH 629) A series of presentations by industry experts and manufacturing managers. To be attended by all students in the M.M.M. program.

MECH 632 THEORY OF ELASTICITY. (4) (Evening course) The continuum concepts of stress, stress boundary conditions, principal stresses and the equations of equilibrium. Small strain theory and principal strains. The elastic constitutive relations. The extension, torsion and flexure of mechanical components. Plane stress and plane strain. Variational principles and the finite element method. Computer techniques are utilized.

MECH 633 ADVANCED SOLID MECHANICS 1. (4) (3-0-9) (Prerequisite: Instructor's permission.) Basic mathematics of solid mechanics; stress; kinematics of deformation and motion; fundamental laws and equations; elastic materials; introduction to inelastic materials via thermodynamics with internal variables; thermoelasticity; plasticity; viscoelasticity; viscoplasticity; variational principles; and energy methods.

MECH 634 ADVANCED SOLID MECHANICS 2. (4) (3-0-9) (Prerequisite: MECH 633 or Instructor's Permission.) Linear versus nonlinear elasticity models; crystal classes of anisotropy; governing equations in rectilinear and curvilinear coordinates; classical problems of elastostatics; plane elasticity; 3-D elasticity; elastodynamics; thermoelasticity; finite elasticity (incompressible versus compressible hyperelastic materials, strain-energy function, special analytical solutions, transversely isotropic materials, entropic elasticity for rubber, finite thermoelasticity and viscoelasticity).

MECH 635 FRACTURE AND FATIGUE. (4) (Evening course) (Prerequisite: MECH 632) An introduction to the design aspects of fracture and fatigue, standard specimen fatigue, stress concentrations,

crack initiation, linear elastic fracture mechanics, developments in non-linear fracture mechanics and low-cycle fatigue. Where appropriate, fractographic and probabilistic aspects of fatigue failure are discussed.

MECH 636 MECHANICS OF RANDOM/MULTISCALE MATERIALS. (4) (3-0-9) (Prerequisite: MECH 632 or Instructors' Permission.) Mechanics of composite materials with several length scales; theory of eigenstrains and Eshelby's solution; structure-property relations, bounds, effective medium theories and scale effects in (in)elasticity, fracture, coupled field phenomena; introduction to: non-classical continua, homogenization theory, lattice models, random fields and media, stochastic finite elements, waves in random media.

MECH 642 ADVANCED DYNAMICS. (4) (Evening course) Variational methods. Hamilton's principle and equations of motion of engineering systems. Lagrangian formulations for discrete systems. Methods of discretizing continuous systems. Rigid body dynamics. Dynamic behaviour of linear and nonlinear systems. Response of engineering systems to deterministic inputs by classical methods. Stability of linear and nonlinear systems.

MECH 650 FUNDAMENTALS OF HEAT TRANSFER. (4) (Evening course) Heat conduction: analytical solutions; integral solutions; solid-liquid phase-change. Forced and natural convection: nondimensionalization; boundary layer theory; design correlations for external and internal flows; basic ideas of turbulence modelling. Mixed convection. Boiling and condensation. Radiation heat transfer: basic concepts; black-body enclosure theory; gray-body enclosure theory; participating media.

MECH 652 DYNAMICS OF COMBUSTION. (4) Chemical thermodynamics and chemical kinetics, Hugoniot analysis of reacting flows, conservation equation for reactive mixtures, Reacting Couette flows, boundary layers and shear layers. Laminar premixed flames, Detonation theory and ZND structure. Stability of flames and detonations, limits, ignition energies and quenching distance, dynamic parameters of detonations.

MECH 654 COMPT. FLUID FLOW AND HEAT TRANSFER. (4) (Evening course) A study of numerical methods for solving complex problems involving fluid flow and heat transfer. Finite volume methods, and overview of control-volume finite element methods. Methods for solving large systems of coupled nonlinear algebraic discretized equations. Mathematical models for turbulence.

MECH 656 FUNDAMENTALS OF TURBULENT FLOW. (4) (3-1-5) (Prerequisites: MECH 452 or MECH 605 or equivalent, and MECH 562 or MECH 610 or equivalent.) An introduction to turbulence and turbulent flows, including the turbulent transport of momentum and heat, the dynamics of turbulence, free shear flows, wall-bounded flows, the statistical description of turbulence, and an overview of the measurement, simulation and modelling of turbulence.

MECH 661 FINITE ELEMENT METHODS IN COMPUTATIONAL FLUID DYNAMICS. (4) (Prerequisite: MECH 610.) The Finite Element Method, assembly rules, solution of linear systems. The direct approach. The variational approach. The weighted residual approach: Rayleigh-Ritz, least-squares, sub-domain and collation, weak-Galerkin formulation. Elements and interpolation functions. Classification of differential equation systems. Formulation and applications for incompressible, compressible and transonic inviscid and viscous flows.

MECH 669 COMPUTATIONAL SCIENCE ENGINEERING SEMINAR. (1) (Restriction: This seminar course is open only to students who were admitted to the CSE Program Option.) Techniques and applications in computational science and engineering.

MECH 681 AERONAUTICS PROJECT 1. (3) (Restriction: Open to students in the Aeronautical Option only) A continuation of MECH 681.

MECH 682 AERONAUTICS PROJECT 2. (3) (Restriction: Open to students in the Aeronautical Option only) A continuation of MECH 681.

MECH 687 AEROSPACE CASE STUDIES. (3) (Restriction: students in the Aerospace Engineering Option/Programs at McGill,

Concordia, Ecole Polytechnique or Ecole de Technologie Superieure) This course covers topical case studies drawn from aerospace industrial experience. It is conducted in a modular form by experienced engineers from industry. It is given in collaboration with the other two institutions participating in this joint option/program, and may be conducted at any of the three locations in the language of convenience to the instructors.

MECH 688 INDUSTRIAL STAGE. (6) (Restriction: students in the Aerospace Engineering Option/Program) An integral component of the program that is to be completed under the supervision of an experienced engineer in the facilities of a participating company. The topic is to be decided by a mutual agreement between the candidate, the participating company and the Liaison Committee on Aerospace Engineering. An evaluation of the candidate's performance during the work period becomes a part of the student's record.

MECH 691 M.ENG. THESIS LITERATURE REVIEW. (3) A comprehensive literature review in the general area of the thesis topic, to be completed in the first semester.

MECH 692 M.ENG. THESIS RESEARCH PROPOSAL. (4) Initiation of research with particular emphasis on the definition of the thesis topic.

MECH 693 M.ENG. THESIS PROGRESS REPORT 1. (3) A first status report on the progress in the thesis research.

MECH 694 M.ENG. THESIS PROGRESS REPORT 2. (6) A second status report on the progress in the thesis research.

MECH 695 M.ENG. THESIS. (12) Submission of the M.Eng. thesis for examination.

MECH 701 PH.D. COMPREHENSIVE PRELIMINARY ORAL EXAMINATION. (0) Presentation of the Ph.D. thesis proposal by the student and oral examination of the student's background in related areas.

49 Medical Physics

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Director — E.B. Podgorsak

49.1 Staff

Professors

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G.B. Pike; B.Eng.(St.John's), M.Eng., Ph.D.(McG.)
E.B. Podgorsak; Dipl. Ing.(Ljubljana), M.Sc., Ph.D.(Wis.),
F.C.C.P.M., F.A.A.P.M., D.A.B.M.P.

Associate Professors

J.P.F. Seuntjens; M.Sc., Ph.D.(Ghent), F.A.A.P.M.
F. Verhaegen; M.Sc., Ph.D.(Ghent)

Assistant Professor

M.D.C. Evans; B.A.(Qu.), M.Sc.(McG.), F.C.C.P.M.

Lecturers

W. Abdel-Rahman, F. DeBlois, S. Devic, A. Gauvin, G. Hegyi,
C. Janicki, P. Léger; E. Meyer, W.A. Parker, H.J. Patrocino,
B. Reniers, R. Ruo

Associate Members

R.B. Richardson, W. Wierzbicki

49.2 Programs Offered

The Medical Physics Unit offers an M.Sc. in Medical Radiation Physics. Facilities are available for students to undertake a Ph.D. in Medical Physics through the Department of Physics.

The Unit is a teaching and research unit concerned with the application of physics and related sciences in medicine, especially (but not exclusively) in radiation medicine, i.e., radiation oncology, medical imaging and nuclear medicine.

The research interests of members of the Unit include various aspects of medical imaging, including 3D imaging, the development of new imaging modalities and applications of imaging in radiation therapy; radiation dosimetry, especially solid state, electret and NMR systems; nuclear cardiology; and applications of radiation biology to therapy.

The M.Sc. and Ph.D. programs in Medical Physics are accredited by the Commission on Accreditation of Medical Physics Education Programs, Inc., sponsored by the American Association of Physicists in Medicine (AAPM), the American College of Medical Physics (ACMP), the American College of Radiology (ACR), and the Canadian College of Physicists in Medicine (CCPM).

49.3 Admission Requirements

Candidates applying to the M.Sc. program must normally hold a B.Sc. degree (Honours or Major) in Physics or Engineering, with a minimum overall GPA of 3.0/4.0 (minimum of 70%).

49.4 Application Procedures

Students are admitted to the M.Sc. program only at the start of the Fall term in September of a given academic year. Applications for consideration for the Fall term of 2009 must be completed by March 1, 2009.

Applications being made to McGill University graduate programs for September 2009 should be made online via McGill's Website. For information regarding the application procedure and to access the application form, please go to www.mcgill.ca/applying/graduate or go directly to the Medical Physics Unit admissions Website at www.medphys.mcgill.ca and click on **Academic** and then **Admissions Information**.

In exceptional circumstances, a PDF application form may be requested from the Medical Physics Unit Graduate Office. Mailed applications for the M.Sc. program in medical physics (September 2009) will be accepted at the Medical Physics Unit Graduate Office from September 2008 until March 1, 2009.

Only complete applications will be considered. Interested candidates should (a) ask their university(ies) to send two originals of each transcript, and (b) request that original confidential letters of recommendation be sent by professors familiar with their work. Letters must be originals, must be dated within the last two years, and must be written on official university letterhead, otherwise they will not be accepted. The application fee of \$80 may be remitted in either Canadian or US funds. If using the preferred online application form, the application fee is remitted via a valid credit card; if using a paper application, the fee must be remitted in negotiable form payable to McGill University, such as a bank draft or money order, etc. - personal cheques are not accepted.

Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone) must submit documented proof of competency in English by a TOEFL or IELTS or iBT. The original test report must be sent by the testing center, i.e., a photocopy sent by the applicant is not acceptable. The test must have been taken within the two years prior to date of application review, i.e. not prior to May 2007.

All supporting application materials should be sent directly to the Administrative Coordinator, Medical Physics Unit, and should reach the department by March 1, 2009.

49.5 Program Requirements

M.Sc. in Medical Radiation Physics (Thesis) (60 credits)

This two-year program provides a comprehensive introduction to the academic, research and practical aspects of physics applied to radiation medicine. In addition to the thesis requirement (32 credits) there are 12 mandatory courses (28 credits). The practical and laboratory sections of the program are conducted in various McGill teaching hospitals.

The program comprises:

1. didactic courses in radiation physics, radiation dosimetry, the physics of nuclear medicine and diagnostic radiology, medical imaging, medical electronics and computing, radiation biology and radiation hazards and protection;
2. seminars in radiation oncology, diagnostic radiology and miscellaneous aspects of medical physics, e.g., lasers;
3. laboratory courses in radiation dosimetry and medical imaging;
4. an individual research thesis.

Required Courses (28 credits)

MDPH 601	(3)	Radiation Physics
MDPH 602	(3)	Applied Dosimetry
MDPH 603	(2)	Laboratory/Practicum 1
MDPH 607	(3)	Introduction to Medical Imaging
MDPH 608	(2)	Laboratory - Diagnostic Radiology and Nuclear Medicine
MDPH 609	(2)	Radiation Biology
MDPH 611	(2)	Medical Electronics
MDPH 612	(2)	Computers in Medical Imaging
MDPH 613	(2)	Health Physics
MDPH 614	(3)	Physics of Diagnostic Radiology
MDPH 615	(3)	Physics of Nuclear Medicine
MDPH 616	(1)	Selected Topics in Medical Physics

Thesis - Required (32 credits)

MDPH 625	(32)	M.Sc. Thesis Research
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49.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

The course credit weight is given in parentheses after the title.

MDPH 601 RADIATION PHYSICS. (3) The production and properties of directly and indirectly ionizing radiations and their interactions with matter; basic theoretical and experimental aspects of radiation dosimetry.

MDPH 602 APPLIED DOSIMETRY. (3) (Prerequisite: MDPH 601) Theoretical and practical dosimetry of radiation sources, both external and internal with respect to the human body. Equipment used for external beam radiotherapy and brachytherapy.

MDPH 603 LABORATORY PRACTICUM 1. (2) (Prerequisite: MDPH 601.) (Corequisite: MDPH 602) This laboratory course gives some experience in practical/clinical aspects as applied to radiation therapy and to the techniques for the measurement of different physical parameters which characterize radiation beams. The student is exposed to the operation of various therapy units, dose measuring devices, 3D treatment planning, virtual simulator units, brachytherapy, quality assurance, calibration and thermoluminescent dosimetry.

MDPH 607 INTRODUCTION TO MEDICAL IMAGING. (3) (Prerequisite: MDPH 615) A review of the principles of medical imaging as applied to conventional diagnostic radiography, digital subtraction radiography, computed tomography and magnetic resonance imaging. The course emphasizes a linear system approach to the formation, processing and display of medical images.

MDPH 608 LABORATORY - DIAGNOSTIC RADIOLOGY AND NUCLEAR MEDICINE. (2) (Prerequisites: MDPH 314, MDPH 615.) This laboratory course takes place in hospital departments of medical diagnostic imaging and is designed to give the student a working knowledge of the performance parameters of the diagnostic imaging equipment. Laboratory classes will offer the student the practical experience of image quality control, on selected imaging equipment currently used in diagnostic medicine together with practical applications of the concepts studied in MDPH 614 and MDPH 615.

MDPH 609 RADIATION BIOLOGY. (2) Deals with the effects and mode of action of ionizing radiation on biological material from molecular interactions, through sub-cellular and cellular levels of organization, to the response of tissues, organs and the whole body. Includes the application of radiation biology to oncology and the biological aspects of environmental radiation exposure.

MDPH 611 MEDICAL ELECTRONICS. (2) An introductory course on electronics, with emphasis on digital electronics, data acquisition and microprocessors applied to instrumentation. A basic knowledge of electronics is assumed, but the detailed course contents may vary from year to year, depending on the background of the students.

MDPH 612 COMPUTERS IN MEDICAL IMAGING. (2) (Prerequisites: MDPH 611 or equivalent, MDPH 614, MDPH 615.) (Corequisite: MDPH 607.) The role of computers in the acquisition and storage of data in medical imaging systems, with special reference to computed tomography, gamma cameras, positron emission tomography. Special attention is paid to the interfacing requirements of each device and to image display systems. Demonstrations of some of these systems are included.

MDPH 613 HEALTH PHYSICS. (2) (Corequisite: MDPH 601) The hazards of ionizing radiations and the safe handling of radiation sources. Topics covered include basic principles; safety codes, laws and regulations; organization of radiation safety; and practical safety measures and procedures.

MDPH 614 PHYSICS OF DIAGNOSTIC RADIOLOGY. (3) A rigorous treatment of the physical principles and the instrumentation of radiology, computed tomography and ultrasound medical imaging systems. Special attention is paid to the analysis of the relations between imaging system design, image quality, and safety. Measurement techniques for the evaluation of medical imaging systems are reviewed.

MDPH 615 PHYSICS OF NUCLEAR MEDICINE. (3) (Corequisite: MDPH 601) The physics of radioactivity and the applications of radioisotopes and radiopharmaceuticals in medical diagnosis. Topics covered include fundamental nuclear physics, radioactivity, radiation spectrometry, the scintillation camera, image analysis and data processing in nuclear medicine, single photon emission tomography, and positron emission tomography.

MDPH 616 SELECTED TOPICS IN MEDICAL PHYSICS. (1) This course deals with anatomy and physiology, etiology and treatment of cancer and introductory medical statistics, three topics not covered by other courses in the program. Also clinical aspects of radiation oncology physics.

MDPH 616D1 (0.5), MDPH 616D2 (0.5) SELECTED TOPICS IN MEDICAL PHYSICS. (Students must register for both MDPH 616D1 and MDPH 616D2) (No credit will be given for this course unless both MDPH 616D1 and MDPH 616D2 are successfully completed in consecutive terms) (MDPH 616D1 and MDPH 616D2 together are equivalent to MDPH 616) This course deals with anatomy and physiology, etiology and treatment of cancer and introductory medical statistics, three topics not covered by other courses in the program. Also clinical aspects of radiation oncology physics.

MDPH 625 M.Sc. THESIS RESEARCH. (32)

MDPH 625D1 (16), MDPH 625D2 (16) M.Sc. THESIS RESEARCH. (Students must register for both MDPH 625D1 and MDPH 625D2) (No credit will be given for this course unless both MDPH 625D1 and MDPH 625D2 are successfully completed in consecutive terms) (MDPH 625D1 and MDPH 625D2 together are equivalent to MDPH 625)

MDPH 625N1 M.Sc. THESIS RESEARCH. (16) (Students must also register for MDPH 625N2) (No credit will be given for this course unless both MDPH 625N1 and MDPH 625N2 are successfully completed in a twelve month period) (MDPH 625N1 and MDPH 625N2 together are equivalent to MDPH 625)

MDPH 625N2 M.Sc. THESIS RESEARCH. (16) (Prerequisite: MDPH 625N1) (No credit will be given for this course unless both MDPH 625N1 and MDPH 625N2 are successfully completed in a twelve month period) (MDPH 625N1 and MDPH 625N2 together are equivalent to MDPH 625) See MDPH 625N1 for course description.

MDPH 702 ADVANCED TOPICS IN RADIATION ONCOLOGY PHYSICS RESEARCH. (3) (Prerequisite: Permission of the instructors.) Advanced research topics in radiation oncology physics comprising radiation physics and dosimetry, Monte Carlo calculations, anatomical, molecular and functional imaging, integration of the latter in radiation delivery, biological models, radiation biology and clinical research.

50 Medicine, Experimental

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Chair, Department of Medicine — D. Eidelman

Director, Division of Experimental Medicine — H. Bennett

50.1 Staff

Emeritus Professors

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P.T. Macklem; B.A.(Qu.), M.D., C.M.(McG.), F.R.C.P.(C)
B.E.P. Murphy; B.A., M.D.(Tor.), M.Sc., Ph.D.(McG.), F.A.C.P.(C)
C.K. Osterland; M.D.(Man.)

Professors

M. Alaoui-Jamali; D.V.M.(Rabat, Morocco), Ph.D.(René-Descartes, Paris)
A. Bateman; B.Sc., Ph.D.(Lond.)
G. Batist; B.Sc.(Col.), M.D., C.M.(McG.), F.R.C.P.(C)
N. Beauchemin; B.A., B.Sc., M.Sc., Ph.D.(Montr.)
H. Bennett; B.A.(York, U.K.), Ph.D.(Brun.)
R. Blostein; M.Sc., Ph.D.(McG.)
A.E. Clarke; M.D.(Nfld.), M.S.(Stan.), F.R.C.P.(C)
M. Cosio; B.Sc.(Oviedo), M.D.(Madrid)
A. Cybulsky; M.D.(Tor.), F.R.C.P.(C)
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A. Fuks; B.Sc., M.D., C.M.(McG.)
J. Genest; Jr.; M.D., C.M.(McG.), F.R.C.P.(C)
A. Giaid; D.V.M.(Baghdad), M.D., Ph.D.(Lond.)
V. Giguere; B.Sc., Ph.D.(Laval)
M. Goldberg; B.Sc., M.Sc., Ph.D.(McG.)
D. Goltzman; B.Sc., M.D., C.M.(McG.), F.R.C.P.(C)
S.A. Grover; B.A.(Roch.), M.D., C.M.(McG.), M.P.A.(Harv.), F.R.C.P.(C)
Q.A. Hamid; M.D.(Mosul, Iraq.), Ph.D.(Lond.)
G. Hendy; B.Sc.(Sheff.), Ph.D.(Lond.)
A. Herscovics; B.Sc., Ph.D.(McG.)
J. Hiscott; B.Sc., M.Sc.(W. Ont.), Ph.D.(N.Y.)
L.J. Hoffer; B.Sc., M.D., C.M.(McG.), Ph.D.(MIT)
A.C. Karaplis; B.Sc., M.D., Ph.D.(McG.) (*William Dawson Scholar*)
L. Kleiman; B.Sc.(Ill.), Ph.D.(Johns Hop.)
R. Kremer; M.D., Ph.D.(Paris)

S. Lehnert; B.Sc.(Nottingham), M.Sc., Ph.D.(Lond.)
M. Levy; B.Sc., M.D., C.M.(McG.), F.R.C.P.(C)
M.S. Ludwig; M.D.(Man.), F.R.C.P.(C)
S. Magder; M.D.(Tor.), F.R.C.P.(C)
O.A. Mamer; B.Sc., Ph.D.(Windsor)
E. Marliss; M.D.(Alta.), F.R.C.P.(C)
J. Martin; B.Sc., M.B., B.Ch., M.D.(Cork), F.R.C.P.(C)
J. Milic-Emili; M.D.(Milan), F.R.S.C.
W.H. Miller; A.B.(Princ.), Ph.D.(Rock.), M.D.(C'neil)
S. Mulay; M.Sc., Ph.D.(McG.)
W.J. Muller; B.Sc., Ph.D.(McG.)
A. Nepveu; B.Sc., M.Sc.(Montr.), Ph.D.(Sher.)
L. Panasci; B.Sc., M.D.(G'town)
V. Papadopoulos; D.Pharm.(Athens), Ph.D.(Paris)
M. Park; B.Sc., Ph.D.(Glas.)
A.C. Peterson; B.Sc.(Vic., B.C.), Ph.D.(Br. Col.)
B.J. Petrof; M.D.(Laval)
M.N. Pollak; M.D., C.M.(McG.), F.R.C.P.(C)
P. Ponka; M.D., Ph.D.(Prague)
B. Posner; M.D.(Man.), F.R.C.P.(C)
W.S. Powell; B.A.(Sask.), Ph.D.(Dal.)
S. Rabbani; M.B.B.S.(King Edward Med. Coll., Lahore)
D. Radzioch; M.Sc., Ph.D.(Jagiellonian, Cracow)
M. Rasminsky; B.A.(Tor.), M.D.(Harv.), Ph.D.(Lond.)
S. Richard; B.Sc., Ph.D.(McG.)
E. Schiffrin; M.D.(Argentina), Ph.D.(McG.)
E. Schurr; Diplom., Ph.D.(Al. Ludwigs U., Freiburg)
E. Skamene; M.D., (Charles U., Czech. Acad. of Sci.), F.R.C.P.(C), F.A.C.P.
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C. Srikant; M.Sc., Ph.D.(Madr.)
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M. Sullivan; B.A.(McG.), M.A., Ph.D.(C'dia)
D.M.P. Thomson; M.D.(W. Ont.), Ph.D.(Lond.), F.R.C.P.(C)
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C. Tsoukas; B.Sc.(McG.), M.Sc.(Hawaii), M.D.(Athens), F.R.C.P.(C)
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Associate Professors

S. Ali; B.Sc.(C'dia), Ph.D.(McG.)
C. Autexier; B.Sc.(C'dia), Ph.D.(McG.)
D. Baran; M.D.C.M.(McG.), F.R.C.P.(C)
M. Behr; B.Sc.(Tor.), M.D.(Qu.), M.Sc.(McG.)
N. Bernard; B.Sc.(McG.), Ph.D.(Duke)
S.R. Cohen; B.Sc., M.Sc., Ph.D.(McG.)
L.F. Congote; B.Sc.(Zür.), Ph.D.(Marburg)
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J. Galipeau; M.D.(Montr.)
A. Gattignol; M.Sc., Ph.D. (Paul Sabatier)
S.B. Gottfried; M.D.(Penn.)
J. Henderson; B.Sc., Ph.D.(McG.)
S. Hussain; M.D.(Baghdad), Ph.D.(McG.)
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S. Laporte; B.Sc., M.Sc., Ph.D.(Sher.)
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M. Lipman; M.D., C.M.(McG.), F.R.C.P.(C)
D. Malo; D.V.M., M.Sc.(Montr.), Ph.D.(McG.)
M. Newkirk; B.Sc., M.Sc.(Qu.), Ph.D.(Tor.)
R. Palfree; B.Sc., M.Sc.(Lond.), Ph.D.(McG.)
K. Pantopoulos; B.Sc., Ph.D.(Aristotelian, Greece)

J. Rauch; B.Sc., Ph.D.(McG.)
 C.P. Rose; B.Sc.(Qu.), M.D., C.M., Ph.D.(McG.)
 G. Spurl; B.Sc.(Med.), M.D.(Man.)
 T. Takano; M.D., Ph.D.(Tokyo)
 P. Tonin; B.Sc., M.Sc., Ph.D.(Tor.)
 B. Turcotte; B.Sc., Ph.D.(Laval)
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 X.-J. Yang; B.Sc.(Zhejiang), Ph.D.(Shanghai)

Assistant Professors

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 V. Blank; B.Sc., M.Sc.(Konstanz, Germany), Ph.D.(Inst. Pasteur)
 M. Blostein; M.D., C.M.(McG.)
 M. Bouchard; B.Sc., Ph.D.(Laval)
 L. Chalifour; B.Sc., Ph.D.(Man.), M.A.(Harv.)
 S. Daly; B.Sc.(C'ida), Ph.D.(W. Ont.)
 G. Duque; M.D.(Col.), Ph.D.(McG.)
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 D. Franchimont; M.D.(Liège, Belgium)
 B. Gilfix; B.Sc.(Man.), Ph.D.(W. Ont.), M.D.C.M.(McG.),
 F.R.C.P.(C)
 M. Götte; B.Sc., Ph.D.(Max-Planck)
 C. Haston; B.Sc.(W. Ont.), M.Sc.(Tor.), Ph.D.(Texas)
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 C. Liang; B.Sc., Ph.D.(Nankai)
 J.-L. Liu; B.Sc., M.Sc.(Beijing), Ph.D.(McG.)
 B. Mazer; B.Sc.(Col.); M.D., C.M.(McG.), F.R.C.P.(C)
 A. Moulard; B.A., B.Sc., Ph.D.(McG.)
 S. Qureshi; B.Sc., M.D.(Alta.), F.R.C.P.(C)
 R. Rajan; B.Sc., M.D.(Man.), M.Sc.(McM.)
 C. Rocheleau; B.A.(Assumption Coll.), Ph.D.(Mass.)
 M. Saleh; B.Sc., M.Sc.(Beirut), Ph.D.(McG.)
 P. Siegel; B.Sc., Ph.D.(McM.)

Associate Members, McGill

M. Basik, D. Boivin, J. Bourbeau, P. Brodt, K. Brown, M.N. Burnier,
 D.H. Burns, S. Chevalier, M. Chevrette, R.-C. Chian, H. Clarke,
 J. Desbarats, D. Dufort, R. Farookhi, C. Gagnon, K. Glass,
 C. Goodyer, P. Goodyer, I. Gupta, N. Jabado, B. Jean-Claude,
 M. Kaartinen, N. Kabani, L. Lands, S. Lehnert, C. Mandato,
 B. Massie, M. Meaney, M. Nagano, J. Nalbantoglu, F. Ni,
 T. Owens, A. Pause, H. Perrault, C. Polychronakos, J. Rak,
 G. Rouleau, S.L. Tan, G. Tannenbaum, H. Tenenhouse,
 M. Tremblay, L. Turner, J. Zwaagstra

Associate Members, Université de Montréal

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 F. Charron, P. Chartrand, V. Dave, J. Davignon, C. Deal, A. Deng,
 C.F. Deschepper, C. Desrosiers, J. Drouin, J. Gutkowska,
 P. Hamet, Z. Hanna, T. Hoang, M. Horb, P. Jolicoeur, A. Kania,
 C. Lazure, S. Mader, A. Makrigiannis, T. Moroy, M. Nemer,
 M. Raymond, T. Reudelhuber, M. Sairam, G. Sauvageau,
 N. Seidah, R.-P. Sekaly, D. Skup, G. Thibault, M. Trudel,
 J. Vacher, A. Veillette

Associate Members, Institut Armand Frappier, Université du Québec

S. Lemieux, L. Zamir

Associate Members, Pharmaceutical Companies

A.-F. Aubry, B. Gibbs

50.2 Programs Offered

M.Sc. in Experimental Medicine
 Ph.D. in Experimental Medicine
 M.Sc. – Specialization in Bioethics
 Graduate Diploma in Clinical Research

50.3 Admission Requirements

For all four programs, candidates educated outside of Canada and the United States must submit GRE (General Examination) scores.

M.Sc. or Ph.D. in Experimental Medicine

Admission to graduate studies and research in Experimental Medicine is no longer solely restricted to students who wish to register for the Ph.D. degree. Candidates who hold only a Major or Honours B.Sc. degree, or an M.D. degree must necessarily apply to the M.Sc. program, unless they have an undergraduate CGPA of 3.4 or more out of a possible 4.0, in which case they may apply for direct entry into the Ph.D. if they so desire. Candidates who already hold an M.Sc. apply directly to the Ph.D. program.

Admission is based on an evaluation by the Admissions Committee, which looks for evidence of high academic achievement, and on acceptance by a research director. It is the policy of the Division that all students must be financially supported either by their supervisor or through studentships or fellowships.

In addition to the documentation currently required by the Graduate and Postdoctoral Studies Office, a letter from the candidate's research director outlining the M.Sc. or Ph.D. project is necessary.

M.Sc. (Specialization in Bioethics)

Admission to the Master's program in Bioethics, from the base discipline Medicine, shall be limited to students having degrees in Medicine, Nursing, Physical and Occupational Therapy, as well as any other professional health training degree.

For further information regarding this program, please refer to the Bioethics entry or visit their Website at www.mcgill.ca/biomedicalethicsunit/masters.

Graduate Diploma in Clinical Research

The diploma program is open to health care and research professionals, medical residents, pharmacists, nurses, and those with an undergraduate degree in the medical and allied sciences.

50.4 Application Procedures

Applications will be considered upon receipt of:

1. application form
2. letter of intent
3. curriculum vitae
4. 2 copies of official university transcripts
5. letters of reference (2)
6. \$80 application fee
7. test results (TOEFL and GRE).

All information is to be submitted to the Departmental Office.

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

50.5 Program Requirements

MASTER'S

All students must have an annual Thesis Committee meeting by the end of their second term of registration and every 12 months subsequent to this.

M.Sc. in Experimental Medicine (Thesis) (45 credits)

Students have the option to fast-track to the Ph.D. after satisfactory completion of 12-18 months of the M.Sc., and this under the conditions set out by the Department. For further information, please contact the student affairs office.

Complementary Courses (9 - 21 credits)

9 to 21 credits of courses at the 500 level or higher chosen in consultation with supervisor (EXMD). A minimum of 9 course credits is required for students entering the program with a Bachelor's or M.D. degree.

Thesis Component - Required (24 - 36 credits)

EXMD 690	(3)	Master's Thesis Research 1
EXMD 691	(6)	Master's Thesis Research 2
EXMD 692	(9)	Master's Thesis Research 3
EXMD 693	(12)	Master's Thesis Research 4
EXMD 694	(12)	Master's Thesis Research 5

M.Sc. in Experimental Medicine (Thesis) – Bioethics Option/Concentration (45 credits)**Required Courses** (6 credits)

BIOE 680	(3)	Bioethical Theory
BIOE 681	(3)	Bioethics Practicum

Complementary Courses (15 credits)

3 credits, one of:

BIOE 682	(3)	Medical Basis of Bioethics
CMPL 642	(3)	Law and Health Care
PHIL 543	(3)	Seminar: Medical Ethics
RELG 571	(3)	Religion and Medicine

12 credits, four 3-credit BIOE or EXMD graduate courses (500 or 600 level) chosen in consultation with the supervisor.

Thesis Component - Required (24 credits)

BIOE 690	(3)	M.Sc. Thesis Literature Survey
BIOE 691	(3)	M.Sc. Thesis Research Proposal
BIOE 692	(6)	M.Sc. Thesis Research Progress Report
BIOE 693	(12)	M.Sc. Thesis

For further information please contact the Dr. Leigh Turner, Master's Specialization in Bioethics, Biomedical Ethics Unit, 3690 Peel Street, Montreal, QC, H3A 1W9. Telephone: (514) 398-4239. Fax: (514) 398-8349. E-mail: leigh.turner@mcgill.ca.

M.Sc. in Experimental Medicine (Thesis) – Environment Option/Concentration (45 credits)**Required Courses** (6 credits)

ENVR 610	(3)	Foundations of Environmental Policy
ENVR 650	(1)	Environmental Seminar 1
ENVR 651	(1)	Environmental Seminar 2
ENVR 652	(1)	Environmental Seminar 3

Complementary Courses (15 credits)

3 credits, one of the following courses*:

ENVR 519	(3)	Global Environmental Politics
ENVR 544	(3)	Environmental Measurement and Modelling
ENVR 580	(3)	Topics in Environment 3
ENVR 611	(3)	The Economy of Nature
ENVR 620	(3)	Environment and Health of Species
ENVR 622	(3)	Sustainable Landscapes
ENVR 630	(3)	Civilization and Environment 1
ENVR 680	(3)	Topics in Environment 4

* or other course at the 500 level or higher recommended by the advisory committee and approved by the Environment Option Committee

12 credits of courses at the 500 level or higher chosen in consultation with the student's academic supervisor.

Thesis Component – Required (24 credits)

EXMD 690	(3)	Master's Thesis Research 1
EXMD 692	(9)	Master's Thesis Research 3
EXMD 693	(12)	Master's Thesis Research 4

Ph.D.

All students must have an annual Thesis Committee meeting by the end of their second term of registration and every 12 months subsequent to this. The only exception occurs in the second year of registration when students must register for and pass the Com-

prehensive Examination in lieu of the Thesis Committee meeting (see below).

Comprehensive Examination: All students registered as Ph.D. must take and pass the Comprehensive Oral Examination, listed as course EXMD 701 in the second year of their program (and this whether they first entered as either M.Sc. or Ph.D.). Students shall give a 30-minute presentation of their Ph.D. project and then answer questions from the Oral Committee. This examination will test: (i) If the student's work is progressing satisfactorily and is of sufficiently high calibre to warrant continuation in the program, and (ii) If the student has a broad knowledge, not only of his/her own field of research, but also of related areas in her/his discipline.

Course Work: A minimum of 12 course credits is required for students entering the program with a prior Master's degree. Students having only a B.Sc. or M.D. degree and who have been either admitted directly or fast-tracked to the Ph.D. must complete a total of 18 credits. The following courses are highly recommended: EXMD 604D1/D2 Recent Advances in Cellular and Molecular Biology; EXMD 610 Biochemical Methods in Medical Research.

After consultation with their research supervisor and the Director of the Division, students may choose their courses from those offered by Experimental Medicine, Physiology, Biochemistry as well as other graduate and advanced undergraduate courses in the medical and allied sciences. Where necessary, students may enrol for credit in courses offered in the physical and mathematical sciences.

Required Courses (0 credits)

EXMD 701D1	(0)	Comprehensive Oral Examination
EXMD 701D2	(0)	Comprehensive Oral Examination

Complementary Courses (12 - 18 credits)

A minimum of 12 course credits is required for students entering the program with a prior Master's degree. Students having been fast-tracked to the Ph.D. must complete a total of 18 credits (9 credits in addition to the 9 which were originally requested upon entry into the M.Sc. program).

Thesis – Required**Ph.D. in Experimental Medicine – Environment Option/Concentration****Required Courses** (6 credits)

ENVR 610	(3)	Foundations of Environmental Policy
ENVR 650	(1)	Environmental Seminar 1
ENVR 651	(1)	Environmental Seminar 2
ENVR 652	(1)	Environmental Seminar 3
EXMD 701D1	(0)	Comprehensive Oral Examination
EXMD 701D2	(0)	Comprehensive Oral Examination

Complementary Courses (6 - 12 credits)

3 credits, one of the following courses*:

ENVR 519	(3)	Global Environmental Politics
ENVR 544	(3)	Environmental Measurement and Modelling
ENVR 580	(3)	Topics in Environment 3
ENVR 611	(3)	The Economy of Nature
ENVR 620	(3)	Environment and Health of Species
ENVR 622	(3)	Sustainable Landscapes
ENVR 630	(3)	Civilization and Environment 1
ENVR 680	(3)	Topics in Environment 4

* or other course at the 500 level or higher recommended by the advisory committee and approved by the Environment Option Committee

3 - 9 credits of courses at the 500 level or higher chosen in consultation with the student's academic supervisor.

Thesis – Required

Graduate Diploma in Clinical Research (30 credits)

The core element of the diploma is the Practicum in Clinical Research. It is a six-step program with active 'clerkship' or 'intern-resident-type' participation in each component that is essential to the successful development and evaluation of a clinical trial.

Six 1-credit workshops will be provided by experts in the academic, industrial and government sectors, and cover wide-ranging issues pertinent to the conduct of clinical research.

Required Courses (6 credits)

- EXMD 617 (1) Workshop in Clinical Trials 1
- EXMD 618 (1) Workshop in Clinical Trials 2
- EXMD 619 (1) Workshop in Clinical Trials 3
- EXMD 620 (1) Clinical Trials and Research 1
- EXMD 625 (1) Clinical Trials and Research 2
- EXMD 626 (1) Clinical Trials and Research 3

Complementary Courses (6 credits)

6 credits, 2 courses chosen from: Experimental Medicine (EXMD), Pharmacology and Therapeutics (PHAR), Epidemiology and Biostatistics (EPiB). With approval, courses from other Allied Health Sciences departments may be considered.

Practicum – Required (18 credits)

- EXMD 627 (18) Practicum in Clinical Research

50.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Term(s) offered (Fall, Winter, Summer) may appear after the credit weight to indicate when a course would normally be taught. Please check Class Schedule to confirm this information.

Courses with numbers ending D1 and D2 are taught in two consecutive terms (most commonly Fall and Winter). Students must register for both the D1 and D2 components. No credit will be given unless both components (D1 and D2) are successfully completed in consecutive terms.

Note: All undergraduate courses administered by the Faculty of Science (courses at the 100- to 500-level) have limited enrolment. The course credit weight is given in parentheses after the title.

★ Denotes courses taught only in alternate years.

EXMD 502 ADVANCED ENDOCRINOLOGY 01. (3) (Fall) (Prerequisite (Undergraduate): EXMD 301 or an equivalent course) This course is designed for U3 students who are in a major or honours program in anatomy, biology, biochemistry or physiology and for graduate students. A multidisciplinary approach will be used to teach biosynthesis and processing of hormones, their regulation, function and mechanism of action. The material will cover hypothalamic, pituitary, thyroid, atrial and adrenal hormones as well as prostaglandins and related substances.

EXMD 503 ADVANCED ENDOCRINOLOGY 02. (3) (Winter) Study of the parathyroids, gut and pancreatic hormones and growth factors. In addition, the role of hormones and growth factors in reproduction and fetal maturation will be discussed.

EXMD 504 BIOLOGY OF CANCER. (3) (Fall) (Prerequisite (Undergraduate): A good knowledge of biology at the cellular and molecular level. Open to U3 and graduate students only) An introduction to the biology of malignancy. A multidisciplinary approach dealing with the etiology of cancer, the biological properties of malignant cells, the host response to tumour cell growth and the principles of cancer therapy.

EXMD 506 ADVANCED APPLIED CARDIOVASCULAR PHYSIOLOGY. (3) (Fall) (Prerequisite (Undergraduate): PHGY 313 or by permission of Instructors) Offered in conjunction with the Department of Physiology. Current topics, methods and techniques for studying

the cardiovascular system. Basic and applied cardiac electrophysiology, mechanisms of pacemaker activity, arrhythmias, the effects of drugs on cardiac functions, fetal circulation, coronary circulation, mechanics of blood flow, cardiovascular diseases, renal and neural control of the circulation, and cardiac assist devices.

EXMD 507 ADVANCED APPLIED RESPIRATORY PHYSIOLOGY. (3) (Fall) (Prerequisite: PHGY 313) Offered in conjunction with the Department of Physiology. In depth coverage of respiratory biology including: functional anatomy of the respiratory system, pulmonary statics and dynamics, chest wall and respiratory muscles, ventilation and perfusion, control of breathing, and defense mechanisms. This course is aimed at providing a solid grounding in pulmonary biology and its research applications.

EXMD 508 ADVANCED TOPICS IN RESPIRATION. (3) (Winter) (Prerequisite: EXMD 507) Offered in conjunction with the Department of Physiology. In depth coverage of developmental physiology, pulmonary vascular physiology, biology of airway smooth muscle, respiratory epithelium and molecular biology of respiratory muscles. Dyspnea, mechanical ventilation and respiratory failure will also be covered. This course emphasizes application of respiratory biology to basic and applied research and touches on pulmonary pathophysiology.

EXMD 509 GASTROINTESTINAL PHYSIOLOGY AND PATHOLOGY. (3) (Fall and Winter) (Prerequisite: Graduate students, U3 undergraduates) Course deals with various aspects of gastrointestinal and hepatic function in health and altered physiological states. The principal focus is on the recent literature pertaining to cell and molecular mechanisms underlying the motility secretory process, absorption and secretion. The molecular biology of the hepatic viruses and various aspects of colonic neoplasia will also be considered.

EXMD 510 BIOANALYTICAL SEPARATION METHODS. (3) (Fall) The student will be taught the capabilities and limitations of modern separation methods (gas and high-performance liquid chromatography, capillary electrophoresis, hyphenated techniques). Application of these techniques to solve analytical problems relevant to biomedical research will be emphasized, with special attention being paid to the processing of biological samples.

EXMD 511 JOINT VENTURING WITH INDUSTRY. (3) (Winter) (Offered in conjunction with the Centre for Continuing Education) Using problem-based learning, the course examines the various business interactions between researchers and their business partners in support and development of research into commercial endeavours using models such as venture capital, business partnerships, or grants-in-aid.

EXMD 602 TECHNIQUES IN MOLECULAR GENETICS. (3) (Offered in conjunction with the Department of Experimental Medicine.) (Prerequisite (Graduate): Admission by permission of instructor.) Precise description of available methods in molecular genetics, and rationales for choosing particular techniques to answer questions posed in research proposals for targeting genes in the mammalian genome. Emphasis placed on analysis of regulation of gene expression and mapping, strategies for gene cloning. Course divided between lectures and student seminars.

EXMD 603 SEMINARS IN ENDOCRINOLOGY. (3) For graduate students to develop skills in critical reading of current literature, interpretation of research data, and seminar organization and presentation. Staff suggest topics. Each student presents two seminars on topics of their choice, supervised by professors responsible for those topics, and one mini-symposium style presentation on any topic.

EXMD 604D1 (3), EXMD 604D2 (3) RECENT ADVANCES IN CELLULAR AND MOLECULAR BIOLOGY. (Students must register for both EXMD 604D1 and EXMD 604D2) (No credit will be given for this course unless both EXMD 604D1 and EXMD 604D2 are successfully completed in consecutive terms) Offered in conjunction with the Université de Montréal: given Thursdays 16:00-18:00 at Institut de Recherches Cliniques de Montréal, 110 Pine West. The course is bilingual with abstracts in the other language supplied; more than half the lectures are in French. Aimed at bringing

students up to date on recent aspects of cell and molecular biology including cellular organelle structure and function, molecular genetics, signal transduction, cell growth and development, and immunology.

EXMD 607 MOLECULAR CONTROL OF CELL GROWTH. (3) A course for graduate students in Experimental Medicine, Biology, Biochemistry, Microbiology and Physiology, dealing with molecular control in normal and malignant cell growth, including cell cycle and physiological controls (nutritional and hormonal), mammalian DNA replication, viral effects on host cell growth for DNA and RNA-tumor viruses and oncogenes, and tissue and organ growth-renewal mechanisms.

★ **EXMD 608 MOLECULAR EMBRYOLOGY.** (3) (Prerequisite: Students must come with a solid background in molecular biology.) (Offered in conjunction with the Department of Oncology) Modern molecular approaches in animal embryogenesis, with emphasis on embryonic patterning, organogenesis, and cell-cell communication.

EXMD 610 BIOMEDICAL METHODS IN MEDICAL RESEARCH. (3) A course intended to introduce students to a variety of basic techniques used in medical research. Lectures and demonstrations given on the purification of biologically active substances by chromatography, analysis of compounds by spectrophotometry and mass spectrometry, immunological techniques, centrifugation, cell culture, binding of hormones to receptors, molecular biology, tumor biology and electron microscopy.

★ **EXMD 611D1 (3), EXMD 611D2 (3) SEMINARS IN ONCOLOGY.** (Students must register for both EXMD 611D1 and EXMD 611D2) (No credit will be given for this course unless both EXMD 611D1 and EXMD 611D2 are successfully completed in consecutive terms) A course in cancer and allied fields aimed at familiarizing students with the current literature relevant to the biology of cancer, developing their critical abilities and providing an opportunity for presenting seminars to their peers.

EXMD 614 ENVIRONMENTAL CARCINOGENESIS. (3) Methods for identification of carcinogens, including epidemiological studies, animal modelling and molecular biomarkers, and characteristics of known environmental carcinogens (viruses, chemical and physical agents and diet). Environmental factors will be placed in the context of overall cancer risk, which involves interaction of genetics, host and environment.

EXMD 615 MEMBRANE CARBOHYDRATES. (3) (Winter) The structure, function and biosynthesis of glycoproteins, glycolipids and glycoaminoglycans, and the biological role of complex carbohydrates at the cell surface.

EXMD 616 MOLECULAR AND CELL BIOLOGY TOPICS. (3) Structured and instructor-directed student presentations and discussions of recent advances in molecular and cellular biology. The course will reinforce the students' knowledge of currently major areas of investigation, with a focus on human disease and medical applications. Important recent publications will extend material from textbook and review articles.

EXMD 617 WORKSHOP IN CLINICAL TRIALS 1. (1) Intensive day-long workshop discussing Industrial/Academic/Governmental interactions in the design, testing and approval of drugs.

EXMD 618 WORKSHOP IN CLINICAL TRIALS 2. (1) Intensive day-long workshop discussing the role of the physician in drug testing.

EXMD 619 WORKSHOP: CLINICAL TRIALS 3. (1) Intensive day-long workshop discussing the pharmacoeconomics of drug design and testing.

EXMD 620 CLINICAL TRIALS AND RESEARCH 1. (1) Intensive day-long workshop discussing a topical subject or recent advance relevant to clinical research and the conduct of clinical trials.

EXMD 621 SEMINARS IN BIOMEDICAL RESEARCH 1. (3)

EXMD 622 SEMINARS IN BIOMEDICAL RESEARCH 2. (3)

EXMD 624 SEMINARS IN BIOMEDICAL RESEARCH 4. (3)

EXMD 625 CLINICAL TRIALS AND RESEARCH 2. (1) Intensive day-long workshop discussing a topical subject or recent advance relevant to clinical research and the conduct of clinical trials.

EXMD 626 CLINICAL TRIALS AND RESEARCH 3. (1) Intensive day-long workshop discussing a topical subject or recent advance relevant to clinical research and the conduct of clinical trials.

EXMD 627 PRACTICUM IN CLINICAL RESEARCH. (18) Six-step program: 1. Identification of the problem; 2. Experimental design; 3. Protocol development; 4. Execution of the protocol; 5. Data analysis; 6. Generation of final report with active "clerkship" participation in each component with team leaders and experts designated for each stage.

EXMD 627D1 (9), EXMD 627D2 (9) PRACTICUM IN CLINICAL RESEARCH. (Students must register for both EXMD 627D1 and EXMD 627D2) (No credit will be given for this course unless both EXMD 627D1 and EXMD 627D2 are successfully completed in consecutive terms) (EXMD 627D1 and EXMD 627D2 together are equivalent to EXMD 627) Six-step program: 1. Identification of the problem; 2. Experimental design; 3. Protocol development; 4. Execution of the protocol; 5. Data analysis; 6. Generation of final report with active "clerkship" participation in each component with team leaders and experts designated for each stage.

EXMD 628 QUALITATIVE RESEARCH METHODOLOGY. (3) (Restriction: permission of instructor) This course explores both broad and specific theoretical and methodological issues in qualitative research inquiry. It will discuss both traditional and contemporary paradigmatic thought underlying the qualitative enterprise and it will introduce the student to some qualitative techniques and strategies for collecting, analyzing and reporting data.

EXMD 629 REPRODUCTIVE MEDICINE AND ASSISTED REPRODUCTIVE TECHNOLOGY. (3) (Prerequisite: Permission of instructor.) Recent advances in reproductive medicine and assisted reproductive technologies (ART).

EXMD 635D1 (3), EXMD 635D2 (3) EXPERIMENTAL/CLINICAL ONCOLOGY. (Students must register for both EXMD 635D1 and EXMD 635D2) (No credit will be given for this course unless both EXMD 635D1 and EXMD 635D2 are successfully completed in consecutive terms) The course will deal, on a site by site basis, with the incidence of cancer, present treatment, treatment outcome, underlying causes, current research and directions for development of new treatments. Chemotherapy, surgery, radiation therapy and nutrition as therapy and treatment of cancer will be included.

EXMD 690 MASTER'S THESIS RESEARCH 1. (3)

EXMD 691 MASTER'S THESIS RESEARCH 2. (6)

EXMD 692 MASTER'S THESIS RESEARCH 3. (9)

EXMD 693 MASTER'S THESIS RESEARCH 4. (12)

EXMD 694 MASTER'S THESIS RESEARCH 5. (12)

EXMD 701 COMPREHENSIVE ORAL EXAMINATION. (0)

EXMD 701D1 (0), EXMD 701D2 (0) COMPREHENSIVE ORAL EXAMINATION. (Students must register for both EXMD 701D1 and EXMD 701D2) (No credit will be given for this course unless both EXMD 701D1 and EXMD 701D2 are successfully completed in consecutive terms) (EXMD 701D1 and EXMD 701D2 together are equivalent to EXMD 701)

DEPARTMENT OF PHYSIOLOGY

PHGY 513 CELLULAR IMMUNOLOGY. (3) (Winter) (3 hours lectures plus term paper) (Prerequisite: MIMM 314, or permission of the instructor) This course deals with cellular interactions, regulation and effector mechanisms of the normal immune response in relation to diseases and pathogenic processes. It is taught at an advanced level.

PHGY 515 PHYSIOLOGY OF BLOOD 1. (3) (Fall) (2 hours lecture plus 1 hour seminar weekly) (Prerequisite: PHGY 313 or PHGY 312 or permission of the instructor) Study of the cell and molecular physiology of hemostasis and its pathophysiology (bleeding and thrombosis). Emphases on molecular mechanisms regulating clot

formation, fibrinolysis, and cell adhesion/aggregation. Experimental approaches and specific clinical disorders will be analyzed. Weekly discussions, and a major term paper.

PHGY 516 PHYSIOLOGY OF BLOOD 2. (3) (Winter) (2 hours lecture plus 1 hour seminar weekly) Bone marrow hematopoiesis, with emphasis on regulation of stem cell proliferation and differentiation along hematopoietic pathways. Formation and differentiation of red and white blood cells and some of the diseases associated with hematopoiesis will be covered. Emphasis will be given to the molecular mechanisms involved in the normal and pathological conditions.

PHGY 517 ARTIFICIAL INTERNAL ORGANS. (3) (Winter) (Prerequisite (Undergraduate): permission of instructors.) Physiological, bioengineering, chemical and clinical aspects of artificial organs including basic principles and physiopathology of organ failure. Examples: oxygenator, cardiac support, vascular substitutes, cardiac pacemaker, biomaterials and tissue engineering, biocompatibility.

PHGY 518 ARTIFICIAL CELLS. (3) (Fall) (Prerequisite (Undergraduate): permission of instructors.) Physiology, biotechnology, chemistry and biomedical application of artificial cells, blood substitutes, immobilized enzymes, microorganisms and cells, hemoperfusion, artificial kidneys, and drug delivery systems. PHGY 517 and PHGY 518 when taken together, will give a complete picture of this field. However, the student can select one of these.

DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY

MIMM 509 INFLAMMATORY PROCESSES. (3) (Winter) (3 hours of seminar) (Prerequisite: MIMM 314.) (Corequisite: PHGY 513 or MIMM 414) (This course will be given in conjunction with the Division of Experimental Medicine) This course concentrates on the non-specific aspects of the immune response, an area which is not adequately covered by the other immunology courses presented at the university. Interactions between guest researchers (from McGill and other universities) and students will be furthered.

SCHEDULED GRADUATE SEMINARS

Royal Victoria Hospital (1 hour per week):

- Respiratory Research
- Immunopathology
- Endocrinology and Metabolism
- Haematology Research
- Renal and Electrolyte Seminar
- Transplantation Conference
- Gastroenterology Conference
- Diabetes Conference
- Chest-Cardiac Disease Conference
- Clinical Endocrinology Conference
- Steroid Biochemistry Research
- Haematology Clinical Conference
- Endocrinology and Metabolism Research Conference
- Clinical Immunology Conference
- Arthritis Conference
- Internal Medicine
- Dermatology Research
- University Clinic Seminar
- Cardiology Research

Montreal General Hospital (1 hour per week, or in some cases alternate weeks):

- Gastroenterology Conference
- Respiratory Diseases
- Dermatology
- Internal Medicine
- Allergy and Immunology
- Infectious Diseases
- Combined Staff Conference
- Haematology
- Arthritis
- Metabolic Diseases
- Cardiac Disease

Neurology – Neurosurgery
University Medical Clinic Seminar

51 Microbiology and Immunology

Department of Microbiology and Immunology
3775 University Street
Montreal, QC H3A 2B4
Canada

Telephone: (514) 398-3061
Fax: (514) 398-7052
E-mail: office.microimm@mcgill.ca
Website: www.mcgill.ca/microimm

Chair — G.J. Matlashewski

51.1 Staff

Professors

Z. Ali-Khan; B.Sc.(Bilar), M.Sc.(Karachi), Ph.D.(Tulane)
M.G. Baines; B.Sc., M.Sc., Ph.D.(Qu.)
J.W. Coulton; B.Sc.(Tor.), M.Sc.(Calg.), Ph.D.(W. Ont.)
J. Hiscott; B.Sc., M.Sc., Ph.D.(W. Ont.)
G.J. Matlashewski; B.Sc(C'dia), Ph.D.(Ohio)
R.A. Murgita; B.Sc.(Maine), M.S.(Vermont), Ph.D.(McG.)
M.A. Wainberg; B.Sc.(McG.), Ph.D.(Col.)

Associate Professors

A. Berghuis; M.Sc.(The Netherl.), Ph.D.(Br. Col.)
D.J. Briedis; B.A., M.D.(Johns H.)
B. Cousineau; B.Sc., M.Sc., Ph.D.(Montr.)
S. Fournier; Ph.D.(Montr.)
M. Gotte; Ph.D.(Max Planck)
H. Le Moual; Ph.D.(Montr.)
G. T. Marczynski; B.Sc., Ph.D.(Ill.)
M. Olivier; B.Sc.(Montr.), Ph.D.(McG.)
S. Vidal; Ph.D.(Genève)

Assistant Professors

S. Gruenheid; Ph.D.(McG.)
S-L. Liu; Ph.D.(Wash.)
C. Piccirillo; B.Sc., Ph.D.(McG.)
D. Sheppard; M.D.(Tor.)

Associate Members

Agricultural & Environmental Sciences: Byong Lee
Institute of Parasitology: G. Faubert, A. Jardim, P. Ribeiro
Medicine: M. Behr, A. Dascal, S. Hussain, A. Kristof, R. Lalande,
C. Liang, V. Loo, A. Manges, J. Mendelson, M. A. Miller, J.
Nadeau, M. Newkirk, R.G.E. Palfree, K. Pantopoulos, J.
E. Rauch, M. Reed, M Saleh, M. Stevenson,
C. Tsoukas, B. Turcotte, B.J. Ward.

Microbiology and Immunology: L. Kleiman

Neuroimmunology: A. Bar-Or

Neurology and Neurosurgery: J. Antel

Oncology: A. Gatignol, A.E. Koromilas, A. Mouland, A. Pause, S.
Richard

Ophthalmology: M. Burnier

Surgery: N.V. Christou, A.R. Poole

Virology: S. Cen

Adjunct Professors

V. Dave, A. Descoteaux, E. Haddad, G. Kukulj, T. Jones, P. Lau,
A. Makrigrannis, A. Matte, C. Rioux, R.-P. Sekaly

51.2 Programs Offered

The Department offers graduate programs leading to the degrees of M.Sc. and Ph.D. Each program is tailored to fit the needs and backgrounds of individual students.

The Department concentrates on four key areas of research: cellular and molecular immunology, microbial physiology and genetics, molecular biology of viruses, and medical microbiology.

51.3 Admission Requirements

Master's

Candidates are required to hold a B.Sc. degree in microbiology and immunology, biology, biochemistry or another related discipline; those with the M.D., D.D.S. or D.V.M. degrees are also eligible to apply. The minimum grade point average for acceptance into the program is 3.2 (out of 4.0). Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English. Before acceptance, appropriate exam results must be submitted directly from the TOEFL (Test of English as a Foreign Language) or IELTS (International English Language Testing Systems) Office. An institutional version of the TOEFL is not acceptable. Applications will not be considered if a TOEFL or IELTS test result is not available.

the Test of English as a Foreign Language (TOEFL):

- Paper-Based Test (PBT): a minimum score of 575
- Computer-Based Test (CBT): a minimum score of 230
- Internet-Based Test (iBT): a minimum overall score of 95
- the International English Language Testing System (IELTS):
- a minimum overall band score of 7.0.

The TOEFL Institution Code for McGill University is 0935.

Ph.D.

Students who have satisfactorily completed a M.Sc. degree in microbiology and immunology, a biological science, or biochemistry, or highly qualified students enrolled in the departmental M.Sc. program, may be accepted into the Ph.D. program provided they meet its standards.

51.4 Application Procedures

Applications will be considered upon receipt of:

1. application form
2. two official transcripts
3. two letters of reference
4. \$80 application fee
5. TOEFL test (GRE not required but recommended)

All information is to be submitted directly to the Student Affairs Officer in the Department of Microbiology and Immunology.

All applicants are encouraged to approach academic staff members during or before the application process since no applicants are accepted without a supervisor.

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

Deadline(s)

All applications and documents must be submitted by the following dates:

Canadian Applicants

October 1	for the Winter term (January)
February 1	for the Summer term (May)
May 15	for the Fall term (September)

International Applicants

July 1	for the Winter Term (January)
November 1	for the Summer term (May)
February 15	for the Fall term (September)

Intra-departmental transfers

October 1	for the Winter Term (January)
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51.5 Program Requirements

M.Sc. in Microbiology and Immunology (Thesis) (45 credits)

Required Courses (15 credits)

MIMM 611	(3)	Graduate Seminars 1
MIMM 612	(3)	Graduate Seminars 2
MIMM 613	(3)	Current Topics 1
MIMM 614	(3)	Current Topics 2
MIMM 615	(3)	Current Topics 3

Complementary Courses (6 credits)

6 credits, two of the following courses:

MIMM 616	(3)	Reading and Conference 1
MIMM 617	(3)	Reading and Conference 2
MIMM 618	(3)	Reading and Conference 3
MIMM 619	(3)	Reading and Conference 4

Thesis Component - Required (24 credits)

MIMM 697	(8)	Master's Research 1
MIMM 698	(8)	Master's Research 2
MIMM 699	(8)	Master's Research 3

Other courses may be required to strengthen the student's background.

Ph.D.

Each Ph.D. student has an advisory committee (three professors including research advisor) that meets yearly to consider the student's progress. Candidates will be judged principally on their research ability and on the presentation of a satisfactory thesis.

Ph.D. in Microbiology and Immunology

Required Courses (18 credits)

MIMM 701	(0)	Comprehensive Examination-Ph.D. Candidate
MIMM 611	(3)	Graduate Seminars 1
MIMM 612	(3)	Graduate Seminars 2
MIMM 713	(3)	Graduate Seminars 3
MIMM 613	(3)	Current Topics 1
MIMM 614	(3)	Current Topics 2
MIMM 615	(3)	Current Topics 3

Complementary Courses (minimum 12 credits)

three courses from List A and a minimum of three consecutive courses from List B.

List A:

MIMM 616	(3)	Reading and Conference 1
MIMM 617	(3)	Reading and Conference 2
MIMM 618	(3)	Reading and Conference 3
MIMM 619	(3)	Reading and Conference 4

List B:

MIMM 721	(1)	Ph.D. Research Progress Report 1
MIMM 722	(1)	Ph.D. Research Progress Report 2
MIMM 723	(1)	Ph.D. Research Progress Report 3
MIMM 724	(1)	Ph.D. Research Progress Report 4

Other courses may be required to strengthen the student's background.

51.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click **Class Schedule**) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. **Class Schedule lists courses by term and includes days, times, locations, and names of instructors.**

The course credit weight is given in parentheses after the title.

MIMM 502D1 (6), MIMM 502D2 (6) HONOURS RESEARCH PROJECT. (Fall) (More than 18 hours per week for an independent research project) (Restriction: U3 Honours students and Majors students are eligible. Required CGPA: 3.50 or higher) (Please see regulations concerning Project Courses) (Students must register for both MIMM 502D1 and MIMM 502D2.) (No credit will be given for this

course unless both MIMM 502D1 and MIMM 502D2 are successfully completed in consecutive terms) An information meeting about the course is held annually in January for students who intend to apply for registration. Subject to the availability of space and resources, professors in the Department of Microbiology and Immunology provide research opportunities for registrants in this course. Students present their research findings in a seminar and a final written report is required. Because this is a 12 credit course, students are expected to devote at least 40% of their academic effort towards their research.

MIMM 509 INFLAMMATORY PROCESSES. (3) (Winter) (3 hours of seminar) (Prerequisite: MIMM 314.) (Corequisite: PHGY 513 or MIMM 414) (This course will be given in conjunction with the Division of Experimental Medicine) This course concentrates on the non-specific aspects of the immune response, an area which is not adequately covered by the other immunology courses presented at the university. Interactions between guest researchers (from McGill and other universities) and students will be furthered.

MIMM 611 GRADUATE SEMINARS 1. (3)

MIMM 612 GRADUATE SEMINARS 2. (3) (Restriction: M.Sc. students - presentation of two seminar topics throughout the course of their degree program)

MIMM 613 CURRENT TOPICS 1. (3)

MIMM 614 CURRENT TOPICS 2. (3)

MIMM 615 CURRENT TOPICS 3. (3) M.Sc. Students (discussion groups with guest speakers).

MIMM 616 READING AND CONFERENCE 1. (3) (Restriction: M.Sc. students - two of these courses required throughout the course of their degree program) Student presentations, taken from current literature, are concerned with aspects of a central topic. Presentations are designed to be informal and to generate student discussions. Topic will change from term to term.

MIMM 617 READING AND CONFERENCE 2. (3) (Restriction: M.Sc. students - two of these courses required throughout the course of their degree program) Student presentations, taken from current literature, are concerned with aspects of a central topic. Presentations are designed to be informal and to generate student discussions. Topic will change from term to term.

MIMM 618 READING AND CONFERENCE 3. (3) (Restriction: M.Sc. students - two of these courses required throughout the course of their degree program) Student presentations, taken from current literature, are concerned with aspects of a central topic. Presentations are designed to be informal and to generate student discussions. Topic will change from term to term.

MIMM 619 READING AND CONFERENCE 4. (3) (Restriction: M.Sc. students - two of these courses required throughout the course of their degree program) Student presentations, taken from current literature, are concerned with aspects of a central topic. Presentations are designed to be informal and to generate student discussions. Topic will change from term to term.

MIMM 697 MASTER'S RESEARCH 1. (8) (Restriction: M.Sc. students) Independent work under the direction of a supervisor on a research problem in the student's designated area of research.

MIMM 698 MASTER'S RESEARCH 2. (8) (Restriction: M.Sc. students) Independent work under the direction of a supervisor on a research problem in the student's designated area of research.

MIMM 699 MASTER'S RESEARCH 3. (8) (Restriction: M.Sc. students) Independent work under the direction of a supervisor on a research problem in the student's designated area of research.

MIMM 701 COMPREHENSIVE EXAMINATION-PH.D. CANDIDATE. (0)

MIMM 701D1 (0), MIMM 701D2 (0) COMPREHENSIVE EXAMINATION-PH.D. CANDIDATE. (Students must also register for MIMM 701D2) (No credit will be given for this course unless both MIMM 701D1 and MIMM 701D2 are successfully completed in consecutive terms) (MIMM 701D1 and MIMM 701D2 together are equivalent to MIMM 701)

MIMM 713 GRADUATE SEMINARS 3. (3) (Restriction: Ph.D. students) Presentation of a maximum of three seminars topics throughout the course of their degree program.

MIMM 721 PH.D. RESEARCH PROGRESS REPORT 1. (1) Each Ph.D. student has an advisory committee (3 professors including research advisor) that meets yearly to consider student's progress. Students submit a 6-page progress report to the committee and give a 20-minute oral presentation, discussing data obtained and future research plans. Committee gives advice on progress and fine-tuning the research project.

MIMM 721D1 (0.5), MIMM 721D2 (0.5) PH.D. RESEARCH PROGRESS REPORT 1. (Students must also register for MIMM 721D2) (No credit will be given for this course unless both MIMM 721D1 and MIMM 721D2 are successfully completed in consecutive terms) (MIMM 721D1 and MIMM 721D2 together are equivalent to MIMM 721) Each Ph.D. student has an advisory committee (3 professors including research advisor) that meets yearly to consider student's progress. Students submit a 6-page progress report to the committee and give a 20-minute oral presentation, discussing data obtained and future research plans. Committee gives advice on progress and fine-tuning the research project.

MIMM 722 PH.D. RESEARCH PROGRESS REPORT 2. (1) Each Ph.D. student has an advisory committee (3 professors including research advisor) that meets yearly to consider student's progress. Students submit a 6-page progress report to the committee and give a 20-minute oral presentation, discussing data obtained and future research plans. Committee gives advice on progress and fine-tuning the research project.

MIMM 722D1 (0.5), MIMM 722D2 (0.5) PH.D. RESEARCH PROGRESS REPORT 2. (Students must also register for MIMM 722D2) (No credit will be given for this course unless both MIMM 722D1 and MIMM 722D2 are successfully completed in consecutive terms) (MIMM 722D1 and MIMM 722D2 together are equivalent to MIMM 722) Each Ph.D. student has an advisory committee (3 professors including research advisor) that meets yearly to consider student's progress. Students submit a 6-page progress report to the committee and give a 20-minute oral presentation, discussing data obtained and future research plans. Committee gives advice on progress and fine-tuning the research project.

MIMM 723 PH.D. RESEARCH PROGRESS REPORT 3. (1) Each Ph.D. student has an advisory committee (3 professors including research advisor) that meets yearly to consider student's progress. Students submit a 6-page progress report to the committee and give a 20-minute oral presentation, discussing data obtained and future research plans. Committee gives advice on progress and fine-tuning the research project.

MIMM 723D1 (0.5), MIMM 723D2 (0.5) PH.D. RESEARCH PROGRESS REPORT 3. (Students must also register for MIMM 723D2) (No credit will be given for this course unless both MIMM 723D1 and MIMM 723D2 are successfully completed in consecutive terms) (MIMM 723D1 and MIMM 723D2 together are equivalent to MIMM 723) Each Ph.D. student has an advisory committee (3 professors including research advisor) that meets yearly to consider student's progress. Students submit a 6-page progress report to the committee and give a 20-minute oral presentation, discussing data obtained and future research plans. Committee gives advice on progress and fine-tuning the research project.

MIMM 724 PH.D. RESEARCH PROGRESS REPORT 4. (1) Each Ph.D. student has an advisory committee (3 professors including research advisor) that meets yearly to consider student's progress. Students submit a 6-page progress report to the committee and give a 20-minute oral presentation, discussing data obtained and future research plans. Committee gives advice on progress and fine-tuning the research project.

MIMM 724D1 (0.5), MIMM 724D2 (0.5) PH.D. RESEARCH PROGRESS REPORT 4. (Students must also register for MIMM 724D2) (No credit will be given for this course unless both MIMM 724D1 and MIMM 724D2 are successfully completed in consecutive terms) (MIMM 724D1 and MIMM 724D2 together are equivalent to MIMM 724) Each Ph.D. student has an advisory committee

(3 professors including research advisor) that meets yearly to consider student's progress. Students submit a 6-page progress report to the committee and give a 20-minute oral presentation, discussing data obtained and future research plans. Committee gives advice on progress and fine-tuning the research project.

52 Mining and Materials Engineering

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Department Chair — Steve Yue

Director, Graduate Program — George P. Demopoulos

Graduate Program Coordinator — Barbara Hanley

52.1 Staff

Emeritus Professors

John E. Gruzleski; B.Sc., M.Sc.(Qu.), Ph.D.(Tor.), Eng., F.C.I.M., F.A.S.M. (*Gerald G. Hatch Emeritus Professor*)
John J. Jonas; B.Eng.(McG.), Ph.D.(Cant.), Eng., F.A.S.M., F.R.S.C. (*Henry Birks Emeritus Professor*)
Gordon W. Smith, B.Eng., M.Eng., Ph.D.(McG.), Eng.
William M. Williams; B.Sc., M.Sc.(Brist.), Ph.D.(Tor.), Eng. (*Henry Birks Emeritus Professor*)

Professors

George P. Demopoulos; Dipl.Eng.(NTU Athens), M.Sc., Ph.D.(McG.), Eng., F.C.I.M.
Roussos Dimitrakopoulos; B.Sc.(Thessaloniki), M.Sc.(Alta), Ph.D.(École Poly., Montr.)
James A. Finch; B.Sc.(Birm.), M.Eng., Ph.D.(McG.), Eng., F.C.I.M., F.R.S.C. (*Gerald G. Hatch Professor*)
Raynald Gauvin; B.Eng., Ph.D.(Montr.), Eng.
Roderick I.L. Guthrie; B.Sc., Ph.D.(Lond.), D.I.C., Eng., A.R.S.M., F.C.I.M., R.R.S.C. (*William C. Macdonald Professor*)
Faramarz (Ferri) P. Hassani; B.Sc., Ph.D.(Nott.), C.Eng.(U.K. Reg.) (*George Boyd Webster Professor*)
Hani S. Mitri; B.Sc.(Cairo), M.Eng., Ph.D.(McM.), Eng.
Jerzy Szpunar; B.Sc., M.Sc., Ph.D., D.Sc.(Krakow) (*Henry Birks Professor*)
Steve Yue; B.Sc., Ph.D.(Leeds) (*James McGill Professor*)

Associate Professors

Michel L. Bilodeau; B.A.Sc.(Montr.), M.Sc.App., Ph.D.(McG.), Eng.
Mainul Hasan; B.Eng.(Dhaka), M.Eng.(Dhahran), Ph.D.(McG.)
Frank Mucciardi; B.Eng., M.Eng., Ph.D.(McG.), Eng.
Mihriban Pekguleryuz; B.Sc., M.Eng.(Flo.), Ph.D.(McG.)

Assistant Professors

Mathieu Brochu; B.Eng.(Laval), Ph.D.(McG.)
Richard Chromik; B.Sc.(Penn St.), M.Sc., Ph.D.(SUNY, Binghamton)
In-Ho Jung; B.Sc., M.Sc.(POSTECH); Ph.D.(École Poly., Montr.)
Showan Nazhat; B.Eng., M.Sc., Ph.D.(Lond.)

Lecturers

John Mossop; B.Eng.(McG)
Florence Paray; B.Eng.(CSP), M.Eng., Ph.D.(McG)

Adjunct Professors

Mostafa Benzaazoua, William Caley, Robin Drew, Daryoush Emadi, Elhachmi Essadiqi, Carlton Fuerst, Bryn Harris, Ahmad Hemami, Mohammad Jahazi, Raad Jassim, Wynand Kleingeld, Louis-Philippe Lefebvre, Eric Lifshin, Martin Pugh, Serge Vézina

52.2 Programs Offered

Graduate programs leading to M.Eng., M.Sc. and Ph.D. research degrees are available in the areas of Rock Mechanics, Mining Environments, Strategic Mine Planning, Mine Optimization, Stochastic Modelling, Operations Research, Mineral Economics, Materials Handling, Chemical and Process Metallurgy, Hydrometallurgy, Effluent and Waste Treatment, Mineral Processing, Metal Casting, Surface Engineering, Composites, Ceramics, Mechanical Metallurgy, Electron Microscopy, Aerospace Materials, Biomaterials and Nanomaterials.

Course programs leading to the M.Eng. (Project) degree in Mining or Materials Engineering and the Graduate Diploma in Mining Engineering are also available.

Special programs are available for those holding degrees in subjects other than Materials or Mining Engineering (e.g., Chemical, Civil or Mechanical Engineering, Chemistry, Physics, Geology).

52.3 Admission Requirements

The Graduate Diploma in Mining Engineering is open to graduates with suitable academic standing in any branch of engineering or science. It is designed to provide a sound technical mining engineering background to candidates intending to work in the minerals industry.

The M.Eng. (thesis) degree is open to graduates holding the B.Eng. degree or its equivalent in Materials Engineering, Mining Engineering, or other related engineering fields.

The M.Sc. (thesis) degree is open to graduates holding the B.Sc. degree in Chemistry, Materials Science, Physics, Geology or related fields.

The Master of Engineering (Project) program (Materials Option) is primarily designed to train people with appropriate engineering or scientific backgrounds to allow them to work effectively in the metals and materials industries. Industrial experience is favourably viewed for entrance into the program, but is not considered a necessity.

The Master of Engineering (Project) program (Mining Option) is primarily designed for graduates from mining engineering programs who have received adequate academic training in modern mining technology, mineral economics, computer programming and probabilities and statistics. Students without this academic training must follow a qualifying term of courses established by the Mining Program Director. Industrial experience is favourably viewed for entrance into the program, but is not considered a necessity.

The Master of Engineering (Project) program (Environmental Engineering Option) is also offered.

Ph.D. degree applicants may either be "directly transferred" from the M.Eng. or M.Sc. program (see below) or hold an acceptable Master's degree in Materials Engineering, Mining Engineering or other related fields, or under exceptional circumstances may be admitted directly from the Bachelor's degree. In the latter case they are admitted to Ph.D. 1 as opposed to those holding a Master's degree that are admitted to Ph.D. 2.

52.4 Application Procedures

Applications will be considered upon receipt of:

1. application form;
2. two official copies of transcripts;
3. letters of reference;
4. \$80 CDN application fee;
5. TOEFL test results.

All information is to be submitted directly to the Graduate Secretary in the Department of Mining, Metals and Materials Engineering.

Deadlines:

- February 1 – Fall admission
- September 1 – Winter admission
- December 1 – Summer admission

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

52.5 Program Requirements

Graduate Diploma in Mining Engineering (30 credits)

This program normally requires one academic year of full-time study to complete. Candidates are required to take an integrated group of courses based on their academic background.

Required Course (6 credits)

MIME 673 (6) Mining Engineering Seminar

Complementary Courses (24 credits)

24 credits selected in consultation with the Program Advisor.,

M.Eng. and M.Sc. (Thesis) Degrees in Mining and Materials Engineering

The programs consist of 45 credits of course work, seminars and research. The candidate must pass a minimum number of courses, normally equivalent to 12 credits, chosen in consultation with a supervisor and based on his/her academic background and research interests.

In addition, the candidate must participate in an appropriate Research Seminar course and submit an acceptable thesis based on a series of successfully completed research courses.

Direct Transfer from a Master's to a Ph.D. – Students enrolled in a Master's program (thesis) may transfer into the Ph.D. program without obtaining a Master's degree if they have satisfied the following:

1. they have a minimum CGPA of 3.3 at the undergraduate level;
2. they have been in the Master's program for less than 16 months;
3. they have passed with the minimum CGPA of 3.5 at least three of the required Master's courses, and given one seminar;
4. they have obtained a letter of recommendation from their supervisor;
5. they have passed a preliminary examination (as per the Ph.D. program, MIME 701).

Direct Entry from B.Eng. to Ph.D.

Exceptional B.Eng. graduates may be admitted directly to the Ph.D. program. The Ph.D. 1 students admitted through this process are required to complete at least 4 graduate level courses.

M.Eng. (Project) Degrees

M.Eng. in Mining and Materials Engineering (Non-Thesis) (45 credits)

Students registered in this program specialize either in mining engineering or materials engineering. The program consists of a minimum 12 credits of Departmental graduate-level courses, 6-15 credits of project courses, a 6-credit seminar course and enough additional courses chosen from within or outside the Department to complete the 45 credit requirement. The external courses are subject to Departmental approval. The program is established in consultation with the Program Advisor.

Required Course (6 credits)

MIME 673 or (6) Mining Engineering Seminar
MIME 670 (6) Research Seminar

Complementary Courses (24 to 33 credits)

12 credits of graduate-level MIME courses.

12 to 21 credits of graduate-level courses from within or, subject to Departmental approval, outside the Department.

Project (6 - 15 credits)

MIME 628 (6) Mineral Engineering Project 1
MIME 629 (6) Mineral Engineering Project 2
MIME 634 (3) Mineral Engineering Project 3
or
MIME 680 (6) Metallurgical/Materials Engineering Project 1
MIME 681 (6) Metallurgical/Materials Engineering Project 2
MIME 682 (3) Metallurgical/Materials Engineering Project 3

M.Eng. in Mining and Materials Engineering (Project) – Environmental Engineering Concentration (45 credits)

Students are strongly encouraged to consult with the Graduate Program Director prior to enrolling in the program. The program consists of a minimum of 45 credits, of which a minimum of 6 and a maximum of 12 credits is required for a research or design project related to the environment. The balance is earned by coursework.

Required Core Courses (6 credits)

CIVE 615 (3) Environmental Engineering Seminar
CHEE 591 (3) Environmental Bioremediation

Complementary Courses (minimum 22 credits)

Data analysis course:

AEMA 611 or (3) Experimental Design
CIVE 555 or (3) Environmental Data Analysis
PSYC 650 (3) Advanced Statistics 1

Toxicology course:

OCCH 612 or (3) Principles of Toxicology
OCCH 616 (3) Occupational Hygiene

Water pollution engineering course:

CIVE 651 or (4) Theory: Water / Wastewater Treatment
CIVE 652 or (4) Biological Treatment: Wastewaters
CIVE 660 (4) Chemical and Physical Treatment of Waters

Air pollution engineering course:

CHEE 592 or (3) Industrial Air Pollution Control
MECH 534 (3) Air Pollution Engineering

Soil and water quality management course:

BREE 533 or (3) Water Quality Management
CIVE 686 (4) Site Remediation

Environmental impact course:

GEOG 501 or (3) Modelling Environmental Systems
GEOG 551 (3) Environmental Decisions

or approved graduate-level alternative

Environmental policy course:

URBP 506 (3) Environmental Policy and Planning
or approved graduate-level alternative

Elective courses (minimum 11 credits)

Another project course and/or engineering or non-engineering graduate courses subject to approval.

The relevant project course in Mining and Materials Engineering is one of the following:

MIME 629 or (6) Mineral Engineering Project 2
MIME 681 (6) Metallurgical/Materials Engineering Project 2

Required Project Course (6 credits)

one of the following:

MIME 628 (6) Mineral Engineering Project 1
MIME 680 (6) Metallurgical/Materials Engineering Project 1

Ph.D. in Mining and Materials Engineering

A candidate for this degree must pass courses assigned by the Department. These are selected on the basis of the student's previous academic training and research interests. The candidate is

required to participate in an appropriate Research Seminar course and is expected to take a preliminary examination within the first year of his/her Ph.D. registration.

The candidate must submit an acceptable thesis based upon successfully completed research and must satisfy the examiners in an oral examination of the thesis and related topics.

52.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Courses with numbers ending D1 and D2 are taught in two consecutive terms (most commonly Fall and Winter). Students must register for both the D1 and D2 components. No credit will be given unless both components (D1 and D2) are successfully completed in consecutive terms.

Courses with numbers ending N1 and N2 are taught in two non-consecutive terms. Students must register for both the N1 and N2 components. No credit will be given unless both components (N1 and N2) are successfully completed in a twelve-month period.

The courses in this Department have been numbered to conform with the following classification system. The first digit represents the level of instruction. The last two digits are classified as follows:

- 01 to 19 technical courses
- 20 to 39 mining courses
- 40 to 49 mineral processing courses
- 50 to 59 extractive and process metallurgy courses
- 60 to 69 physical metallurgy and materials courses
- 70 to 79 seminars

The course credit weight is given in parentheses after the title.

MIME 512 CORROSION AND DEGRADATION OF MATERIALS. (3) (3-3-3) (Prerequisites: MIME 261 and MIME 352 or permission of instructor.) (Restriction: Not open to students who have taken MIME 412.) Electrochemical theory of metal corrosion, Evans Diagrams, corrosion rate controlling mechanisms, mixed corroders, alloying effects, passivation. Discussion and analysis of the various forms of corrosion. Corrosion prevention methods. Oxidation of alloys-mechanisms and kinetics. Degradation of ceramics and polymers. Case studies.

MIME 513 MINE PLANNING OPTIMIZATION UNDER UNCERTAINTY. (3) (3-3-3) (Prerequisite: Permission of instructor.) Strategic mine planning and optimization under uncertain demand and supply. Modern optimization techniques in mine design and production scheduling. Metal supply and orebody modelling. Market forecasting and planning with flexibility. Valuing information. Stochastic mine optimization and applications in open pit and underground metal mines.

MIME 520 STABILITY OF ROCK SLOPES. (3) (3-0-6) (Prerequisite: permission of instructor.) The properties of rock masses and of structural discontinuities. Influence of geological structure on stability. Linear, non-linear, and wedge failures. Site investigations. Methods of slope stabilization.

MIME 521 STABILITY OF UNDERGROUND OPENINGS. (3) (3-3-3) (Prerequisite: permission of instructor) The properties of rock masses and stability classification systems. The influence and properties of geological structural features. Stability related to the design of underground openings and mining systems. Site investigations. Methods of stabilization.

MIME 525 STOCHASTIC OREBODY MODELLING. (3) (3-3-3) (Prerequisite: Permission of instructor.) Uncertainty in modelling orebodies. Conventional modelling methods. Ore reserve estimation and risk. Geostatistical basics. Sequential simulation methods. Fast and efficient simulation of large orebodies. Simulation of multi-element deposits. Simulation of geology. Geometallurgical modelling. Integration and effects on mine planning and financial evaluation. Drill-

ing optimization; reserve classification; grade control. Practical applications.

MIME 526 MINERAL ECONOMICS. (3) (3-2-5) (Prerequisite: MIME 310 or equivalent) Mineral project evaluation techniques and applications. Topics covered include grade-tonnage relationships, capital and operating cost estimation techniques, assessment of mineral market conditions, taxation, discounted cash flow analysis, risk analysis, and optimization of project specifications with respect to capacity and cutoff grade.

MIME 528 MINING AUTOMATION. (3) (3-3-3) (Prerequisite: MIME 426) System analysis and design in the frequency domain. Review of optimization methods. Mining system modelling applied to rock cutting, materials transport, and bunkering, pitch, yaw and roll steering of mining machines. Control and robotics: digitization, discrete systems, sensors, actuators and real time algorithms. Data communication in mines. Simulation exercises.

MIME 544 ANALYSIS: MINERAL PROCESSING SYSTEMS 1. (3) (2-3-4) (Prerequisite (Undergraduate): MIME 341) The course covers three main topics: principles of separation, including data presentation, properties of recovery/ yield plots, technical and economic efficiency and identification of limits to separation; column flotation, hydrodynamics of collection and froth zones, mixing, scale-up and design, measurements and control; surface and electrochemistry, including absorption, surface charge, coagulation, electron transfer reactions, electrochemistry in plant practice.

MIME 545 ANALYSIS: MINERAL PROCESSING SYSTEMS 2. (3) (4-2-3) (Prerequisite (Undergraduate): MIME 341) Gold recovery (as a Professional Development Seminar): methods of recovery (gravity, flotation, cyanidation), refractory gold (roasting, pressure oxidation, bacterial leaching), dissolved gold recovery (Merrill-Crowe) and activated carbon methods. Sampling: definition of errors, sample extraction, size, and processing. Mass balancing: basic considerations, definition of networks, software. Blending: auto-correlation functions, transfer functions, blending systems. Effect of feed variability.

MIME 551 ELECTROCHEMICAL PROCESSING. (3) (3-2-4) (Prerequisite: MIME 352) Characterization of aqueous, fused salt and solid electrolytes; laws of electrolysis; ion transport mechanisms; interfacial phenomena (electrolyte-electrolyte, electrode-electrolyte); reversible cells and potentials; electrode kinetics, overpotential and potential-current laws; industrial applications; electrolytic wining and refining, electroplating, surface cleaning and coating, electrodialysis and electrochemical sensors.

MIME 552 ENVIRONMENTAL CONTROLS IN METALLURGICAL PLANTS. (3) (3-3-3) (Prerequisites: MIME 341, 350 and 352 or permission of instructor.) (Restriction: Not open to students who have taken MIME 451.) Generation, characterization and abatement of pollutants in the minerals and metals industries. Environmental regulations. Control technologies for gaseous, aqueous and solid waste streams. Heavy metal removal, arsenic control, cyanide destruction, prediction of acidic drainage, greenhouse gas effects, control of SO₂ and NO_x emissions, destruction of organic pollutants.

MIME 553 IMPACT OF MATERIALS PRODUCTION. (3) (3-0-6) (Prerequisite: Permission of instructor.) Impact on the environment of the production of major materials. Pollution control practices, emerging technologies, cost, resources and conservation. Review of flowsheets for various production methods. Analysis of the use of materials, prices, consumption, fabrication, and recycling of waste materials.

MIME 556 SUSTAINABLE MATERIALS PROCESSING. (3) (3-1-5) (Prerequisite: Permission of Instructor.) Sustainability, population and environment impact, environmental product indicators, materials flows, enthalpy flows, the carbon cycle, materials intensity, energy intensity, global warming potential, acidification potential, FAC-TOR-Two, -Four and -Ten, life-cycle-inventory/assessment, end-of-pipe strategies, supply-chain and flow-sheet redesign, recycling, waste treatment and materials case studies.

MIME 558 ENGINEERING NANOMATERIALS. (3) (3-2-4) (Prerequisite: MIME 260 or MIME 261 and MIME 362 or equivalent or permission of instructor.) Aspects of manufacturing bulk-nanostructured materials. Fabrication of nanosized and nanostructured precursors (metals, ceramics, intermetallics, CNT). Reactivity, handling and safety of nano-particles. Processes developed to fabricate bulk nanostructured materials (pressing and sintering, hot pressing and extrusion, ECAP, electrodeposition, spray forming, shockwave compaction). Characterisation of nanostructures. Physical and mechanical properties of nanomaterials.

MIME 559 ALUMINUM PHYSICAL METALLURGY. (3) (3-3-3) (Prerequisites: MIME 360 and MIME 362, or permission of instructor.) Crystal structure, deformation characteristics, strengthening and softening mechanisms, hot and cold working. Microstructure property relationships in aluminum alloys. Physical metallurgy of aluminum casting alloys and their uses. Properties, and physical metallurgy of aluminum wrought alloys and their industrial applications.

MIME 560 JOINING PROCESSES. (3) (3-3-3) (Prerequisite: MIME 200, MIME 360) Physics of joining; interfacial requirements; energy sources, chemical, mechanical and electrical; homogeneous hot-joining, arc-, Mig-, Tig-, gas-, thermite- and Plasma-welding; Autogeneous hot-joining, forge-, pressure-, friction-, explosive-, electron beam- and laser-welding; Heterogeneous hot-joining, brazing, soldering, diffusion bonding; Heterogeneous cold joining, adhesives, mechanical fastening; Filler materials; Joint metallurgy; Heat affected zone, non-metallic systems; joint design and economics; defects and testing methods.

MIME 561 ADVANCED MATERIALS DESIGN. (3) (0-4-5) (Prerequisite: MIME 362 or equivalent) Advanced topics in materials design problems. Discussion and laboratory work, supplemented by detailed technical reports. Special attention is given to selection, design and failure problems in various materials systems.

MIME 563 HOT DEFORMATION OF METALS. (3) (2-2-5) (Prerequisite (Undergraduate): MIME 360 and MIME 362) (Prerequisite (Graduate): MIME 362 or equivalent.) High temperature deformation processing of metallic materials. Topics include static and dynamic recrystallization, recovery, precipitation; effect of deformation on phase transformations and microstructural evolution during industrial processing. Mathematical modelling of microstructural evolution.

MIME 564 X-RAY DIFFRACTION ANALYSIS OF MATERIALS. (3) (2-3-4) (Prerequisite: MIME 317 or equivalent) The techniques of X-ray and neutron diffraction are discussed as applied to the minerals and materials production industries. Special emphasis is placed upon automated X-ray powder diffractometry as employed for determining the structure and composition of materials. The application of X-ray techniques to studies of crystal structure, crystal orientation, residual stress, short-range order in liquid metals, phase diagram determination, order-disorder transformation and chemical analysis are presented.

MIME 565 AEROSPACE METALLIC-MATERIALS AND MANUFACTURING PROCESSES. (3) (3-0-6) (Prerequisites: MIME 260 or MIME 261 or Permission of Instructor.) (Restriction: Permission of Instructor required.) Integrated approach to aerospace materials, manufacturing and repair; materials and selection criteria for airframe, engines and coatings; repair concepts and technologies; application of new and emerging manufacturing technologies for the forming, joining and repair of aerospace products.

MIME 566 TEXTURE, STRUCTURE & PROPERTIES OF POLYCRYSTALLINE MATERIALS. (3) (2-3-4) (Prerequisite: MIME 317) Concepts and quantitative methods for the description of the structure of minerals and materials are discussed. Special emphasis is placed on experimental techniques of texture measurement. Procedures are demonstrated for the control of deformation and recrystallization textures in order to obtain the properties required for industrial products. Finally, the correlation between texture and the anisotropy of elastic, plastic and magnetic properties of engineering materials is described and analyzed.

MIME 568 TOPICS IN ADVANCED MATERIALS. (3) (3-0-6) (Prerequisite: MIME 362 or equivalent) New and emerging materials. Composites. Coatings. Electronic materials. Current and future technologies. Specialized property requirements. Novel processing and fabrication techniques. Future developments.

MIME 569 ELECTRON BEAM ANALYSIS OF MATERIALS. (3) (2-3-4) (Prerequisite: MIME 317) Emphasis on operation of scanning and transmission electron microscopes. Topics covered are electron/specimen interactions, hardware description; image contrast description; qualitative and quantitative (ZAF) x-ray analysis; electron diffraction pattern analysis.

MIME 606 MINERAL/METAL PRODUCTION AND MARKETING 1. (3) (Prerequisite: permission of instructor) Introduction of new topics in Mining and Materials Engineering.

MIME 608 MINERAL/METAL PRODUCTION AND MARKETING 2. (3) (Prerequisite: permission of instructor) Introduction of new topics in Mining and Materials Engineering.

MIME 620 ROCK MECHANICS 1. (3) A study of the effects of rock properties and ground stresses on problems in mine design.

MIME 621 ROCK MECHANICS 2. (3) The application of the principles of strength of materials to the analysis of problems in ground control.

MIME 623 GROUND FRAGMENTATION. (3) (Prerequisite: permission of instructor) (Course given once per academic year) A comprehensive review of principles and theory of explosives; rock information systems, cratering concepts and applications to mining.

MIME 624D1 (3), MIME 624D2 (3) MATERIALS HANDLING IN MINES. (Prerequisite: permission of instructor) (Students must register for both MIME 624D1 and MIME 624D2) (No credit will be given for this course unless both MIME 624D1 and MIME 624D2 are successfully completed in consecutive terms) A comprehensive review of materials handling systems used in open pit and underground mines. Review of system selection criteria, and analysis of the impact of particular systems on mine design.

MIME 624N1 MATERIALS HANDLING IN MINES. (3) (Students must also register for MIME 624N2) (No credit will be given for this course unless both MIME 624N1 and MIME 624N2 are successfully completed in a twelve month period) A comprehensive review of materials handling systems used in open pit and underground mines. Review of system selection criteria, and analysis of the impact of particular systems on mine design.

MIME 624N2 MATERIALS HANDLING IN MINES. (3) (Prerequisite: MIME 624N1) (No credit will be given for this course unless both MIME 624N1 and MIME 624N2 are successfully completed in a twelve month period) See MIME 624N1 for description.

MIME 625 APPLIED MINERAL ECONOMICS 1. (3) (Prerequisite: permission of instructor) A study of analytical techniques employed for project evaluation and decision-making in the mineral industry.

MIME 626 APPLIED GEOSTATISTICS. (3)

MIME 627 APPLIED MINERAL ECONOMICS 2. (3) (Prerequisite: permission of instructor) A study of the techniques employed in the analysis of government policy and the financing of projects in the mineral industry.

MIME 628 MINERAL ENGINEERING PROJECT 1. (6) A project of the student's choice, undertaken under the direct supervision of at least one staff member. The final mark is assessed on the basis of a final report that is examined internally, by the supervisor and at least one other staff member.

MIME 628D1 (3), MIME 628D2 (3) MINERAL ENGINEERING PROJECT 1. (Students must register for both MIME 628D1 and MIME 628D2) (No credit will be given for this course unless both MIME 628D1 and MIME 628D2 are successfully completed in consecutive terms) (MIME 628D1 and MIME 628D2 together are equivalent to MIME 628) A project of the student's choice, undertaken under the direct supervision of at least one staff member. The final mark is assessed on the basis of a final report that is examined internally, by the supervisor and at least one other staff member.

MIME 628N1 MINERAL ENGINEERING PROJECT 1. (3) (Students must also register for MIME 628N2) (No credit will be given for this course unless both MIME 628N1 and MIME 628N2 are successfully completed in a twelve month period) (MIME 628N1 and MIME 628N2 together are equivalent to MIME 628) A project of the student's choice, undertaken under the direct supervision of at least one staff member. The final mark is assessed on the basis of a final report that is examined internally, by the supervisor and at least one other staff member.

MIME 628N2 MINERAL ENGINEERING PROJECT 1. (3) (Prerequisite: MIME 628N1) (No credit will be given for this course unless both MIME 628N1 and MIME 628N2 are successfully completed in a twelve month period) (MIME 628N1 and MIME 628N2 together are equivalent to MIME 628) See MIME 628N1 for course description.

MIME 629 MINERAL ENGINEERING PROJECT 2. (6) Continuation of Mining Engineering Project.

MIME 629D1 (3), MIME 629D2 (3) MINERAL ENGINEERING PROJECT 2. (Students must register for both MIME 629D1 and MIME 629D2) (No credit will be given for this course unless both MIME 629D1 and MIME 629D2 are successfully completed in consecutive terms) (MIME 629D1 and MIME 629D2 together are equivalent to MIME 629) Continuation of Mining Engineering Project.

MIME 629N1 MINERAL ENGINEERING PROJECT 2. (3) (Students must also register for MIME 629N2) (No credit will be given for this course unless both MIME 629N1 and MIME 629N2 are successfully completed in a twelve month period) (MIME 629N1 and MIME 629N2 together are equivalent to MIME 629) Continuation of Mining Engineering Project.

MIME 629N2 MINERAL ENGINEERING PROJECT 2. (3) (Prerequisite: MIME 629N1) (No credit will be given for this course unless both MIME 629N1 and MIME 629N2 are successfully completed in a twelve month period) (MIME 629N1 and MIME 629N2 together are equivalent to MIME 629) See MIME 629N1 for course description.

MIME 631 ADVANCED STOCHASTIC OPTIMIZATION IN MINE PLANNING. (4) (3-3-6) (Prerequisite: Permission of instructor.) Uncertainty and risk in mine design and production scheduling. Conventional mine optimization methods and flaws. Mine planning and sustainable mining under uncertainty. Combinatorial optimization and algorithmic methods in mine production scheduling. Real options and decision making in mine planning. Mine waste deferral methods. Global and local optimization of mining processes.

MIME 634 MINERAL ENGINEERING PROJECT 3. (3) Continuation of Mining Engineering Project 1.

MIME 634D1 (1.5), MIME 634D2 (1.5) MINERAL ENGINEERING PROJECT 3. (Students must register for both MIME 634D1 and MIME 634D2) (No credit will be given for this course unless both MIME 634D1 and MIME 634D2 are successfully completed in consecutive terms) (MIME 634D1 and MIME 634D2 together are equivalent to MIME 634) Continuation of Mining Engineering Project 1.

MIME 634N1 MINERAL ENGINEERING PROJECT 3. (1.5) (Students must also register for MIME 634N2) (No credit will be given for this course unless both MIME 634N1 and MIME 634N2 are successfully completed in a twelve month period) (MIME 634N1 and MIME 634N2 together are equivalent to MIME 634) Continuation of Mining Engineering Project 1.

MIME 634N2 MINERAL ENGINEERING PROJECT 3. (1.5) (Prerequisite: MIME 634N1) (No credit will be given for this course unless both MIME 634N1 and MIME 634N2 are successfully completed in a twelve month period) (MIME 634N1 and MIME 634N2 together are equivalent to MIME 634) See MIME 634N1 for course description.

MIME 635 FINITE ELEMENT METHOD - ROCK MECHANICS. (4) (Prerequisites: MIME 521 and/or permission of instructor) Equilibrium equation solvers; elasticity theory; finite element formulative procedures; convergence and accuracy; 2-D and 3-D isoparametric elements; rock failure criteria; applications to rock/mining engi-

neering; computer programming using available software library (FELIBS) and packages.

MIME 636 BOUNDARY ELEMENTS: GEOMECHANICS. (4) (Prerequisite: COMP 208 or equivalent, and MIME 521 or permission of instructor) Applications of boundary element methods in geomechanics. Elasticity relations. Coordinate transformations. Kelvin's problem, constant tractions, fictitious stress method, symmetry conditions. Displacement discontinuity method. Yield and deformation joint models. Stress and displacement analysis of underground openings in faulted rock. Initial joint deformation technique. Introduction to nonlinear analysis.

MIME 638 MINE WASTE MANAGEMENT. (4) Nature and generation of mine waste. Characteristics of mine waste material. Surface and underground disposal methods. Surface impoundment. Tailing embankment design and stability analysis. Seepage and containment transport. Seepage control methods. Site reclamation. Computer applications in design and monitoring. Case histories.

MIME 640 ADVANCED MINERAL PROCESSING. (6) Modern advances in mineral processing techniques. The student will prepare a series of reports covering developments in mineral processing.

MIME 640D1 (3), MIME 640D2 (3) ADVANCED MINERAL PROCESSING. (Students must register for both MIME 640D1 and MIME 640D2) (No credit will be given for this course unless both MIME 640D1 and MIME 640D2 are successfully completed in consecutive terms) (MIME 640D1 and MIME 640D2 together are equivalent to MIME 640) Modern advances in mineral processing techniques. The student will prepare a series of reports covering developments in mineral processing.

MIME 650N1 ADVANCED EXTRACTIVE METALLURGY 1. (3) (Students must also register for MIME 650N2.) (No credit will be given for this course unless both MIME 650N1 and MIME 650N2 are successfully completed in a twelve month period.) Metallurgical applications of heat, mass and momentum transfer theories. Particular emphasis is placed on the applications of computational fluid dynamics and development of appropriate software programs. These are based on the integral control volume, finite difference approach, employing body-fitted co-ordinate schemes to handle arbitrarily shaped flow domains. Turbulence models such as K-E and large eddy simulation are presented.

MIME 650N2 ADVANCED EXTRACTIVE METALLURGY 1. (3) (Prerequisite: MIME 650N1.) (No credit will be given for this course unless both MIME 650N1 and MIME 650N2 are successfully completed in a twelve month period.) See MIME 650N1 for course description.

MIME 652 AQUEOUS PROCESSING. (3) Advanced treatment of the chemical and engineering principles governing aqueous dissolution, purification and deposition operations. Topics include: ionic activities of dilute and concentrated solutions; solution and solid-liquid equilibria; analysis of complexation and redox reactions; high temperature solution thermodynamic kinetics; solvent extraction, equilibria and mass transfer kinetics; nucleation, growth and agglomeration phenomena in aqueous precipitation systems.

MIME 653 TRANSPORT PHENOMENA - PROCESS METALLURGY. (3) Process metallurgical applications of heat, mass and momentum transport theories. Methods of numerical solution in the analysis of: continuous casting, ingot solidification, soaking pits, hot mill operations, alloy addition methods in steel-making, etc. Students are assigned individual computer projects and present a report plus a seminar on their findings.

MIME 670 RESEARCH SEMINAR 1. (6) (Restriction: For students registered for a Master's degree in Mining and or Materials Engineering.)

MIME 672D1 (3), MIME 672D2 (3) ROCK MECHANICS SEMINAR. (Students must register for both MIME 672D1 and MIME 672D2) (No credit will be given for this course unless both MIME 672D1 and MIME 672D2 are successfully completed in consecutive terms) Theoretical and practical aspects of ground control practice using the case study method.

MIME 673 MINING ENGINEERING SEMINAR. (6) For students registered in the Graduate Diploma or Master's programs in Mining.

MIME 673D1 (3), MIME 673D2 (3) MINING ENGINEERING SEMINAR. (Students must register for both MIME 673D1 and MIME 673D2) (No credit will be given for this course unless both MIME 673D1 and MIME 673D2 are successfully completed in consecutive terms) (MIME 673D1 and MIME 673D2 together are equivalent to MIME 673) For students registered in the Graduate Diploma or Master's programs in Mining.

MIME 673N1 MINING ENGINEERING SEMINAR. (3) (Students must also register for MIME 673N2) (No credit will be given for this course unless both MIME 673N1 and MIME 673N2 are successfully completed in a twelve month period) (MIME 673N1 and MIME 673N2 together are equivalent to MIME 673) For students registered in the Graduate Diploma or Master's programs in Mining.

MIME 673N2 MINING ENGINEERING SEMINAR. (3) (Prerequisite: MIME 673N1) (No credit will be given for this course unless both MIME 673N1 and MIME 673N2 are successfully completed in a twelve month period) (MIME 673N1 and MIME 673N2 together are equivalent to MIME 673) See MIME 673N1 for course description.

MIME 690 THESIS RESEARCH 1. (6) (Restriction: For Master's students only.)

MIME 691 THESIS RESEARCH 2. (3) (Restriction: For Master's students only.)

MIME 692 THESIS RESEARCH 3. (6) (Restriction: For Master's students only.)

MIME 693 THESIS RESEARCH 4. (3) (Restriction: For Master's students only.)

MIME 694 THESIS RESEARCH 5. (6) (Restriction: For Master's students only.)

MIME 695 THESIS RESEARCH 6. (3) (Restriction: For Master's students only.)

MIME 701 PH.D. THESIS RESEARCH PROPOSAL. (0) For students registered in a Ph.D. program in Mining or Materials Engineering. Student submits a document and takes an oral examination to demonstrate familiarity with relevant literature, define a methodology and describe a work plan.

MIME 771 RESEARCH SEMINAR 2. (6) (Restriction: For students registered in a Ph.D. program in Materials Engineering.)

MIME 776 RESEARCH SEMINAR 3. (6) For students registered in a Ph.D. program in Mining.

53 Music, Schulich School of

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Dean, Schulich School of Music — Don McLean

Director, Graduate Studies — Eleanor Stublely

Chair, Department of Music Research — Peter Schubert

Chair, Department of Performance — André Roy

Associate Dean (Administration) — Bruce Minorgan

Associate Dean (Academic and Student) — Gordon Foote

53.1 Staff

Emeritus Professors

Edith Della Pergola; Graduate, Royal Conservatory (Bucharest)
Dorothy Morton; Graduate, Conservatoire de Musique de Québec

Professors

William Caplin; B.M.(S. Calif.), M.A., Ph.D.(Chic.) (*James McGill Professor*)

Brian Cherney; Mus.Bac., Mus.M., Ph.D.(Tor.)

John Grew; L.T.C.L.(Lond.), B.Mus.(Mt. All.), M.Mus.(Mich.)
D.D.(U.T.C.); LL.D.(Mt. All.); University Organist

Steven Huebner; B.A., B.Mus., L.Mus.(McG.), M.F.A.,
Ph.D.(Princ.) (*James McGill Professor*)

Stephen McAdams; B.Sc.(McG.), Ph.D.(Stan.), D.Sc.(Paris)

John Rea; B.Mus.(Wayne St.), M.Mus.(Tor.), M.F.A., Ph.D.(Princ.)
Wieslaw Woszczyk; M.A., Ph.D.(F. Chopin Academy of Music,
Warsaw) (*James McGill Professor*)

Associate Professors

Theodore Baskin; B.Mus.(Curtis), M.Mus.(Auck.); Principal Oboe,
Montreal Symphony

Tom Beghin; Diplome Supérieur(Louvain), M.A., D.M.A.(C'nell.)
Denys Bouliane; B.Mus., M.Mus.(Laval), Graduate, Hochschule
für Musik(Hamburg)

David Brackett; B.A.(Calif.-Santa Cruz), M.M.(New England
Conservatory), D.M.A.(C'nell.)

Julie Cumming; B.A.(Col.), M.A., Ph.D.(Calif., Berk.)

Kevin Dean; B.M.E.(Iowa), M.Mus.(Miami)

Martha de Francisco; Diploma(Musikkhochschule, Detmold)

Philippe Depalle; B.Sc.(Paris XI and ENS Cachan), D.E.A.(Le
Mans and ENS Cachan), Ph.D.(Le Mans & IRCAM) (*William
Dawson Scholar*)

Lucile Evans; Dip.(Vincent d'Indy)

Gordon Foote; B.Sc., M.A.(Minn.)

Matt Haimovitz; B.A.(Harv.)

Kyoko Hashimoto; B.A.(Tokyo)

Alexis Hauser; Diplom(Konservatorium der Stadt, Wien)

Timothy Hutchins; Dip. L.G.S.M.(Guildhall), B.A.Hons.Mus.(Dal.),
Principal Flute, Montreal Symphony

Jan Jarczyk; B.A., M.A.(Academy of Music, Cracow),
Dip.(Berklee)

Abe Kestenber

Hank Knox; B.Mus., M.Mus.(McG.) (*William Dawson Scholar*)

Sara Laimon; B.Mus.(Br. Col.), M.Mus.(Yale), D.M.A.(SUNY,
Stony Brook)

Richard Lawton; B.Mus.(McG.), M.Mus.(Ind.)

William Martens; B.A.(Miami), Ph.D.(N'western)

Don McLean; Mus.Bac., M.A., Ph.D.(Tor.)

Michael McMahon; B.Mus.(McG.), Graduate, Hochschule für
Musik(Vienna)

Douglas McNabney; B.Mus.(Tor.), M.M.(W. Ont.), D.Mus.(Montr.)
Marina Mdivani; Post-graduate Dip.(Moscow Cons.)

Bruce Minorgan; B.Mus.(Br. Col.), M.A.(Tor.)

Christoph Neidhöfer; Graduate, Hochschule für Musik(Basel),
Ph.D.(Harv.)

Tom Plaunt; B.A.(Tor.), Graduate, Nordwestdeutsche
Musikakademie(Detmold, Germany)

Richard Raymond; Premier Prix(Cons. de Montréal),
M.Mus.(Montr.)

Peter Schubert; B.A., M.A., Ph.D.(Col.)

Thérèse Sevadjian; B.Mus., M.Mus.(Montr.)

Eleanor Stublely; B.Mus.(Tor.), M.Mus.(Bran.), Ph.D.(Ill.)

Julian Wachner; B.Mus., Mus.Doc.(Boston)

Joel Wapnick; B.A.(N.Y.), M.A.(SUNY), M.F.A.(Sarah L.),
Ed.D.(Syr.)

Thomas Williams; B.Mus.(Bran.)

John Zirbel; B.Mus.(Wis.), Principal Horn, Montreal Symphony

Luba Zuk; L.Mus.(McG.), Graduate, Cons. de Mus. de Qué.

Assistant Professors

Stefano Algieri

Lisa Barg; B.A.(Antioch), M.A., Ph.D.(SUNY)

Rémi Bolduc

James Box; B.M.(Southern Methodist U.), M.M.(Cleveland Inst.
Music), Principal Trombone, Montreal Symphony

Alain Cazes; Premier Prix (Cons. de Montréal)

Carolyn Christie; B.Mus.(McG.); Montreal Symphony

Isabelle Cossette; Premier Prix (Cons. de Qué.), M.Mus. (McG.),
D.Mus. (Montr.)

Jonathan Crow; B.Mus.(McG.)
 Robert Crowley; B.M.(Eastman), M.M.(Cleveland); Principal Clarinet, Montreal Symphony
 René Daley; B.Mus.(Lawrence), M.A., M.Mus.(Mannes), Ph.D.(Mich.)
 Russell DeVuyst; B.Mus.Ed.(Boston Cons.), M.M.(New England Cons.); Associate Principal Trumpet, Montreal Symphony
 Elizabeth Dolin; B.Mus.(Tor.), Artist Dip.(Ind.)
 Sean Ferguson; B.Mus.(Alta.), M.Mus., D.Mus.(McG.)
 Mark Fewer; B.Mus.(Tor.)
 Ichiro Fujinaga; B.Mus., B.Sc.(Alta.), M.A., Ph.D.(McG.)
 Jean Gaudreault; LL.L.(Montr.), Graduate, Conservatoire de Musique de Québec, Montreal Symphony
 Patrick Hansen; B.Mus.(Simpson), M.Mus.(Missouri)
 Chris Harman
 Aiyun Huang; B.A.(Tor.), D.M.A.(Calif.-San Diego)
 Valerie Kinslow; B.A.(McG.)
 Roe-Min Kok; B.Mus.(Texas), M.A.(Duke), Ph.D.(Harv.)
 Joanne Kolomyjec; B.Mus.(Tor.)
 Jean Lesage; Concours, Diplôme d'études supérieures(Cons. de Montréal)
 Stéphane Lévesque; Premier Prix(Cons. de Montréal), M.Mus.(Yale), Principal Bassoon, Montreal Symphony
 Denise Lupien; B.M., M.M.(Juilliard), Concertmaster, Orchestre Métropolitain
 Fabrice Marandola; Premier Prix (Conservatoire de Paris), M.Mus., Ph.D.(Sorbonne)
 Michael Meraw; B.Mus., M.Mus.(McG.)
 Dennis Miller; Principal Tuba, Montreal Symphony
 William Porter; B.Mus.(Oberlin), M.M., M.M.A., D.M.A.(Yale)
 Winston Purdy; B.Mus.(McG.), M.M.(Eastman)
 René Quesnel; B.Mus., M.Mus., Ph.D.(McG.)
 Richard Roberts; B.Mus.(Ind.); Concertmaster, Montreal Symphony
 André Roy; B.Mus.(Curtis)
 Charlene Ryan; B.Mus.(M.U.N.), (W. Ont.), M.Mus.(Mich.), Ph.D.(McG.)
 Gary Scavone; B.Sc., B.A.(Syr.); M.Sc., Ph.D.(Stan.)
 Sanford Sylvan; B.Mus.(Manhattan School of Music)
 Joe Sullivan; B.A.(Ott.), M.M.(New England Cons.)
 Jennifer Swartz; Dip. (Curtis), Principal Harp, Montreal Symphony
 Marcelo Wanderley; B.Eng.(UFPR), M.Eng.(UFSC), Ph.D.(Paris VI and IRCAM)
 André White; B.A.(C'dia.), M.Mus.(McG.)
 Lloyd Whitesell; B.A.(Minn.), M.A., Ph.D.(SUNY, Stony Brook)
 Jonathan Wild; B.Mus., M.A.(McG.)

Adjunct Professors
 Soren Bech; M.Sc., Ph.D.(Tech. Univ. of Denmark)
 Jonas Braasch; Ph.D.(Ruhr-Univ. Bochum)
 Kenneth Gilbert; D.Mus.honoris causa(McG.), O.C., F.R.S.C., Hon RAM
 Jean-Paul Montagnier; B.A., M.A.(Lyon), Ph.D.(Duke)
 Axel Mulder; Drs.(Rijks Universiteit Groningen), Ph.D.(S. Fraser)
 Bruce Pennycook; B.Mus., M.Mus.(Tor.), DMA(Stan.)
 Marc-Pierre Verge; B.A., M.Sc.(Laval), Ph.D.(Eindhoven)

53.2 Programs Offered

The Master of Arts degree (M.A.) is available as a thesis option in Music Education, Music Technology, Musicology, and Theory and as a non-thesis option in Music Education, Musicology, and Theory.

The Master of Music degree (M. Mus.) is available in Composition, Performance, and Sound Recording. Specializations offered within the Performance option are: piano, guitar, orchestral instruments, organ, conducting, chamber music, orchestral training, piano accompaniment, vocal, opera, opera coaching, vocal pedagogy, early music, church music - organ, and jazz.

The Doctor of Music degree (D.Mus.) is offered in Composition and Performance Studies while the Doctor of Philosophy degree (Ph.D.) is available in Composition, Music Education, Musicology,

Music Technology, Sound Recording and Theory. Interdisciplinary studies are encouraged.

There are opportunities for graduate students to obtain funding by being hired as assistants through the Schulich School of Music. Positions are available as: teaching assistants, apprentice writers for program notes, sound recording technicians, dubbing technicians, correctors, library assistantships and invigilators. A variety of research assistantships in selected areas are also available. Inquiries should be directed to the Chair of the Department of Music Research or the Chair of the Department of Performance, as appropriate.

53.3 Admission Requirements

Masters' Degrees

Applicants for the Master's degree must hold a B.Mus. or a B.A. degree with a Major or Honours in Music including considerable work done in the area of specialization.

All applicants (except those for performance and sound recording) will be required to take placement examinations. Applicants found to be deficient in their background preparation may be required to take certain additional undergraduate courses.

Applicants to the Composition, Music Education, Music Technology, Musicology, Sound Recording, and Theory programs are requested to submit samples of work done in their special area.

Applicants to the Music Education program should normally have had two years of teaching experience.

All applicants to the Performance program will be required to pass an entrance audition. Only those applicants who clearly demonstrate the potential to become professional performers on their instruments will be admitted.

Applicants to the Vocal Pedagogy option should have a minimum of three to four years experience in studio teaching.

A reading knowledge of German is strongly recommended as a prerequisite for graduate work in Choral Conducting, Musicology, and Theory.

Prerequisite Undergraduate Courses for M.Mus. – Sound Recording

In order to be considered for admission to the Master of Music in Sound Recording, students must attain a minimum grade of "B" in all of the courses listed below and must have a B.Mus. degree.

Schulich School of Music

MUCO 260 Instruments of the Orchestra
 MUMT 202 Fundamentals of New Media
 MUMT 203 Introduction to Digital Audio
 MUSR 232 Introduction to Electronics
 MUSR 300D1/MUSR 300D2 Introduction to Music Recording
 MUSR 339 Introduction to Electroacoustics

One of (Complementary):

MUMT 302 New Music Production 1
 MUMT 306 Music and Audio Computing 1

Faculty of Science

PHYS 224 Physics and Psychophysics of Music
 PHYS 225 Musical Acoustics

Prerequisite Undergraduate Courses for M.Mus. – Performance

Applicants to the performance program are expected to have a background in Music Theory equivalent to the B.Mus. in Performance. Applicants found to be deficient in their background preparation may be required to take certain additional music theory undergraduate courses.

Piano Accompaniment

An undergraduate major in Piano.
 MUHL 570 Research Methods in Music
 One of:

MUHL 372 Solo Song outside Germany and Austria
 MUHL 390 The German Lied

Two of:

MUPG 210 Italian Diction (or equivalent)

MUPG 211 French Diction (or equivalent)
 MUPG 212 English Diction (or equivalent)
 MUPG 213 German Diction (or equivalent)

Orchestral Conducting

MUCO 260 Instruments of the Orchestra
 MUCO 261 Elementary Orchestration
 MUCO 460D1/MUCO 460D2 Advanced Orchestration
 MUHL 389 Orchestral Literature
 MUHL 570 Research Methods in Music
 MUIT 201 String Techniques
 MUIT 202 Woodwind Techniques
 MUIT 203 Brass Techniques
 MUIT 204 Percussion Techniques
 MUPG 315D1/MUPG 315D2 Introduction to Orchestral Conducting (or equivalent)

Choral Conducting

GERM 202 German Language, Beginners
 MUCO 260 Instruments of the Orchestra
 MUCO 261 Elementary Orchestration
 MUCT 415 Choral Conducting 2 (or equivalent)
 MUHL 397 Choral Literature after 1750
 MUHL 570 Research Methods in Music
 MUIN 110 or 111 Elective Practical Instruction 1 or 2 (Voice)

Wind Band Conducting

An undergraduate major in Wind or Percussion instruments.
 MUCO 260 Instruments of the Orchestra
 MUCO 261 Elementary Orchestration
 MUHL 398 Wind Ensemble Literature after 1750
 MUHL 570 Research Methods in Music
 MUIT 202 Woodwind Techniques
 MUIT 203 Brass Techniques
 MUIT 204 Percussion Techniques
 MUIT 415 Advanced Instrumental Conducting (or equivalent)

Jazz Performance

MUHL 393 History of Jazz
 MUJZ 440D1/MUJZ 440D2 Advanced Jazz Composition
 MUJZ 461D1/MUJZ 461D2 Advanced Jazz Arranging
 MUJZ 493 Jazz Performance Practice

Early Music

MUHL 570 Research Methods in Music
 MUPP 381 Topics: Performance Practice before 1800
 Plus 6 credits from the following with a least one course from each group:

Group 1:

MUHL 380 Medieval Music
 MUHL 381 Renaissance Music
 MUHL 382 Baroque Music
 MUHL 383 Classical Music

Group 2:

MUHL 395 Keyboard Literature before 1750
 MUHL 591D1/MUHL 591D2 Paleography

Organ/Harpsichord:

MUPG 272D1/MUPG 272D2 Continuo

Voice

Two of:

MUPG 210 Italian Diction (or equivalent)
 MUPG 211 French Diction (or equivalent)
 MUPG 212 English Diction (or equivalent)
 MUPG 213 German Diction (or equivalent)

Orchestral Training

MUHL 389 Orchestral Literature
 MUHL 570 Research Methods in Music

Piano (Solo and Chamber Music)

MUHL 570 Research Methods in Music
 One of:
 MUHL 366 The Era of the Fortepiano
 MUHL 396 Era of the Modern Piano

Voice (Vocal Opera Coach, Opera Performance, Vocal Pedagogy and Vocal Performance)

MUHL 570 Research Methods in Music

MUPG 210 Italian Diction
 MUPG 211 French Diction
 MUPG 212 English Diction
 MUPG 213 German Diction

Two of:

MUHL 372 Solo Song outside Germany and Austria
 MUHL 377 Baroque Opera
 MUHL 387 Opera from Mozart to Puccini
 MUHL 388 Twentieth-Century Opera
 MUHL 390 The German Lied

D.Mus. Degree

Applicants for the D.Mus. degree in Composition must hold an M.Mus. degree in Composition, or its equivalent, and must submit scores and/or recordings of their compositions at the time of application.

Applicants for the D.Mus. degree in Performance Studies must hold an M.Mus. degree in Performance, or its equivalent; are required to submit a screening DVD, and submit samples of written work and a statement of research interests by the December 15th deadline. Only the most advanced applicants will be invited to pass a live entrance audition and interview.

Ph.D. Degree

Applicants for the Ph.D. degree in Composition must hold an M.Mus. in Composition or equivalent and must submit scores and/or recordings of their compositions at the time of application, and a written description (no more than two pages) of the research path(s) they wish to follow.

Applicants for the Ph.D. degree in Music Technology, Music Education, Musicology, or Theory must hold a Master's or a Bachelor's degree equivalent to a McGill Honours degree, in Music Technology, Music Education, Musicology, or Theory. Applicants with a Bachelor's degree will normally be admitted to the M.A. program for the first year and may apply for admittance to the Ph.D. program after the completion of one full year of graduate course work. Qualified applicants who have already completed an appropriate Master's degree will be admitted to the second year of the program.

53.4 Application Procedures

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate. The Web application process will automatically charge a \$80 application fee and, for Performance degrees, a \$60 audition fee.

Deadline date for application and accompanying documentation is December 15.

Application will be considered upon receipt of:

1. online Web application;
2. two official copies of transcripts, sent directly by the registrars of universities attended (if documents are written in a language other than English or French, please submit an official certified translation in addition to the original documents);
3. two signed original letters of reference, on official letterhead;
4. submissions appropriate to area of specialization (www.mcgill.ca/music/prospective/graduate/procedures);
5. All M.Mus. applicants in conducting, female voices and piano will be required to submit recordings for pre-selection. All D.Mus. performance applicants will be required to submit a DVD for pre-selection. Following a review of these recordings/DVDs, selected applicants will be invited to attend a live audition.
6. TOEFL test results, where applicable.

All supporting documentation is to be submitted to Patrick O'Neill, Admissions Officer, Schulich School of Music.

53.5 Program Requirements

MASTERS' DEGREES

The minimum residence requirement for Masters' programs is 3 full-time terms; for Sound Recording, 4 full-time terms. In all programs a minimum number of formal courses are prescribed. The student's major work is expected to be thesis, research, composition or performance which will be done under the supervision of an adviser. This work, as well as any additional courses and/or individual study which the Department considers necessary, constitutes the central part of each program.

Applicants who hold the equivalent of a McGill B.Mus. with Honours in the area of specialization may be able to complete the Master's degree in less than two years.

Master of Music – Composition (Thesis) (48 credits)

Required Courses (12 credits)

MUCO 622D1/D2(6) Composition Tutorial

Two of the following:

- MUCO 631 (3) Seminar in Composition 1
- MUCO 632 (3) Seminar in Composition 2
- MUCO 633 (3) Seminar in Composition 3
- MUCO 634 (3) Seminar in Composition 4
- MUCO 635 (3) Seminar in Composition 5
- MUCO 636 (3) Seminar in Composition 6

Language reading examination in one of: French, German, or Italian. Students whose mother tongue is French are exempt from the French Language Reading examination.

Electives Courses (6 credits)

Two approved 3-credit graduate electives or the equivalent.

Thesis (30 credits)

The thesis is a composition, accompanied by an analytical essay of approximately 20 to 30 pages.

M.A. in Music – Music Education (Thesis) (48 credits)

Required Courses (15 credits)

Five 3-credit graduate courses approved by the Department, normally three of these will be Seminars in Music Education from the list below:

- MUGT 610 (3) Seminar - Music Education 1
- MUGT 611 (3) Seminar - Music Education 2
- MUGT 612 (3) Seminar - Music Education 3
- MUGT 613 (3) Seminar - Music Education 4

Thesis (33 credits)

Thesis (33 credits). The candidate will undertake supervised research leading to a thesis which will be an in-depth investigation in some specialized field of music education.

M.A. in Music – Music Technology (Thesis) (48 credits)

Required Courses (33 credits)

- MUGS 683 (3) Master's Thesis Research 1
- MUGS 684 (6) Master's Thesis Research 2
- MUGS 686 (12) Master's Thesis Research 4
- MUGS 687 (12) Master's Thesis

The candidate will undertake supervised research leading to a thesis that will utilize or investigate an aspect of musical science and technology.

Complementary Courses (15 credits)

15 credits of 500-level courses or higher approved by the Department, 9 credits of which will be Music Technology seminars with the prefix MUMT.

M.A. in Music – Musicology (Thesis) (48 credits)

Required Courses (15 credits)

MUHL 529 (3) Proseminar in Musicology

Four 3-credit graduate courses approved by the Department, normally at least two of these will be Seminars in Musicology from the courses below:

- MUHL 680 (3) Seminar in Musicology 1
- MUHL 681 (3) Seminar in Musicology 2
- MUHL 682 (3) Seminar in Musicology 3
- MUHL 683 (3) Seminar in Musicology 4
- MUHL 684 (3) Seminar in Musicology 5
- MUHL 685 (3) Seminar in Musicology 6
- MUHL 692 (3) Seminar in Music Literature 1
- MUHL 693 (3) Seminar in Music Literature 2
- MUHL 694 (3) Seminar in Music Literature 3
- MUHL 695 (3) Seminar in Music Literature 4
- MUHL 696 (3) Seminar in Music Literature 5
- MUHL 697 (3) Seminar in Music Literature 6

Thesis (33 credits)

Thesis (33 credits). The candidate will undertake supervised research leading to a thesis which will be an in-depth investigation in some specialized field of musicology.

Master of Music – Sound Recording (Non-Thesis) (60 credits)

Required Courses (51 credits)

- MUSR 629D1/D2 (4) Technical Ear Training
- MUSR 667 (3) Digital Studio Technology
- MUSR 668 (3) Digital/Analog Audio Editing
- MUSR 669D1/D2 (3) Topics:Classical Music Recording
- MUSR 670D1/D2 (10) Recording Theory and Practice 1
- MUSR 671D1/D2 (10) Recording Theory and Practice 2
- MUSR 672D1/D2 (6) Analysis of Recordings
- MUSR 674 (3) Electronic and Electroacoustic Measurement
- MUSR 677D1/D2 (6) Audio for Video Post-Production
- MUSR 678 (3) Advanced Digital Editing and Post-Production

Elective Courses (9 credits)

Three approved 3-credit graduate electives.

M.A. in Music – Theory (Thesis) (48 credits)

Required Courses (15 credits)

Five 3-credit graduate courses approved by the Department, normally three will be Seminars in Music Theory from the following:

- MUTH 652 (3) Seminar in Music Theory 1
- MUTH 653 (3) Seminar in Music Theory 2
- MUTH 654 (3) Seminar in Music Theory 3
- MUTH 655 (3) Seminar in Music Theory 4
- MUTH 656 (3) Seminar in Music Theory 5
- MUTH 657 (3) Seminar in Music Theory 6

And one of the following:

- MUTH 658 (3) History of Music Theory 1
- MUTH 659 (3) History of Music Theory 2

Thesis (33 credits)

Thesis (33 credits). The candidate will undertake supervised research leading to a thesis which will be an in-depth investigation in some specialized field of music theory.

M.A. in Music (Non-Thesis) options in Music Education, Musicology, and Theory (45 credits)

Required Courses (21 credits)

Seven 3-credit graduate courses approved by the appropriate Area, four of which must be in the Area itself.

For students in the Musicology Area, one of the courses must be: MUHL 529 (3) Proseminar in Musicology

For students in the Theory Area, one of the courses must be:

MUTH 658 (3) History of Music Theory 1
or MUTH 659 (3) History of Music Theory 2

For students in Music Education, and with the approval of the Music Education Area, two of the seven 3-credit courses may be taken in the Faculty of Education.

Reading and Research Courses (24 credits)

MUGS 614 (3) Reading Course 1
MUGS 615 (3) Reading Course 2
MUGS 635 (9) Research Paper 1
MUGS 636 (9) Research Paper 2

Master of Music – Performance: Solo – Guitar, Orchestral Instruments, Organ, Conducting (45 credits)

Required Courses (15 credits)

MUPG 620 (4) Performance Tutorial 1
MUPG 621 (4) Performance Tutorial 2
MUPG 622 (4) Performance Tutorial 3

One of the following:

MUPP 690 (3) Performance Practice Seminar 1
MUPP 691 (3) Performance Practice Seminar 2
MUPP 692 (3) Performance Practice Seminar 3
MUPP 693 (3) Performance Practice Seminar 4
MUPP 694 (3) Performance Practice Seminar 5
MUPP 695 (3) Performance Practice Seminar 6

Complementary Courses (6 credits)

One approved graduate 3-credit seminar with the prefix MUCO, MUGS, MUGT, MUHL, MUMT, MUPP, MUTH

One additional graduate 3-credit seminar approved by the Department

Recitals (24 credits)

MUPG 660 (12) Solo Recital Project 1
MUPG 667 (12) Solo Recital 2

Note: One of these could optionally include some chamber music.

Master of Music – Performance: Chamber Music (48 credits)

(All instruments except Piano, Guitar, Early Music Instruments, Organ, Harp and Double Bass.)

Required Courses (18 credits)

MUPG 620 (4) Performance Tutorial 1
MUPG 621 (4) Performance Tutorial 2
MUPG 622 (4) Performance Tutorial 3

3 credits of:

MUEN 560 (1) Chamber Music Ensemble

One of the following:

MUPP 690 (3) Performance Practice Seminar 1
MUPP 691 (3) Performance Practice Seminar 2
MUPP 692 (3) Performance Practice Seminar 3
MUPP 693 (3) Performance Practice Seminar 4
MUPP 694 (3) Performance Practice Seminar 5
MUPP 695 (3) Performance Practice Seminar 6

Complementary Courses (6 credits)

One approved graduate 3-credit seminar with the prefix MUCO, MUGS, MUGT, MUHL, MUMT, MUPP, MUTH

One additional graduate 3-credit seminar approved by the Department

Recitals (24 credits)

MUPG 661 (12) Chamber Recital Project 1
MUPG 668 (12) Chamber Music Recital 2

Note: One of these could optionally include some solo music.

Master of Music – Performance: Solo Piano (49 credits)

Required Courses (22 credits)

MUPG 620 (4) Performance Tutorial 1
MUPG 621 (4) Performance Tutorial 2
MUPG 622 (4) Performance Tutorial 3
MUPG 681 (2) Piano Seminar 1
MUPG 682 (2) Piano Seminar 2

3 credits of the following:

MUEN 560 (1) Chamber Music Ensemble
MUEN 578 (1) Song Interpretation 1
MUEN 579 (1) Song Interpretation 2
MUEN 584 (1) Studio Accompanying
MUEN 594 (2) Contemporary Music Ensemble
MUEN 597 (2) Orchestral Ensembles
MUEN 684 (2) Studio Accompanying

One of the following:

MUPP 690 (3) Performance Practice Seminar 1
MUPP 691 (3) Performance Practice Seminar 2
MUPP 692 (3) Performance Practice Seminar 3
MUPP 693 (3) Performance Practice Seminar 4
MUPP 694 (3) Performance Practice Seminar 5
MUPP 695 (3) Performance Practice Seminar 6

Complementary Courses (3 credits)

One approved graduate 3-credit seminar with the prefix MUCO, MUGS, MUGT, MUHL, MUMT, MUPP, MUTH

Recitals (24 credits)

MUPG 660 (12) Solo Recital Project 1
MUPG 667 (12) Solo Recital 2

Note: One of these could optionally include some chamber music.

Master of Music – Performance: Chamber Music - Piano (49 credits)

Required Courses (22 credits)

MUPG 620 (4) Performance Tutorial 1
MUPG 621 (4) Performance Tutorial 2
MUPG 622 (4) Performance Tutorial 3
MUPG 681 (2) Piano Seminar 1
MUPG 682 (2) Piano Seminar 2

3 credits from the following:

MUEN 560 (1) Chamber Music Ensemble
MUEN 578 (1) Song Interpretation 1
MUEN 579 (1) Song Interpretation 2
MUEN 584 (1) Studio Accompanying
MUEN 594 (2) Contemporary Music Ensemble
MUEN 597 (2) Orchestral Ensembles
MUEN 684 (2) Studio Accompanying

One of the following:

MUPP 690 (3) Performance Practice Seminar 1
MUPP 691 (3) Performance Practice Seminar 2
MUPP 692 (3) Performance Practice Seminar 3
MUPP 693 (3) Performance Practice Seminar 4
MUPP 694 (3) Performance Practice Seminar 5
MUPP 695 (3) Performance Practice Seminar 6

Complementary Courses (3 credits)

One approved graduate 3-credit seminar with the prefix MUCO, MUGS, MUGT, MUHL, MUMT, MUPP, MUTH

Recitals (24 credits)

MUPG 661 (12) Chamber Recital Project 1
MUPG 668 (12) Chamber Music Recital 2

Note: One of these could optionally include some solo music.

Master of Music – Performance**Piano Accompaniment** (45 credits)**Required Courses** (21 credits)

- MUPG 620 (4) Performance Tutorial 1
 MUPG 621 (4) Performance Tutorial 2
 MUPG 622 (4) Performance Tutorial 3

2 credits of:

- MUEN 578 (1) Song Interpretation 1

or

- MUEN 579 (1) Song Interpretation 2

4 credits of:

- MUEN 684 (2) Studio Accompanying
 (Two terms of MUEN 684)

OR

6 credits of:

- MUEN 596 (2) Opera Repetiteur
 (Three terms of MUEN 596)

One of the following:

- MUPG 590 (3) Vocal Styles and Conventions
 MUPP 690 (3) Performance Practice Seminar 1
 MUPP 691 (3) Performance Practice Seminar 2
 MUPP 692 (3) Performance Practice Seminar 3
 MUPP 693 (3) Performance Practice Seminar 4
 MUPP 694 (3) Performance Practice Seminar 5
 MUPP 695 (3) Performance Practice Seminar 6

Complementary Courses (6 credits)

One approved graduate 3-credit seminar with the prefix MUCO,
 MUGS, MUGT, MUHL, MUMT, MUPP, MUTH

One additional graduate 3-credit seminar approved by the
 Department

Recitals (18 credits)

- MUPG 663 (6) Quick Study Examination
 (To be successfully completed before the
 recital is performed.)

MUPG 665D1/D2 (12) Accompanying Recital Project

Master of Music – Performance: Orchestral Training

(45 credits) (All orchestral instruments except Harp.)

Required Courses (21 credits)

- MUPG 620 (4) Performance Tutorial 1
 MUPG 621 (4) Performance Tutorial 2
 MUPG 622 (4) Performance Tutorial 3

6 credits of:

- MUEN 597 (2) Orchestral Ensembles
 (Three terms of MUEN 597)

One of the following:

- MUPP 690 (3) Performance Practice Seminar 1
 MUPP 691 (3) Performance Practice Seminar 2
 MUPP 692 (3) Performance Practice Seminar 3
 MUPP 693 (3) Performance Practice Seminar 4
 MUPP 694 (3) Performance Practice Seminar 5
 MUPP 695 (3) Performance Practice Seminar 6

Complementary Courses (6 credits)

One approved graduate 3-credit seminar with the prefix MUCO,
 MUGS, MUGT, MUHL, MUMT, MUPP, MUTH

One additional graduate 3-credit seminar approved by the
 Department

Recitals (18 credits)

- MUPG 660 (12) Solo Recital Project 1
 MUPG 664 (6) Repertoire Examination

Master of Music – Performance: Opera Performance

(45 credits)

Required Courses (21 credits)

- MUIN 600 (2) Vocal Repertoire Coaching 1
 MUIN 601 (2) Vocal Repertoire Coaching 2
 MUIN 602 (2) Vocal Repertoire Coaching 3
 MUPG 620 (4) Performance Tutorial 1
 MUPG 621 (4) Performance Tutorial 2
 MUPG 622 (4) Performance Tutorial 3

One of the following:

- MUPG 590 (3) Vocal Styles and Conventions
 MUPP 690 (3) Performance Practice Seminar 1
 MUPP 691 (3) Performance Practice Seminar 2
 MUPP 692 (3) Performance Practice Seminar 3
 MUPP 693 (3) Performance Practice Seminar 4
 MUPP 694 (3) Performance Practice Seminar 5
 MUPP 695 (3) Performance Practice Seminar 6

Complementary Courses (6 credits)

One approved graduate 3-credit seminar with the prefix MUCO,
 MUGS, MUGT, MUHL, MUMT, MUPP, MUTH

One additional graduate 3-credit seminar from the following:

- MUPG 590 (3) Vocal Styles and Conventions
 (if not already taken as a required course)
 MUPG 691 (3) Vocal Seminar 1
 MUPG 692 (3) Vocal Seminar 2
 MUPG 693 (3) Vocal Treatises and Methods
 MUPG 694 (3) Vocal Physiology for Singers

Recitals (18 credits)

- MUPG 656 (6) Vocal Quick Study
 MUPG 657 (6) Opera Performance Project
 MUPG 658 (6) Opera Performance

Master of Music – Performance: Vocal Opera Coach

(45 credits)

Required Courses (21 credits)

- MUPG 620 (4) Performance Tutorial 1
 MUPG 621 (4) Performance Tutorial 2
 MUPG 622 (4) Performance Tutorial 3
 MUPG 646 (1) Score- and Sight-Reading 1
 MUPG 647 (1) Score- and Sight-Reading 2
 MUPG 670 (2) Advanced Continuo 1
 MUPG 671 (2) Advanced Continuo 2

One of the following:

- MUPG 590 (3) Vocal Styles and Conventions
 MUPP 690 (3) Performance Practice Seminar 1
 MUPP 691 (3) Performance Practice Seminar 2
 MUPP 692 (3) Performance Practice Seminar 3
 MUPP 693 (3) Performance Practice Seminar 4
 MUPP 694 (3) Performance Practice Seminar 5
 MUPP 695 (3) Performance Practice Seminar 6

Complementary Courses (6 credits)

One approved graduate 3-credit seminar with the prefix MUCO,
 MUGS, MUGT, MUHL, MUMT, MUPP, MUTH

One additional graduate 3-credit seminar from the following:

- MUPG 590 (3) Vocal Styles and Conventions
 (if not already taken as a required course)
 MUPG 691 (3) Vocal Seminar 1
 MUPG 692 (3) Vocal Seminar 2
 MUPG 693 (3) Vocal Treatises and Methods
 MUPG 694 (3) Vocal Physiology for Singers

Recitals (18 credits)

- MUPG 653 (6) Opera Coach Project
 MUPG 654 (6) Opera Coach Performance
 MUPG 655 (6) Opera Coach Quick Study

Master of Music – Performance: Vocal Performance
(49 credits)**Required Courses** (19 credits)

MUIN 600	(2)	Vocal Repertoire Coaching 1
MUIN 601	(2)	Vocal Repertoire Coaching 2
MUPG 620	(4)	Performance Tutorial 1
MUPG 621	(4)	Performance Tutorial 2
MUPG 622	(4)	Performance Tutorial 3

One of the following:

MUPG 590	(3)	Vocal Styles and Conventions
MUPP 690	(3)	Performance Practice Seminar 1
MUPP 691	(3)	Performance Practice Seminar 2
MUPP 692	(3)	Performance Practice Seminar 3
MUPP 693	(3)	Performance Practice Seminar 4
MUPP 694	(3)	Performance Practice Seminar 5
MUPP 695	(3)	Performance Practice Seminar 6

Complementary Courses (6 credits)

One approved graduate 3-credit seminar with the prefix MUCO, MUGS, MUGT, MUHL, MUMT, MUPP, MUTH

One additional graduate 3-credit seminar from the following:

MUPG 590	(3)	Vocal Styles and Conventions (if not already taken as a required course)
MUPG 691	(3)	Vocal Seminar 1
MUPG 692	(3)	Vocal Seminar 2
MUPG 693	(3)	Vocal Treatises and Methods
MUPG 694	(3)	Vocal Physiology for Singers

Recitals (24 credits)

MUPG 660*	(12)	Solo Recital Project 1
MUPG 667*	(12)	Solo Recital 2

* Note: One of MUPG 660 or MUPG 667 may be replaced by either of these combinations: MUPG 656 and MUPG 657 or MUPG 656 and MUPG 658.

MUPG 656	(6)	Vocal Quick Study
MUPG 657	(6)	Opera Performance Project
MUPG 658	(6)	Opera Performance

Master of Music – Performance: Vocal Pedagogy (47 credits)**Required Courses** (27 credits)

MUPG 611	(3)	Directed Voice Teaching 1
MUPG 612	(3)	Directed Voice Teaching 2
MUPG 620	(4)	Performance Tutorial 1
MUPG 621	(4)	Performance Tutorial 2
MUPG 622	(4)	Performance Tutorial 3
MUPG 650	(3)	Voice Lecture - Demonstration
MUPG 693	(3)	Vocal Treatises and Methods
MUPG 694	(3)	Vocal Physiology for Singers

Complementary Courses (8 credits)

One approved graduate 3-credit seminar with the prefix MUCO, MUGS, MUGT, MUHL, MUMT, MUPP, MUTH

One of the following:

MUPG 590	(3)	Vocal Styles and Conventions
MUPP 690	(3)	Performance Practice Seminar 1
MUPP 691	(3)	Performance Practice Seminar 2
MUPP 692	(3)	Performance Practice Seminar 3
MUPP 693	(3)	Performance Practice Seminar 4
MUPP 694	(3)	Performance Practice Seminar 5
MUPP 695	(3)	Performance Practice Seminar 6

One of the following:

MUIN 600	(2)	Vocal Repertoire Coaching 1
MUIN 601	(2)	Vocal Repertoire Coaching 2

Recital (12 credits)

MUPG 660	(12)	Solo Recital Project 1
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Master of Music – Performance: Early Music (48 credits)
(Voice, baroque flute, recorder, baroque oboe, baroque violin, baroque viola, baroque cello, viola da gamba, harpsichord)**Required Courses** (15 credits)

MUPG 620	(4)	Performance Tutorial 1
MUPG 621	(4)	Performance Tutorial 2
MUPG 622	(4)	Performance Tutorial 3

3 credits of:

MUEN 580	(1)	Early Music Ensemble
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Harpsicord players must satisfy the corequisite of MUPG 372 D1/D2 (2) Continuo

Complementary Courses (9 credits)

3 credits from the following:

MUPP 690	(3)	Performance Practice Seminar 1
MUPP 691	(3)	Performance Practice Seminar 2
MUPP 692	(3)	Performance Practice Seminar 3
MUPP 693	(3)	Performance Practice Seminar 4
MUPP 694	(3)	Performance Practice Seminar 5
MUPP 695	(3)	Performance Practice Seminar 6

One approved graduate 3-credit seminar with the prefix MUCO, MUGS, MUGT, MUHL, MUMT, MUPP, MUTH

One additional graduate 3-credit seminar approved by the Department

Recitals (24 credits)

MUPG 660	(12)	Solo Recital Project 1
MUPG 662	(12)	Solo & Chamber Music Recital

Master of Music – Performance: Church Music - Organ
(45 credits)**Required Courses** (21 credits)

MUPG 620	(4)	Performance Tutorial 1
MUPG 621	(4)	Performance Tutorial 2
MUPG 622	(4)	Performance Tutorial 3

6 credits of:

MUEN 593	(2)	Choral Ensembles (Three terms of MUEN 593)
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One of the following:

MUPP 690	(3)	Performance Practice Seminar 1
MUPP 691	(3)	Performance Practice Seminar 2
MUPP 692	(3)	Performance Practice Seminar 3
MUPP 693	(3)	Performance Practice Seminar 4
MUPP 694	(3)	Performance Practice Seminar 5
MUPP 695	(3)	Performance Practice Seminar 6

Complementary Courses (6 credits)

One approved graduate 3-credit seminar with the prefix MUCO, MUGS, MUGT, MUHL, MUMT, MUPP, MUTH

One additional graduate 3-credit seminar approved by the Department

Recitals (18 credits)

MUPG 660	(12)	Solo Recital Project 1
MUPG 676D1/D2	(6)	Special Project in Performance 2

Master of Music – Performance: Jazz Performance

(49 credits) (Saxophone, Trumpet, Trombone, Drums, Piano, Guitar, Bass, Voice)

Required Courses (19 credits)

MUEN 592	(2)	Chamber Jazz Ensemble
MUEN 595	(2)	Jazz Ensembles
MUJZ 601	(3)	Jazz Pedagogy
MUPG 626	(4)	Jazz Performance/Composition Tutorial 1
MUPG 627	(4)	Jazz Performance/Composition Tutorial 2
MUPG 628	(4)	Jazz Performance/Composition Tutorial 3

Complementary Courses (22 - 25 credits)

22 - 25 credits from one of the following options, A, B, or C:

Option A (25 credits):

MUJZ 640	(2)	Jazz Composition & Arranging 1
MUJZ 641	(2)	Jazz Composition & Arranging 2
MUPG 659	(9)	Performance in Recording Media
MUPG 660	(12)	Solo Recital Project 1

Option B (22 credits):

MUJZ 640	(2)	Jazz Composition & Arranging 1
MUJZ 641	(2)	Jazz Composition & Arranging 2
MUPG 652	(9)	Jazz Ensemble Recital Project
MUPG 659	(9)	Performance in Recording Media

Option C (25 credits):

MUJZ 644	(2)	Jazz Repertoire Project 1
MUJZ 645	(2)	Jazz Repertoire Project 2
MUPG 652	(9)	Jazz Ensemble Recital Project
MUPG 660	(12)	Solo Recital Project 1

Elective Courses (5 - 8 credits)

One graduate 2-credit ensemble at the 500-level with the prefix MUEN.

3 - 6 credits from one of the following options, A, B, or C:

Option A (3 credits):

One 3-credit graduate seminar at the 600-level approved by the Department.

Option B (6 credits):

Two 3-credit graduate seminars at the 600-level approved by the Department.

Option C (3 credits):

One 3-credit graduate seminar at the 600-level approved by the Department.

Courses approved as electives for M.Mus. students in Performance:

All courses at the 600-level with the prefix MUCO, MUGS, MUGT, MUHL, MUMT, MUPP and MUTH and MUHL 591D1/D2 Paleography have been approved as electives for M.Mus. students in Performance.

Doctor of Music (D.Mus.) Degree Requirements - Composition

A minimum of two years' residence is required beyond the M.Mus. in Composition, or its equivalent.

Details concerning the comprehensive examinations, composition performance, thesis and academic regulations are available from the Student Affairs Coordinator, Schulich School of Music.

Required Courses (24 credits)**Comprehensive Examination:**

MUGS 701	(0)	Comprehensive Examination Part 1
MUGS 702	(0)	Comprehensive Examination Part 2

12 credits (two years) of:

MUCO 722D1/D2(6)	Doctoral Composition Tutorial
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Electives Courses (12 credits)

Four approved 3-credit graduate electives or the equivalent.

Composition Performance

The candidate must present a concert of his/her compositions. With the permission of the Composition Area Committee, the compositions may be presented as parts of two or three concerts, or as a list of national and international performances since the student began his/her residency.

Thesis

The thesis is a musical composition of major dimensions together with a written analysis of the work. The thesis must be defended in an oral examination.

Doctor of Music (D.Mus.) Degree Requirements – Performance Studies

A minimum of two years' residence is required beyond the M.Mus. in Performance, or its equivalent.

Details concerning the comprehensive examinations, composition performance, thesis and academic regulations are available from the Student Affairs Coordinator, Schulich School of Music.

Required Courses (24-32 credits)**Comprehensive examination:**

MUGS 701	(0)	Comprehensive Examination Part 1
MUGS 702	(0)	Comprehensive Examination Part 2

6 terms of 1 hour per week of Performance Tutorials:

MUPG 720	(4)	D.Mus. Performance Tutorial 1
MUPG 721	(4)	D.Mus. Performance Tutorial 2
MUPG 722	(4)	D.Mus. Performance Tutorial 3
MUPG 723	(4)	D.Mus. Performance Tutorial 4
MUPG 724	(4)	D.Mus. Performance Tutorial 5
MUPG 725	(4)	D.Mus. Performance Tutorial 6

OR 4 terms of 1.5 hours per week of:

MUPG 730	(6)	D.Mus. Performance Tutorial 8
MUPG 731	(6)	D.Mus. Performance Tutorial 9
MUPG 732	(6)	D.Mus. Performance Tutorial 10
MUPG 733	(6)	D.Mus. Performance Tutorial 11

Voice candidates only: 4 terms of Vocal Repertoire Coaching:

MUIN 700	(2)	Doctoral Repertoire Coaching 1
MUIN 701	(2)	Doctoral Repertoire Coaching 2
MUIN 702	(2)	Doctoral Repertoire Coaching 3
MUIN 703	(2)	Doctoral Repertoire Coaching 4

Complementary Courses (12 credits)

Four graduate level courses (3 credits each) to be chosen from among the Faculty's course offerings in consultation with the advisory committee. Three of the four courses should be in the Department of Music Research; one of the four may be replaced with a supervised special project approved by the advisory committee and the performance graduate sub-committee.

Recitals (36 credits)

MUPG 760	(12)	Doctoral Recital 1
MUPG 767	(12)	Doctoral Recital 2
MUPG 770	(12)	Doctoral Lecture - Recital Project

PH.D. DEGREE REQUIREMENTS

The Ph.D. requires a minimum of three years of full-time resident study (6 full-time terms) beyond a Bachelor's degree. A candidate who holds a Master's degree in the area of specialization may, on the recommendation of the Department, be permitted to count the work done for the Master's degree as the first year of resident study.

Requirements**Language reading examinations:**

In two foreign languages (one foreign language for students in composition, music education; none required for students in sound recording and music technology).

Normally, one of these will be German and the other related to the candidate's field of research.

A third language may be required if considered necessary for the candidate's research.

Students whose mother tongue is French are exempt from the French Language Reading examination

Note: The language reading examinations must be passed before a candidate will be permitted to sit the Comprehensive Examinations.

Comprehensive examination:

- MUGS 701 (0) Comprehensive Examination Part 1
 MUGS 702 (0) Comprehensive Examination Part 2

Complementary Courses (15-30 credits):

Ten 3-credit graduate courses approved by the Department (the Doctoral Tutorial will be considered a course for purposes of this requirement).

Applicants who have completed an M.A. degree before entering the Ph.D. program will be required to complete at least five approved 3-credit graduate courses beyond the M.A. requirements.

Applicants in composition will be required to complete at least four approved 3-credit graduate courses and two terms of MUCO 722D1/D2 (6) Doctoral Composition Tutorial

Doctoral Colloquium:

Required attendance for four terms of the Doctoral Colloquium.
 MUGS 705 (0) Colloquium

Note: Regular attendance and at least one presentation on their thesis research in the Colloquium during the course of their doctoral studies is required.

Composition Performance:

Composition applicants only:

The candidate must present a concert of his/her compositions. With the permission of the Composition Area Committee, the compositions may be presented as parts of two or three concerts, or as a list of national and international performances since the student began his/her residency.

Doctoral Dissertation:

All courses and language requirements and the comprehensive examinations must be successfully completed before the dissertation is submitted.

53.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Courses with numbers ending D1 and D2 are taught in two consecutive terms (most commonly Fall and Winter). Students must register for both the D1 and D2 components. No credit will be given unless both components (D1 and D2) are successfully completed in consecutive terms.

The course credit weight is given in parentheses after the title.

SEMINARS

Enrolment in seminars will normally be limited to 10. Each year a selection of the following courses are offered:

- MUCO 631 Seminar in Composition 1. (3) (3 hours)
 MUCO 632 Seminar in Composition 2. (3) (3 hours)
 MUCO 633 Seminar in Composition 3. (3) (3 hours)
 MUCO 634 Seminar in Composition 4. (3) (3 hours)
 MUCO 635 Seminar in Composition 5. (3) (3 hours)
 MUCO 636 Seminar in Composition 6. (3) (3 hours)
 MUGT 610 Seminar - Music Education 1. (3) (3 hours)
 MUGT 611 Seminar - Music Education 2. (3) (3 hours)
 MUGT 612 Seminar - Music Education 3. (3) (3 hours)
 MUGT 613 Seminar - Music Education 4. (3) (3 hours)
 MUHL 680 Seminar in Musicology 1. (3) (3 hours)
 MUHL 681 Seminar in Musicology 2. (3) (3 hours)
 MUHL 682 Seminar in Musicology 3. (3) (3 hours)
 MUHL 683 Seminar in Musicology 4. (3) (3 hours)
 MUHL 684 Seminar in Musicology 5. (3) (3 hours)
 MUHL 685 Seminar in Musicology 6. (3) (3 hours)

- MUHL 692 Seminar in Music Literature 1. (3) (3 hours)
 MUHL 693 Seminar in Music Literature 2. (3) (3 hours)
 MUHL 694 Seminar in Music Literature 3. (3) (3 hours)
 MUHL 695 Seminar in Music Literature 4. (3) (3 hours)
 MUHL 696 Seminar in Music Literature 5. (3) (3 hours)
 MUHL 697 Seminar in Music Literature 6. (3) (3 hours)
 MUMT 610 Music Technology Seminar 1. (3) (3 hours)
 MUMT 611 Music Technology Seminar 2. (3) (3 hours)
 MUMT 612 Music Technology Seminar 3. (3) (3 hours)
 MUMT 613 Music Technology Seminar 4. (3) (3 hours)
 MUMT 614 Music Technology Seminar 5. (3) (3 hours)
 MUMT 615 Music Technology Seminar 6. (3) (3 hours)

- MUPP 690 Performance Practice Seminar 1. (3) (3 hours)
 MUPP 691 Performance Practice Seminar 2. (3) (3 hours)
 MUPP 692 Performance Practice Seminar 3. (3) (3 hours)
 MUPP 693 Performance Practice Seminar 4. (3) (3 hours)
 MUPP 694 Performance Practice Seminar 5. (3) (3 hours)
 MUPP 695 Performance Practice Seminar 6. (3) (3 hours)

- MUSR 690 Media Theory and Practice Seminar 1. (3) (3 hours)
 MUSR 691 Media Theory and Practice Seminar 2. (3) (3 hours)
 MUSR 692 Media Theory and Practice Seminar 3. (3) (3 hours)
 MUSR 693 Media Theory and Practice Seminar 4. (3) (3 hours)
 MUSR 694 Media Theory and Practice Seminar 5. (3) (3 hours)
 MUSR 695 Media Theory and Practice Seminar 6. (3) (3 hours)

- MUTH 652 Seminar in Music Theory 1. (3) (3 hours)
 MUTH 653 Seminar in Music Theory 2. (3) (3 hours)
 MUTH 654 Seminar in Music Theory 3. (3) (3 hours)
 MUTH 655 Seminar in Music Theory 4. (3) (3 hours)
 MUTH 656 Seminar in Music Theory 5. (3) (3 hours)
 MUTH 657 Seminar in Music Theory 6. (3) (3 hours)

Topics for graduate seminars vary from year to year and are normally chosen according to the individual instructor's areas of research expertise. A list of detailed seminar descriptions can be found on the Schulich School of Music Website prior to Fall registration. The following indicates the scope of offerings with some sample topics. **Note: Topics listed will not necessarily be offered in the upcoming year.**

Composition Seminars: Music After 1945; The Symphony in the Twentieth Century; The Music of Olivier Messiaen; The Music of Claude Vivier.

Music Technology Seminars: Advanced Topics in Technological Applications in music; Advanced Topics in Music Cognition; Human Computer Interaction - Gestural Control of Sound Synthesis.

Media Theory and Practice Seminars: Media Technology, Digital Restoration of Archival Recordings, Communications Systems and Standards, Audio Aesthetics of Video Musicals, Classical Music and the Television Medium.

Music Education Seminars: Leadership for the Performer and the Pedagogue; Research Methods in Music Education; Understanding the Performing Body.

Music Literature and Musicology Seminars: The Music of Bela Bartok; The Nineteenth-century French Symphony; French opera from Carmen to Pelléas; Ethnomusicological Thought Past and Present; Canadian Opera; Gender Enhancement in the Film Musical; Gender and Jazz; Music Printing in the 16th-century; The "Roman de Fauvel"; The German Lied; Problems in Verdi Studies; Studies in the Wagner Operas; Musical Aesthetics.

Music Theory Seminars: Theory and Analysis of Classical Form; Mathematical Set and Group Theory Models; Theories of Musical Rhythm and Meter; The Late Music of Igor Stravinsky; Tuning & Temperament; Bruckner and Heavy Metal: From Chord Power to Power Chord.

Performance Practice Seminars: Performance Practice of the Beethoven Piano Sonatas; Performance Practice and the Standard Repertoire (18th and early 19th century); 20th- and 21st-century Performance Practice; Musical Practices of Glenn Gould.

COURSES

MUCO 541 ADVANCED DIGITAL STUDIO COMPOSITION 1. (3) (Prerequisite: MUCO 342 or permission of the instructor.) Advanced topics in digital studio composition. Aesthetics and poetics of electroacoustic composition. Analytical approaches to this repertoire. Use of digital signal processing and synthesis techniques. Creation of complete pieces incorporating music technology which may include a live performance component.

MUCO 542 ADVANCED DIGITAL STUDIO COMPOSITION 2. (3) (Prerequisite: MUCO 541.) Further advanced topics in digital studio composition culminating in a complete large-scale work incorporating music technology, including computer-assisted composition, analysis/resynthesis techniques, and new gestural controllers for live performance of digital musical instruments.

MUCO 622D1 (3), MUCO 622D2 (3) COMPOSITION TUTORIAL. (Students must register for both MUCO 622D1 and MUCO 622D2) (No credit will be given for this course unless both MUCO 622D1 and MUCO 622D2 are successfully completed in consecutive terms)

MUCO 631 SEMINAR IN COMPOSITION 1. (3) (3 hours)

MUCO 632 SEMINAR IN COMPOSITION 2. (3) (3 hours)

MUCO 633 SEMINAR IN COMPOSITION 3. (3) (3 hours)

MUCO 634 SEMINAR IN COMPOSITION 4. (3) (3 hours)

MUCO 635 SEMINAR IN COMPOSITION 5. (3) (3 hours)

MUCO 636 SEMINAR IN COMPOSITION 6. (3) (3 hours)

MUCO 722D1 (3), MUCO 722D2 (3) DOCTORAL COMPOSITION TUTORIAL. (Students must register for both MUCO 722D1 and MUCO 722D2) (No credit will be given for this course unless both MUCO 722D1 and MUCO 722D2 are successfully completed in consecutive terms)

MUCT 602 SEMINAR IN CHORAL TECHNIQUES. (3) (3 hours)

MUCT 603 SEMINAR IN CHORAL TECHNIQUES. (3) (3 hours)

MUEN 560 CHAMBER MUSIC ENSEMBLE. (1)

MUEN 561 2ND CHAMBER MUSIC ENSEMBLE. (1) (1 hour) (Prerequisite: Audition.) Chamber music of the Medieval, Renaissance and Baroque periods.

MUEN 568 MULTIPLE ENSEMBLE 1. (1)

MUEN 572 CAPPELLA ANTICA. (2) (4 hours) (Prerequisite: Audition.) An ensemble of 8 to 12 voices specializing in early music. N.B. This ensemble may substitute as a Basic Ensemble in programs that specify Choral Ensemble, with Departmental approval.

MUEN 573 BAROQUE ORCHESTRA. (2) (4 hours) (Prerequisites: Audition AND MUEN 480 AND a prerequisite or corequisite of MUPP 381. Additional prerequisite for keyboard players: MUPG 372 with a grade of A-) Open to singers and instrumentalists, this ensemble specializes in chamber music primarily of the Baroque era.

MUEN 578 SONG INTERPRETATION 1. (1) (2 hours) (Prerequisite: Audition.) Normally open only to Voice and Piano Performance students. Study of the standard song repertoire with emphasis on the singer and pianist as partners. A public recital will be given at the end of each term.

MUEN 579 SONG INTERPRETATION 2. (1)

MUEN 580 EARLY MUSIC ENSEMBLE. (1) (Prerequisite: Audition. Prerequisite or corequisite for keyboard players: MUPG 272.) An ensemble of 4-6 vocalists and instrumentalists which performs music of the Medieval, Renaissance and Baroque periods.

MUEN 584 STUDIO ACCOMPANYING. (1) (4 hours) (Prerequisite: MUEN 583 (formerly MUEN 483).) Highly qualified accompanists will be assigned to work independently with studio teachers and their students.

MUEN 587 CAPPELLA MCGILL. (2) (4 hours) (Prerequisite: Audition.) (Note: May be taken instead of Choral Ensemble.) An ensemble of 16 voices performing challenging repertoire from the Renaissance to the present day. Since the expectation is a level of performance equivalent to a professional chamber ensemble,

singers wishing to join this group should have had considerable ensemble experience, and advanced vocal and sight-reading skills.

MUEN 590 MCGILL WINDS. (2) (4-6 hours) (Prerequisite: Audition.)

MUEN 592 CHAMBER JAZZ ENSEMBLE. (2) (Restriction: Open to Jazz Performance students only.) This ensemble will deal with the extensive repertoire of music which exists for small jazz orchestra (9-13 instruments).

MUEN 593 CHORAL ENSEMBLES. (2) (4 hours) (Prerequisite: Audition.) (Section 001 Chamber Singers: a group of approximately 24 mixed voices which explores the a capella repertoire of all periods as well as works with chamber accompaniment.) (Section 002 Concert Choir: an ensemble of approximately 60 voices (S.A.T.B.) which performs the repertoire from all periods appropriate to a group of this size.) (Section 003 University Chorus: a mixed chorus of approximately 100 which performs a variety of choral material including both traditional and popular selections.) (Section 004 Women's Chorale: an ensemble of approximately 40 women stressing the fundamentals of singing and ensemble participation.) Students enrolling in Choral Ensembles will be assigned to one of the above groups.

MUEN 594 CONTEMPORARY MUSIC ENSEMBLE. (2) (4 hours) (Prerequisite: Audition.)

MUEN 595 JAZZ ENSEMBLES. (2) (3-4 hours) (Prerequisite: Audition.)

MUEN 596 OPERA REPETITEUR. (2) (6 hours) (Restriction: Open by audition to advanced pianists, and to students in conducting, who are interested in training as operatic coaches. Students enrolled for piano instruction at McGill must also have their practical teacher's approval) Supervised coaching of singers, and playing of scenes and productions; rehearsal pianists and backstage conducting responsibilities.

MUEN 597 ORCHESTRAL ENSEMBLES. (2) (6-7 hours) (Prerequisite: Audition.)

MUEN 684 STUDIO ACCOMPANYING. (2) (Prerequisite: Audition; 2 hours) Students will be assigned to work as accompanists with performance teachers and their students.

MUEN 688 MULTIPLE ENSEMBLES. (2) Student participation in more than one ensemble in different concert periods over the course of a term.

MUEN 696 OPERA THEATRE. (2) (3-6 hours) (Prerequisite: open to all Graduate Performance and Artist Diploma students who have completed MUEN 496 or its equivalent.) Individual coaching in acting, movement and role preparation; possibility for roles in Opera McGill productions (by audition).

MUGS 614 READING COURSE 1. (3) Independent study of an approved topic or topics under the guidance of a supervisor. Topics will be chosen to suit individual needs and interests. The extent of reading, synthesis, and reporting will be agreed upon by the supervisor and the student at the beginning of the course.

MUGS 615 READING COURSE 2. (3) Independent study of an approved topic or topics under the guidance of a supervisor. Topics will be chosen to suit individual needs and interests. The extent of reading, synthesis, and reporting will be agreed upon by the supervisor and the student at the beginning of the course.

MUGS 635 RESEARCH PAPER 1. (9)

MUGS 635D1 (4.5), MUGS 635D2 (4.5) RESEARCH PAPER 1. (Students must register for both MUGS 635D1 and MUGS 635D2) (No credit will be given for this course unless both MUGS 635D1 and MUGS 635D2 are successfully completed in consecutive terms) (MUGS 635D1 and MUGS 635D2 together are equivalent to MUGS 635)

MUGS 636 RESEARCH PAPER 2. (9)

MUGS 636D1 (4.5), MUGS 636D2 (4.5) RESEARCH PAPER 2. (Students must register for both MUGS 636D1 and MUGS 636D2) (No credit will be given for this course unless both MUGS 636D1 and MUGS 636D2 are successfully completed in consecutive

terms) (MUGS 636D1 and MUGS 636D2 together are equivalent to MUGS 636)

MUGS 675 SPECIAL PROJECT. (3) (Requires Departmental approval)

MUGS 675D1 (1.5), MUGS 675D2 (1.5) SPECIAL PROJECT. (Students must register for both MUGS 675D1 and MUGS 675D2) (No credit will be given for this course unless both MUGS 675D1 and MUGS 675D2 are successfully completed in consecutive terms) (MUGS 675D1 and MUGS 675D2 together are equivalent to MUGS 675)

MUGS 683 MASTER'S THESIS RESEARCH 1. (3)

MUGS 684 MASTER'S THESIS RESEARCH 2. (6)

MUGS 685 MASTER'S THESIS RESEARCH 3. (9)

MUGS 686 MASTER'S THESIS RESEARCH 4. (12)

MUGS 687 MASTER'S THESIS. (12)

MUGS 694 SPECIAL TOPIC SEMINAR. (3) (3 hours)

MUGS 695 SPECIAL TOPIC SEMINAR. (3) (3 hours)

MUGS 701 COMPREHENSIVE EXAMINATION PART 1. (0)

MUGS 701D1 (0), MUGS 701D2 (0) COMPREHENSIVE EXAMINATION PART 1. (Students must register for both MUGS 701D1 and MUGS 701D2) (No credit will be given for this course unless both MUGS 701D1 and MUGS 701D2 are successfully completed in consecutive terms) (MUGS 701D1 and MUGS 701D2 together are equivalent to MUGS 701)

MUGS 702 COMPREHENSIVE EXAMINATION PART 2. (0)

MUGS 702D1 (0), MUGS 702D2 (0) COMPREHENSIVE EXAMINATION PART 2. (Students must register for both MUGS 702D1 and MUGS 702D2) (No credit will be given for this course unless both MUGS 702D1 and MUGS 702D2 are successfully completed in consecutive terms) (MUGS 702D1 and MUGS 702D2 together are equivalent to MUGS 702)

MUGS 705 COLLOQUIUM. (0)

MUGS 705D1 (0), MUGS 705D2 (0) COLLOQUIUM. (Students must register for both MUGS 705D1 and MUGS 705D2) (No credit will be given for this course unless both MUGS 705D1 and MUGS 705D2 are successfully completed in consecutive terms) (MUGS 705D1 and MUGS 705D2 together are equivalent to MUGS 705)

MUGT 610 SEMINAR - MUSIC EDUCATION 1. (3) (3 hours)

MUGT 611 SEMINAR - MUSIC EDUCATION 2. (3) (3 hours)

MUGT 612 SEMINAR - MUSIC EDUCATION 3. (3) (3 hours)

MUGT 613 SEMINAR - MUSIC EDUCATION 4. (3) (3 hours)

MUHL 529 PROSEMINAR IN MUSICOLOGY. (3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240 and MUSP 231) (Prerequisite: open to all students in a Major or Honours program in Music History, and to students in other programs by permission of instructor) (Normally alternates with MUHL 591) Study of selected methodologies in musicology through critical examination of significant texts. Topics may include approaches to historiography, biography, editing and source studies, as well as aesthetics, literary criticism, semiology, feminist musicology, and ideology critique. Works by Adler, Adorno, Dahlhaus, Kerman, McClary, Meyer, Nattiez, and Subotnik, among others, will be addressed.

MUHL 570 RESEARCH METHODS IN MUSIC. (3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240 and MUSP 231. Additional prerequisite: one MUHL or MUPP course at the 300 level or higher, or permission of instructor.) Survey and critical evaluation of research- and performance-related tools: composers' collected editions, monuments of music, bibliographies of music and music literature, discographies, directories, and databases. Topics will include: developing bibliographies, structuring written arguments, assessing academic and popular writings about music, and understanding the task of the music editor.

MUHL 591D1 (1.5), MUHL 591D2 (1.5) PALEOGRAPHY. (1 hour) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240 and MUSP 231) (Restriction: U3 honours students in History) (Normally alternates with MUHL 529) (Students must register for both MUHL 591D1 and MUHL 591D2.) (No credit will be given for this course unless both MUHL 591D1 and MUHL 591D2 are successfully completed in consecutive terms) The theory and practice of musical transcription for the period 1100 to 1600. Black modal notation, Franconian notation, French and Italian Ars Nova notation, Mannerism, white mensural notation, proportions, and lute and keyboard tablatures will be studied.

MUHL 653 MUSIC AESTHETICS AND CRITICISM. (3) (3 hours)

MUHL 680 SEMINAR IN MUSICOLOGY 1. (3) (3 hours)

MUHL 681 SEMINAR IN MUSICOLOGY 2. (3) (3 hours)

MUHL 682 SEMINAR IN MUSICOLOGY 3. (3) (3 hours)

MUHL 683 SEMINAR IN MUSICOLOGY 4. (3) (3 hours)

MUHL 684 SEMINAR IN MUSICOLOGY 5. (3) (3 hours)

MUHL 685 SEMINAR IN MUSICOLOGY 6. (3) (3 hours)

MUHL 692 SEMINAR IN MUSIC LITERATURE 1. (3) (3 hours)

MUHL 693 SEMINAR IN MUSIC LITERATURE 2. (3) (3 hours)

MUHL 694 SEMINAR IN MUSIC LITERATURE 3. (3) (3 hours)

MUHL 695 SEMINAR IN MUSIC LITERATURE 4. (3) (3 hours)

MUHL 696 SEMINAR IN MUSIC LITERATURE 5. (3) (3 hours)

MUHL 697 SEMINAR IN MUSIC LITERATURE 6. (3) (3 hours)

MUIN 600 VOCAL REPERTOIRE COACHING 1. (2) (1 hour) A course in which the performer will have individual coaching sessions on repertoire, with emphasis on musical and linguistic nuance.

MUIN 601 VOCAL REPERTOIRE COACHING 2. (2) (1 hour)

MUIN 602 VOCAL REPERTOIRE COACHING 3. (2) Individual coaching sessions on advanced vocal repertoire, with emphasis on musical and linguistic nuance.

MUIN 700 DOCTORAL REPERTOIRE COACHING 1. (2) Individual tutorial coaching sessions in repertoire, with emphasis on musical and linguistic nuance.

MUIN 701 DOCTORAL REPERTOIRE COACHING 2. (2) Individual tutorial coaching sessions in repertoire, with emphasis on musical and linguistic nuance.

MUIN 702 DOCTORAL REPERTOIRE COACHING 3. (2) Individual tutorial coaching sessions in repertoire, with emphasis on musical and linguistic nuance.

MUIN 703 DOCTORAL REPERTOIRE COACHING 4. (2) Individual tutorial coaching sessions in repertoire, with emphasis on musical and linguistic nuance.

MUJZ 601 JAZZ PEDAGOGY. (3) (3 hours) A course designed to prepare students to teach jazz-related subjects at the university and professional level, with emphasis on ensemble direction and the instruction of improvisation, as well as course and curriculum development. Various pedagogical methods, philosophies, rehearsal techniques, and materials will be investigated.

MUJZ 640 JAZZ COMPOSITION & ARRANGING 1. (2) (2 hours) Analysis and application of a variety of jazz and 20th Century compositional and arranging techniques, including writing for small and medium size jazz ensembles.

MUJZ 641 JAZZ COMPOSITION & ARRANGING 2. (2) Students compose and arrange for a variety of instrumental combinations including large jazz ensembles of ten or more instruments.

MUJZ 644 JAZZ REPERTOIRE PROJECT 1. (2) Students investigate an approved area of jazz orchestral repertoire, under the supervision of a full-time faculty member.

MUJZ 645 JAZZ REPERTOIRE PROJECT 2. (2) (Prerequisite: MUJZ 644.) Jazz repertoire for any ensemble format may be explored.

MUMT 605 DIGITAL SOUND SYNTHESIS AND AUDIO PROCESS. (3) Basic principles of digital sound synthesis including techniques such as additive synthesis, frequency modulation, tuned

resonators, waveshaping and digital audio processing techniques including simple delay systems, filters, reverberators, spatial controllers, etc. will be explored.

MUMT 609 MUSIC, MEDIA AND TECHNOLOGY PROJECT. (3) (3 research/project hours) Independent music technology project. Students will prepare a statement of objectives, a comprehensive project design and a schedule of work, and will undertake the project on appropriate music technology platforms.

MUMT 610 MUSIC TECHNOLOGY SEMINAR 1. (3) (3 hours) Advanced topics in computer applications in music will be examined. Students will be expected to 1) present critical analyses of current research and 2) develop and implement software demonstrations.

MUMT 611 MUSIC TECHNOLOGY SEMINAR 2. (3) (3 hours) Advanced topics in computer applications in music will be examined. Students will be expected to 1) present critical analyses of current research and 2) develop and implement software demonstrations.

MUMT 612 MUSIC TECHNOLOGY SEMINAR 3. (3) (3 hours) Advanced topics in computer applications in music will be examined. Students will be expected to 1) present critical analyses of current research and 2) develop and implement software demonstrations.

MUMT 613 MUSIC TECHNOLOGY SEMINAR 4. (3) (3 hours) Advanced topics in computer applications in music will be examined. Students will be expected to 1) present critical analyses of current research and 2) develop and implement software demonstrations.

MUMT 614 MUSIC TECHNOLOGY SEMINAR 5. (3) (3 hours) Advanced topics in computer applications in music will be examined. Students will be expected to 1) present critical analyses of current research and 2) develop and implement software demonstrations.

MUMT 615 MUSIC TECHNOLOGY SEMINAR 6. (3) (3 hours) Advanced topics in computer applications in music will be examined. Students will be expected to 1) present critical analyses of current research and 2) develop and implement software demonstrations.

MUPG 590 VOCAL STYLES AND CONVENTIONS. (3) (3 hours) (Restriction: Not open to students who have taken MUPG 690.) Emphasis on vocal performance practices through practical application: text, language, inflection, pronunciation and interpretation considered with individuality of each student's voice and technical development. After examining historical treatises, students will discuss and present musical selections utilizing modern performance standards yet remaining true to stylistic demands of each period.

MUPG 620 PERFORMANCE TUTORIAL 1. (4)

MUPG 621 PERFORMANCE TUTORIAL 2. (4)

MUPG 622 PERFORMANCE TUTORIAL 3. (4)

MUPG 623 PERFORMANCE TUTORIAL 4. (4)

MUPG 624 PERFORMANCE TUTORIAL 5. (4)

MUPG 626 JAZZ PERFORMANCE/COMPOSITION TUTORIAL 1. (4) Individual instruction in instrumental performance, jazz composition and arranging and jazz improvisation according to performing specialization.

MUPG 627 JAZZ PERFORMANCE/COMPOSITION TUTORIAL 2. (4) Individual instruction in instrumental performance, jazz composition and arranging and jazz improvisation according to performing specialization.

MUPG 628 JAZZ PERFORMANCE/COMPOSITION TUTORIAL 3. (4) Individual instruction in instrumental performance, jazz composition and arranging and jazz improvisation according to performing specialization, including work on various aspects of jazz artistry in preparation for recital requirements.

MUPG 646 SCORE- AND SIGHT-READING 1. (1) Playing operatic piano-vocal scores at sight. Realizing at the piano operatic orchestral scores with emphasis on repertoire from before 1800.

MUPG 647 SCORE- AND SIGHT-READING 2. (1) Playing operatic piano-vocal scores at sight. Realizing at the piano operatic orchestral scores with emphasis on repertoire from after 1800.

MUPG 650 VOICE LECTURE - DEMONSTRATION. (3) The candidate is required to present his or her two voice students in a public mini-recital, to discuss their progress and to trace the pedagogical focus and choices that have been made during their two semesters of study.

MUPG 652 JAZZ ENSEMBLE RECITAL PROJECT. (9) (Restriction: Open to students in the b and c stream of the Jazz Performance option only.) A 60-75 minute recital presenting a repertoire of either original compositions and arrangements or previously composed jazz literature (depending upon stream), at least half of which must be for a large ensemble. Programme notes must be provided.

MUPG 653 OPERA COACH PROJECT. (6) Preparation and performance of standard operatic repertoire and programme notes.

MUPG 654 OPERA COACH PERFORMANCE. (6) Preparation and performance of specialized operatic repertoire.

MUPG 655 OPERA COACH QUICK STUDY. (6) With one month's notice, the candidate must prepare an assigned operatic score, playing while singing all the parts. Historical research, stylistic performance, musical choices and linguistic command of the score are required.

MUPG 656 VOCAL QUICK STUDY. (6) With one month's notice, the candidate must prepare an assigned group of songs, oratorios or operatic roles. Historical research, stylistic performance practices, musical and dramatic choices (where applicable) and vocal command of the material is required.

MUPG 656D1 (3), MUPG 656D2 (3) VOCAL QUICK STUDY. (Students must register for both MUPG 656D1 and MUPG 656D2) (No credit will be given for this course unless both MUPG 656D1 and MUPG 656D2 are successfully completed in consecutive terms) (MUPG 656D1 and MUPG 656D2 together are equivalent to MUPG 656) With one month's notice, the candidate must prepare an assigned group of songs, oratorios or operatic roles. Historical research, stylistic performance practices, musical and dramatic choices (where applicable) and vocal command of the material is required.

MUPG 657 OPERA PERFORMANCE PROJECT. (6) Performance of a complete operatic role from the standard repertoire and programme notes.

MUPG 657D1 (3), MUPG 657D2 (3) OPERA PERFORMANCE PROJECT. (Students must register for both MUPG 657D1 and MUPG 657D2) (No credit will be given for this course unless both MUPG 657D1 and MUPG 657D2 are successfully completed in consecutive terms) (MUPG 657D1 and MUPG 657D2 together are equivalent to MUPG 657) Performance of a complete operatic role from the standard repertoire and programme notes.

MUPG 658 OPERA PERFORMANCE. (6) Performance of a complete operatic role from the specialized repertoire.

MUPG 658D1 (3), MUPG 658D2 (3) OPERA PERFORMANCE. (Students must register for both MUPG 658D1 and MUPG 658D2) (No credit will be given for this course unless both MUPG 658D1 and MUPG 658D2 are successfully completed in consecutive terms) (MUPG 658D1 and MUPG 658D2 together are equivalent to MUPG 658) Performance of a complete operatic role from the specialized repertoire.

MUPG 659 PERFORMANCE IN RECORDING MEDIA. (9) The candidate must submit a 60-75 minute audio and/or video document of his or her performances, compiled from various media sources. This might include radio, television, and/or studio recordings. All of the music must be composed and arranged by the candidate.

MUPG 659D1 (4.5), MUPG 659D2 (4.5) PERFORMANCE IN RECORDING MEDIA. (Students must register for both MUPG 659D1 and MUPG 659D2) (No credit will be given for this course unless both MUPG 659D1 and MUPG 659D2 are successfully completed in consecutive terms) (MUPG 659D1 and MUPG 659D2 together are equivalent to MUPG 659) The candidate must submit a 60-75

minute audio and/or video document of his or her performances, compiled from various media sources. This might include radio, television, and/or studio recordings. All of the music must be composed and arranged by the candidate.

MUPG 660 SOLO RECITAL PROJECT 1. (12) Thesis recital (solo repertoire) and programme notes.

MUPG 660D1 (6), MUPG 660D2 (6) SOLO RECITAL PROJECT 1. (Students must register for both MUPG 660D1 and MUPG 660D2) (No credit will be given for this course unless both MUPG 660D1 and MUPG 660D2 are successfully completed in consecutive terms) (MUPG 660D1 and MUPG 660D2 together are equivalent to MUPG 660) Thesis recital (solo repertoire) and programme notes.

MUPG 661 CHAMBER RECITAL PROJECT 1. (12) Thesis recital (chamber music repertoire) and programme notes.

MUPG 661D1 (6), MUPG 661D2 (6) CHAMBER RECITAL PROJECT 1. (Students must register for both MUPG 661D1 and MUPG 661D2) (No credit will be given for this course unless both MUPG 661D1 and MUPG 661D2 are successfully completed in consecutive terms) (MUPG 661D1 and MUPG 661D2 together are equivalent to MUPG 661) Thesis recital (chamber music repertoire) and programme notes.

MUPG 662 SOLO AND CHAMBER MUSIC RECITAL. (12)

MUPG 662D1 (6), MUPG 662D2 (6) SOLO AND CHAMBER MUSIC RECITAL. (Students must register for both MUPG 662D1 and MUPG 662D2) (No credit will be given for this course unless both MUPG 662D1 and MUPG 662D2 are successfully completed in consecutive terms) (MUPG 662D1 and MUPG 662D2 together are equivalent to MUPG 662)

MUPG 663 QUICK STUDY EXAMINATION. (6) (To be successfully completed before the first recital is performed)

MUPG 663D1 (3), MUPG 663D2 (3) QUICK STUDY EXAMINATION. (Students must register for both MUPG 663D1 and MUPG 663D2) (No credit will be given for this course unless both MUPG 663D1 and MUPG 663D2 are successfully completed in consecutive terms) (MUPG 663D1 and MUPG 663D2 together are equivalent to MUPG 663)

MUPG 664 REPERTOIRE EXAMINATION. (6)

MUPG 664D1 (3), MUPG 664D2 (3) REPERTOIRE EXAMINATION. (Students must register for both MUPG 664D1 and MUPG 664D2) (No credit will be given for this course unless both MUPG 664D1 and MUPG 664D2 are successfully completed in consecutive terms) (MUPG 664D1 and MUPG 664D2 together are equivalent to MUPG 664)

MUPG 665D1 (6), MUPG 665D2 (6) ACCOMPANYING RECITAL PROJECT. (Students must register for both MUPG 665D1 and MUPG 665D2) (No credit will be given for this course unless both MUPG 665D1 and MUPG 665D2 are successfully completed in consecutive terms) Thesis recital (mixed repertoire) and programme notes.

MUPG 667 SOLO RECITAL 2. (12)

MUPG 667D1 (6), MUPG 667D2 (6) SOLO RECITAL 2. (Students must register for both MUPG 667D1 and MUPG 667D2) (No credit will be given for this course unless both MUPG 667D1 and MUPG 667D2 are successfully completed in consecutive terms) (MUPG 667D1 and MUPG 667D2 together are equivalent to MUPG 667)

MUPG 668 CHAMBER MUSIC RECITAL 2. (12)

MUPG 668D1 (6), MUPG 668D2 (6) CHAMBER MUSIC RECITAL 2. (Students must register for both MUPG 668D1 and MUPG 668D2) (No credit will be given for this course unless both MUPG 668D1 and MUPG 668D2 are successfully completed in consecutive terms) (MUPG 668D1 and MUPG 668D2 together are equivalent to MUPG 668)

MUPG 670 ADVANCED CONTINUO 1. (2) A historically-oriented study of the principles of figured bass. Standard idioms from historical treatises will be introduced. Preparation of operatic excerpts from the standard high Baroque repertory is required.

MUPG 671 ADVANCED CONTINUO 2. (2) (2 hours) (Prerequisite: MUPG 670) A study of the many different styles of figured bass accompaniment as revealed in contemporary sources. The emphasis will be on realization at the keyboard of representative 17th- and 18th- century operatic recitatives and arias.

MUPG 672D1 (1.5), MUPG 672D2 (1.5) LITURGICAL IMPROVISATION. (1 1/2 hours) (Students must register for both MUPG 672D1 and MUPG 672D2) (No credit will be given for this course unless both MUPG 672D1 and MUPG 672D2 are successfully completed in consecutive terms) The study and practice of cantus firmus-based improvisation according to selected stylistic models so as to provide diversity of techniques, styles and tonalities. Free improvisation is studied in conjunction with C.F. improvisation. Modulation is taught in both C.F.-based and free improvisation; emphasis being placed on clarity and liturgical appropriateness.

MUPG 675 SPECIAL PROJECT IN PERFORMANCE 1. (3) (Requires Departmental approval)

MUPG 675D1 (1.5), MUPG 675D2 (1.5) SPECIAL PROJECT IN PERFORMANCE 1. (Students must register for both MUPG 675D1 and MUPG 675D2) (No credit will be given for this course unless both MUPG 675D1 and MUPG 675D2 are successfully completed in consecutive terms) (MUPG 675D1 and MUPG 675D2 together are equivalent to MUPG 675)

MUPG 676D1 (3), MUPG 676D2 (3) SPECIAL PROJECT IN PERFORMANCE 2. (Students must register for both MUPG 676D1 and MUPG 676D2) (No credit will be given for this course unless both MUPG 676D1 and MUPG 676D2 are successfully completed in consecutive terms)

MUPG 677 SEMINAR IN PERFORMANCE TOPICS 1. (3) (3 hours)

MUPG 678 SEMINAR IN PERFORMANCE TOPICS 2. (3) (3 hours)

MUPG 681 PIANO SEMINAR 1. (2) (3 hours.) Comparative studies of recorded solo and ensemble repertoire, and lecture-recital presentations reflecting knowledge of historical context and performance practice.

MUPG 682 PIANO SEMINAR 2. (2) (3 hours.) Detailed critiques of in-class teaching, and general discussion of preparation for competitions and academic job applications.

MUPG 685 MASTER CLASS - 20TH-CENTURY PIANO MUSIC. (3) (3 hours) Students will explore the piano repertoire of the 20th century. Repertoire will include such diverse music as that of Milhaud, Ives, Boulez, Berio, etc., as well as the recent Canadian music of Tremblay, Mather, etc. Performance of work(s) studied is a requirement for the course.

MUPG 686 MASTER CLASS - STRING CHAMBER MUSIC. (3) (3 hours) Advanced studies of the chamber music repertoire, intended for graduate string players. Students will gain firsthand experience playing, reading (in rotation) and studying works both with their colleagues and occasionally with the instructor; discussion of master recordings and active listening with scores.

MUPG 691 VOCAL SEMINAR 1. (3) (3 hours) (Restriction: Open to singers, pianists, and conductors with permission of instructor.)

MUPG 692 VOCAL SEMINAR 2. (3) (3 hours) (Restriction: Open to singers, pianists, and conductors with permission of instructor.)

MUPG 693 VOCAL TREATISES AND METHODS. (3) (3 hours)

MUPG 694 VOCAL PHYSIOLOGY FOR SINGERS. (3) (3 hours) An anatomical study of the entire vocal mechanism; how to keep it functioning in a healthy manner, the various possible dysfunctions and how to diagnose and treat them.

MUPG 720 D.MUS. PERFORMANCE TUTORIAL 1. (4) Individual instrumental or vocal tutorial. Advanced technical and interpretive training as well as recital preparation.

MUPG 721 D.MUS. PERFORMANCE TUTORIAL 2. (4) Individual instrumental or vocal tutorial. Advanced technical and interpretive training as well as recital preparation.

MUPG 722 D.MUS. PERFORMANCE TUTORIAL 3. (4) Individual instrumental or vocal tutorial. Advanced technical and interpretive training as well as recital preparation.

MUPG 723 D.MUS. PERFORMANCE TUTORIAL 4. (4) Individual instrumental or vocal tutorial. Advanced technical and interpretive training as well as recital preparation.

MUPG 724 D.MUS. PERFORMANCE TUTORIAL 5. (4) Individual instrumental or vocal tutorial. Advanced technical and interpretive training as well as recital preparation.

MUPG 725 D.MUS. PERFORMANCE TUTORIAL 6. (4) Individual instrumental or vocal tutorial. Advanced technical and interpretive training as well as recital preparation.

MUPG 730 D.MUS. PERFORMANCE TUTORIAL 8. (6) Individual instrumental or vocal tutorial. Advanced technical and interpretive training as well as recital preparation.

MUPG 731 D.MUS. PERFORMANCE TUTORIAL 9. (6) Individual instrumental or vocal tutorial. Advanced technical or interpretive training as well as recital preparation.

MUPG 732 D.MUS. PERFORMANCE TUTORIAL 10. (6) Individual instrumental or vocal tutorial. Advanced technical and interpretive training as well as recital preparation.

MUPG 733 D.MUS. PERFORMANCE TUTORIAL 11. (6) Individual instrumental or vocal tutorial. Advanced technical and interpretive training as well as recital preparation.

MUPG 760 DOCTORAL RECITAL 1. (12) A full-length public recital which includes a minimum of 60 minutes of music.

MUPG 767 DOCTORAL RECITAL 2. (12) A full-length public recital which includes a minimum of 60 minutes of music.

MUPG 770 DOCTORAL LECTURE - RECITAL PROJECT. (12) The lecture-recital comprises a minimum of 35 minutes of music and 25 to 35 minutes of oral presentation. The examiners and audience may question the candidate following the lecture-recital. The subject and repertoire will also be treated in a project paper, submitted within two months of the lecture-recital.

MUPP 690 PERFORMANCE PRACTICE SEMINAR 1. (3) (3 hours)

MUPP 691 PERFORMANCE PRACTICE SEMINAR 2. (3) (3 hours)

MUPP 692 PERFORMANCE PRACTICE SEMINAR 3. (3) (3 hours)

MUPP 693 PERFORMANCE PRACTICE SEMINAR 4. (3) (3 hours)

MUPP 694 PERFORMANCE PRACTICE SEMINAR 5. (3) (3 hours)

MUPP 695 PERFORMANCE PRACTICE SEMINAR 6. (3) (3 hours)

MUSR 629D1 (2), MUSR 629D2 (2) TECHNICAL EAR TRAINING. (1 hour tutorial, 2 hours laboratory.) (Students must register for both MUSR 629D1 and MUSR 629D2.) (No credit will be given for this course unless both MUSR 629D1 and MUSR 629D2 are successfully completed in consecutive terms.) (Restriction: Not open to students who have taken MUMT 629D1/D2.) This course will, through a sequence of specific auditory exercises, develop and improve students' aural sensitivity to small changes in sound quality. Students train to identify spectral variables in sound, develop stable reference of sound quality and learn about spectral characteristics of musical instruments.

MUSR 631D1 (2), MUSR 631D2 (2) ADVANCED TECHNICAL EAR TRAINING. (1 hour tutorial, 2 hours laboratory) (Prerequisite: MUMT 629.) (Students must register for both MUSR 631D1 and MUSR 631D2.) (No credit will be given for this course unless both MUSR 631D1 and MUSR 631D2 are successfully completed in consecutive terms.) (Restriction: Not open to students who have taken MUMT 631D1/D2.) Included in this course are exercises for developing some of the following aural skills: identification and quantification of spatial parameters of sound image, nonlinear and transient distortion audibility, identification of coherent and incoherent noise, sound source identification in complex textures, sound enhancement and reconstruction.

MUSR 667 DIGITAL STUDIO TECHNOLOGY. (3) (3 hours lecture) (Restriction: Not open to students who have taken MUMT 667.) Technical and operational characteristics of different digital recording systems currently employed by the recording industry.

MUSR 668 DIGITAL/ANALOG AUDIO EDITING. (3) (1 hour tutorial, 3 hours studio time.) (Restriction: Not open to students who have taken MUMT 668.) Using analog and digital record/playback

equipment, students learn, through practice, the art of replacing, patching, rebalancing, reconstructing, or generally speaking, improving recorded music through editing. Teaching will include cut and splice editing, disk-based editing, and editing by transfer and mixing.

MUSR 669 TOPICS:CLASSICAL MUSIC RECORDING. (3) (3 hours lecture) (Restriction: Not open to students who have taken MUMT 669 or MUMT 669D1/D2.) Issues involving classical music recording. Topics may include: analysis of performance styles, acoustics of concert halls, production of music videos, seminars with recording producers, tonmeisters, classical music in multimedia, and others.

MUSR 669D1 (1.5), MUSR 669D2 (1.5) TOPICS:CLASSICAL MUSIC RECORDING. (3 hours lecture) (Students must register for both MUSR 669D1 and MUSR 669D2.) (No credit will be given for this course unless both MUSR 669D1 and MUSR 669D2 are successfully completed in consecutive terms.) (MUSR 669D1 and MUSR 669D2 together are equivalent to MUSR 669.) (Restriction: Not open to students who have taken MUMT 669 or MUMT 669D1/D2.) Issues involving classical music recording. Topics may include: analysis of performance styles, acoustics of concert halls, production of music videos, seminars with recording producers, tonmeisters, classical music in multimedia, and others.

MUSR 670D1 (5), MUSR 670D2 (5) RECORDING THEORY AND PRACTICE 1. (3 hours seminar, 6 hours studio time.) (Prerequisite: MUMT 300.) (Students must register for both MUSR 670D1 and MUSR 670D2.) (No credit will be given for this course unless both MUSR 670D1 and MUSR 670D2 are successfully completed in consecutive terms.) (Restriction: Not open to students who have taken MUMT 670D1/D2.) Theoretical and practice study of recording equipment, procedures and techniques. Recording sessions and live stereo recording, using the recording studio, concert hall and portable equipment for on-location recording. Also included will be an introduction to the areas of radio drama, broadcast recording and radio commercials.

MUSR 671D1 (5), MUSR 671D2 (5) RECORDING THEORY AND PRACTICE 2. (3 hours seminar, 6 hours studio time.) (Prerequisite: MUSR 670D1/D2 (formerly MUMT 670D1/D2).) (Students must register for both MUSR 671D1 and MUSR 671D2.) (No credit will be given for this course unless both MUSR 671D1 and MUSR 671D2 are successfully completed in consecutive terms.) (Restriction: Not open to students who have taken MUMT 671D1/D2.) Emphasis on multi-track recording theory and practice. The course will also concentrate on expanded multi-track procedures: signal processing, overdubbing, mixing, editing, and producing.

MUSR 672D1 (3), MUSR 672D2 (3) ANALYSIS OF RECORDINGS. (3 hours.) (Students must register for both MUSR 672D1 and MUSR 672D2.) (No credit will be given for this course unless both MUSR 672D1 and MUSR 672D2 are successfully completed in consecutive terms.) (Restriction: Not open to students who have taken MUMT 672D1/D2.) The analysis of recording engineering, production, performance, aesthetics and technical quality of selected recordings.

MUSR 674 ELECTRONIC AND ELECTROACOUSTIC MEASUREMENT. (3) (1 1/2 hours lecture, 1 1/2 hours laboratory) This course demonstrates the instruments, measurement procedures, and techniques used in a recording studio to determine the acoustical properties of a room and the transfer functions of devices used in a studio. Theoretical lectures on electronic test instrumentation and measurement methods are combined with practical application.

MUSR 674D1 (1.5), MUSR 674D2 (1.5) ELECTRONIC AND ELECTROACOUSTIC MEASUREMENT. (1 1/2 hours lecture, 1 1/2 hours laboratory) (Students must register for both MUSR 674D1 and MUSR 674D2.) (No credit will be given for this course unless both MUSR 674D1 and MUSR 674D2 are successfully completed in consecutive terms.) (MUSR 674D1 and MUSR 674D2 together are equivalent to MUSR 674.) (Restriction: Not open to students who have taken MUMT 674 or MUMT 674D1/D2.) This course demonstrates the instruments, measurement procedures, and techniques used

in a recording studio to determine the acoustical properties of a room and the transfer functions of devices used in a studio. Theoretical lectures on electronic test instrumentation and measurement methods are combined with practical application.

MUSR 676 AUDIO INDUSTRY EXPERIENCE. (3) (Restriction: Not open to students who have taken MUMT 676 or MUMT 676D1/D2.)

MUSR 676D1 (1.5), MUSR 676D2 (1.5) (Students must register for both MUSR 676D1 and MUSR 676D2.) (No credit will be given for this course unless both MUSR 676D1 and MUSR 676D2 are successfully completed in consecutive terms.) (MUSR 676D1 and MUSR 676D2 together are equivalent to MUSR 676.) (Restriction: Not open to students who have taken MUMT 676 or MUMT 676D1/D2.)

MUSR 677D1 (3), MUSR 677D2 (3) AUDIO FOR VIDEO POST-PRODUCTION. (3 hours seminar, 4 hours studio time.) (Students must register for both MUSR 677D1 and MUSR 677D2.) (No credit will be given for this course unless both MUSR 677D1 and MUSR 677D2 are successfully completed in consecutive terms.) (Restriction: Not open to students who have taken MUMT 677D1/D2.) Theoretical study includes historical analysis of sound for image, audio post-production process for film and video, aesthetic and technical considerations in sound design, time code and synchronization, and final mix formats. Practical skills include field recording, sound library management, sound design, dialog, effects and music editing, and final mix process.

MUSR 678 ADVANCED DIGITAL EDITING AND POST-PRODUCTION. (3) (3 hours.) (Prerequisite: MUSR 668 (formerly MUMT 668).) (Restriction: Not open to students who have taken MUMT 678.) This course covers advanced concepts and techniques of audio post-production using digital workstations. Students practise the assembly of raw material into a complete final product through editing, signal processing, mixing, sound restoration and pre-mastering.

MUSR 690 MEDIA THEORY AND PRACTICE SEMINAR 1. (3) (3 hours) (Restriction: Not open to students who have taken MUMT 690.) Topics vary from year to year and are normally chosen according to the individual instructor's area of expertise. Topics to be covered may include the following: Media Technology, Digital Restoration of Archival Recordings, Communications Systems and Standards, Audio Aesthetics of Video Musicals, Classical Music and the Television Medium, etc.

MUSR 691 MEDIA THEORY AND PRACTICE SEMINAR 2. (3) (3 hours.) (Restriction: Not open to students who have taken MUMT 691.) Topics vary from year to year and are normally chosen according to the individual instructor's area of expertise. Topics to be covered may include the following: Media Technology, Digital Restoration of Archival Recordings, Communications Systems and Standards, Audio Aesthetics of Video Musicals, Classical Music and the Television Medium, etc.

MUSR 692 MEDIA THEORY AND PRACTICE SEMINAR 3. (3) (3 hours.) (Restriction: Not open to students who have taken MUMT 692.) Topics vary from year to year and are normally chosen according to the individual instructor's area of expertise. Topics to be covered may include the following: Media Technology, Digital Restoration of Archival Recordings, Communications Systems and Standards, Audio Aesthetics of Video Musicals, Classical Music and the Television Medium, etc.

MUSR 693 MEDIA THEORY AND PRACTICE SEMINAR 4. (3) (3 hours) (Restriction: Not open to students who have taken MUMT 693.) Topics vary from year to year and are normally chosen according to the individual instructor's area of expertise. Topics to be covered may include the following: Media Technology, Digital Restoration of Archival Recordings, Communications Systems and Standards, Audio Aesthetics of Video Musicals, Classical Music and the Television Medium, etc.

MUSR 694 MEDIA THEORY AND PRACTICE SEMINAR 5. (3) (3 hours) (Restriction: Not open to students who have taken MUMT 694.) Topics vary from year to year and are normally chosen according to the individual instructor's area of expertise. Topics to

be covered may include the following: Media Technology, Digital Restoration of Archival Recordings, Communications Systems and Standards, Audio Aesthetics of Video Musicals, Classical Music and the Television Medium, etc.

MUSR 695 MEDIA THEORY AND PRACTICE SEMINAR 6. (3) (3 hours) (Restriction: Not open to students who have taken MUMT 695.) Topics vary from year to year and are normally chosen according to the individual instructor's area of expertise. Topics to be covered may include the following: Media Technology, Digital Restoration of Archival Recordings, Communications Systems and Standards, Audio Aesthetics of Video Musicals, Classical Music and the Television Medium, etc.

MUTH 528 SCHENKERIAN TECHNIQUES. (3) (3 hours) (Prerequisite: MUTH 310 or MUCO 240 OR Corequisite: MUTH 327 OR permission of instructor.) (Restriction: Limited enrolment with preference given to students in Honours Theory) Introduction to the principles and techniques of Schenkerian analysis. Interpretation and construction of reductive graphs through the analysis of a diversified repertoire of tonal works. Comparison with traditional methods of harmonic analysis (Rameau, Riemann, etc.).

MUTH 529 PROSEMINAR IN MUSIC THEORY 1. (3) (3 hours) (Prerequisites: MUTH 211 or MUCO 240 and MUSP 231 and MUSP 171) (Corequisites: MUTH 327 and MUHL 570 OR permission of instructor. Preference given to students in Honours Theory) A survey of various topics in contemporary music theory, including experimental aesthetics, indeterminacy, information theory, linguistics, microtonality, music technology, psycho-acoustics, and rhythmic theory.

MUTH 538 MATHEMATICAL MODELS/MUSICAL ANALYSIS. (3) (3 hours) (Prerequisites: MUTH 211 or MUCO 240 and MUSP 231 and MUSP 171) A survey of the theoretical and analytical writings from 1955 to the present, with emphasis on the following topics: a) atonal music (the works of Forte, Lewin, Rahn, Clough, Benjamin); b) twelve-tone music (Babbitt, Lewin, Mead); c) contour theory (Friedmann, West Marvin, Morris); and d) mathematical groups and transformational models (Lewin, Morris, Starr).

MUTH 652 SEMINAR IN MUSIC THEORY 1. (3) (3 hours)

MUTH 653 SEMINAR IN MUSIC THEORY 2. (3) (3 hours)

MUTH 654 SEMINAR IN MUSIC THEORY 3. (3) (3 hours)

MUTH 655 SEMINAR IN MUSIC THEORY 4. (3) (3 hours)

MUTH 656 SEMINAR IN MUSIC THEORY 5. (3) (3 hours)

MUTH 657 SEMINAR IN MUSIC THEORY 6. (3) (3 hours)

MUTH 658 HISTORY OF MUSIC THEORY 1. (3) (3 hours) Selected topics in the history of music theory from Greek antiquity to 1700 through readings of primary and secondary literature.

MUTH 659 HISTORY OF MUSIC THEORY 2. (3) (3 hours) Selected topics in the history of music theory from 1700 to the present through readings of primary and secondary literature.

ADVANCED UNDERGRADUATE COURSES

Students deficient in their background preparation may be required to take some of the following undergraduate courses in addition to their required graduate courses.

With the exception of MUHL 570 and with departmental approval, all 500-level courses are available as elective courses to graduate students.

□ Denotes limited enrolment

MUHL 366 THE ERA OF THE FORTEPIANO. (3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240 and MUSP 231) Survey of the repertoire for keyboard 1750-1850: the instruments, Empfindsamkeit, galant style, London, Paris, Vienna, the Czech school, Haydn, Mozart, Beethoven, sonatas, variations, character pieces, "high" and "low" salon music, virtuosos and the virtuoso repertoire, Schubert, Chopin, Schumann, Mendelssohn, early Liszt.

MUHL 372 SOLO SONG OUTSIDE GERMANY AND AUSTRIA. (3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240 and MUSP 231) Topics in American and European non-German song repertoire from the eighteenth century to the present. Issues discussed may include the role of song in national music culture, art song and folk song, national styles and poetic traditions, text-music relationships, and performance practice.

MUHL 377 BAROQUE OPERA. (3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240 and MUSP 231) History of opera from its origins in the musical, literary, and philosophical models available to the Florentine Camerata to the end of the baroque. The development of opera will be studied from the perspective of artistic style and in the light of historical, political, social, and economic conditions.

MUHL 380 MEDIEVAL MUSIC. (3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240 and MUSP 231) (Corequisites: MUTH 210 and MUSP 229) (Normally alternates with MUHL 381) The medieval style - an intensive study of one or more selected topics from the repertoire. Possible subjects include liturgical chant, Notre Dame, the medieval motet, secular developments, and instrumental literature.

MUHL 381 RENAISSANCE MUSIC. (3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240 and MUSP 231) (Corequisites: MUTH 210 and MUSP 229) (Normally alternates with MUHL 380) Sacred and secular musical genres of the 15th and 16th Centuries. Various phases of imitative practice, cantus firmus and parody techniques. The emergence of homophonic textures in peripheral areas of the repertoire. Selected problems in the fields of theory, bibliography and aesthetics.

MUHL 382 BAROQUE MUSIC. (3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240 and MUSP 231) (Normally offered in alternate years) A detailed examination of several selected areas of Baroque music. Topics will be drawn from different geographical regions (e.g., Italy, France, Germany, etc.) and encompass church, chamber and theatre music, as well as performance practice. Each topic will be related to general musical developments of the period.

MUHL 383 CLASSICAL MUSIC. (3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240 and MUSP 231) (Normally offered in alternate years) The period covered will be from approximately 1740-1828, from the schools of the Italian keyboard composers, opera buffa and seria, and composers centered at Mannheim, Paris, London, Berlin and Vienna, through the Viennese Classic period of Haydn, Mozart and Beethoven, to the death of Schubert.

MUHL 384 ROMANTIC MUSIC. (3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240 and MUSP 231) (Normally offered in alternate years) The Romantic style as traced by an analysis of works by the major composers of Lied, symphony, symphonic poem, chamber music, and opera.

MUHL 385 EARLY TWENTIETH-CENTURY MUSIC. (3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240 and MUSP 231) Development of European, Russian, and American music from the 1890s until the early 1940s, tracing its roots in late 19th-century Romanticism and following its evolution in central Europe, France, and the United States. The music of major innovators such as Debussy, Stravinsky, Schoenberg, Ives, and Varèse will be discussed.

MUHL 387 OPERA FROM MOZART TO PUCCINI. (3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240 and MUSP 231) Mozart's operas and the seria, buffa, and Singspiel traditions. Ottocento opera, grand opera, and cross-fertilization between France and Italy. German Romantic opera. Wagner. Eastern European opera. Verismo and fin-de-siècle opera in Vienna and Paris. Sociology of opera. Emphasis on critical understanding of music's role in articulating drama.

MUHL 396 ERA OF THE MODERN PIANO. (3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240 and MUSP 231) Survey of keyboard repertoire from 1850 to the present: instruments, the crisis at mid-century, character pieces,

Brahms, late Liszt, national schools, commercialization - the concert hall, music for the bourgeois - salon music, Scriabin, the Second Viennese School, Impressionism, Neo-Classicism, Neo-Romanticism, serialism, the sonata in the 20th-century, North American composers.

MUHL 570 RESEARCH METHODS IN MUSIC. (3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240 and MUSP 231. Additional prerequisite: one MUHL or MUPP course at the 300 level or higher, or permission of instructor.) Survey and critical evaluation of research- and performance-related tools: composers' collected editions, monuments of music, bibliographies of music and music literature, discographies, directories, and databases. Topics will include: developing bibliographies, structuring written arguments, assessing academic and popular writings about music, and understanding the task of the music editor.

MUHL 591D1 (1.5), MUHL 591D2 (1.5) PALEOGRAPHY. (1 hour) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240 and MUSP 231) (Restriction: U3 honours students in History) (Normally alternates with MUHL 529) (Students must register for both MUHL 591D1 and MUHL 591D2.) (No credit will be given for this course unless both MUHL 591D1 and MUHL 591D2 are successfully completed in consecutive terms) The theory and practice of musical transcription for the period 1100 to 1600. Black modal notation, Franconian notation, French and Italian Ars Nova notation, Mannerism, white mensural notation, proportions, and lute and keyboard tablatures will be studied.

MUMT 306 MUSIC AND AUDIO COMPUTING 1. (3) (3 hours) (Prerequisites: MUMT 202 and MUMT 203. Pre-/Co-requisite: COMP 251) Concepts, algorithms, data structures, and programming techniques for the development of music and audio software, ranging from musical instrument design to interactive music performance systems. Student projects will involve the development of various music and audio software applications.

MUMT 307 MUSIC AND AUDIO COMPUTING 2. (3) (3 hours) (Prerequisite: MUMT 306) Advanced programming techniques for the development of music and audio software, and system components (plugins). Development of audio and control systems. Advanced data structures, object-oriented programming, optimization of source code for DSP, debugging techniques. Projects will involve the development of various musical and audio software applications and plugins.

MUPG 372D1 (1), MUPG 372D2 (1) CONTINUO. (1 hour) (Prerequisites: MUPG 272 AND permission of instructor. Enrolment limited to 4) (Students must register for both MUPG 372D1 and MUPG 372D2.) (No credit will be given for this course unless both MUPG 372D1 and MUPG 372D2 are successfully completed in consecutive terms) A study of 17th and 18th Century styles of figured-bass accompaniment as revealed in contemporary sources. The emphasis will be on the realization at the keyboard of representative works using original sources.

MUPP 381 TOPICS: PERFORMANCE PRACTICE BEFORE 1800. (3) (3 hours) (Restriction: Enrolment limited to 20. May not be taken by students who have had MUPP 381, MUPP 382, or MUPP 384, except by permission of instructor) Issues in performance practice of pre-nineteenth-century music. Topics may include rhythmic interpretation, voices and instruments in Medieval and Renaissance polyphony, ornamentation, improvisation, performance venues and context. Sources include original notation and modern editions, treatises, iconography, organology, analysis, criticism, and recordings.

MUTH 301 MODAL COUNTERPOINT 1. (3) (3 hours) (Prerequisites: MUTH 211 or MUCO 240 and MUSP 231 and MUSP 171) Polyphonic techniques of the Renaissance period studied through analysis of works by Palestrina and others and through written exercises in two to three voices.

MUTH 302 MODAL COUNTERPOINT 2. (3) (3 hours) (Prerequisite: MUTH 301) Continuation of Modal Counterpoint I. Study of more advanced techniques through further analysis and written exercises in three or more voices.

MUTH 303 TONAL COUNTERPOINT 1. (3) (3 hours) (Prerequisites: MUTH 211 or MUCO 240 and MUSP 231 and MUSP 171) The contrapuntal techniques of J.S. Bach studied through detailed technical analysis of his work and through written exercises in two to three parts.

MUTH 304 TONAL COUNTERPOINT 2. (3) (3 hours) (Prerequisite: MUTH 303) Continuation of Tonal Counterpoint 1. Further analysis and written exercises in three to four parts with special emphasis on fugue techniques.

MUTH 310 MID AND LATE 19TH-CENTURY THEORY AND ANALYSIS. (3) (3 hours) (Prerequisites: MUTH 211 or MUCO 240 and MUSP 231 and MUSP 171) Expanded harmonic resources of the late 19th Century (e.g., foreign modulation, chromatic harmony). Analysis of characteristic small and large forms. Development of writing and analytical skills with a goal toward perceiving how levels of musical structure interact.

MUTH 311 20TH-CENTURY THEORY AND ANALYSIS. (3) (3 hours) (Prerequisite: MUTH 310) Exploration of 20th-Century systems of pitch organization and attitudes toward counterpoint (e.g., polytonality, modal systems, neo-classical tonality, serialism, linear counterpoint, etc.). Examination of the relationship of these systems to earlier practices. Development of written and analytical skills for the purpose of gaining insight into 20th-Century principles and techniques.

MUTH 327D1 (2), MUTH 327D2 (2) 19TH-CENTURY ANALYSIS. (Students must register for both MUTH 327D1 and MUTH 327D2.) (No credit will be given for this course unless both MUTH 327D1 and MUTH 327D2 are successfully completed in consecutive terms) (MUTH 327D1 and MUTH 327D2 together are equivalent to MUTH 327) (Prerequisites: MUTH 211 or MUCO 240 and MUSP 231 and MUSP 171) The analysis of representative works of the 19th Century, selected from various genres of the period encompassed by late Beethoven, Schubert, and Berlioz to Mahler and Wolf. Some preliminary work in Schenkerian analysis will be undertaken.

MUTH 427D1 (2), MUTH 427D2 (2) 20TH-CENTURY ANALYSIS. (2 hours) (Students must register for both MUTH 427D1 and MUTH 427D2.) (No credit will be given for this course unless both MUTH 427D1 and MUTH 427D2 are successfully completed in consecutive terms) (Prerequisites: MUTH 211 or MUCO 240 and MUSP 231 and MUSP 171) Analysis of a cross-section of 20th Century music from Debussy and Mahler to the present to: 1) provide analytical tools necessary for the understanding of pitch organization, form, rhythm, timbre, etc., in individual works; 2) introduce salient theoretical approaches pertaining to 20th Century music.

MUTH 528 SCHENKERIAN TECHNIQUES. (3) (3 hours) (Prerequisite: MUTH 310 or MUCO 240 OR Corequisite: MUTH 327 OR permission of instructor.) (Restriction: Limited enrolment with preference given to students in Honours Theory) Introduction to the principles and techniques of Schenkerian analysis. Interpretation and construction of reductive graphs through the analysis of a diversified repertoire of tonal works. Comparison with traditional methods of harmonic analysis (Rameau, Riemann, etc.).

MUTH 529 PROSEMINAR IN MUSIC THEORY 1. (3) (3 hours) (Prerequisites: MUTH 211 or MUCO 240 and MUSP 231 and MUSP 171) (Corequisites: MUTH 327 and MUHL 570 OR permission of instructor. Preference given to students in Honours Theory) A survey of various topics in contemporary music theory, including experimental aesthetics, indeterminacy, information theory, linguistics, microtonality, music technology, psycho-acoustics, and rhythmic theory.

MUTH 538 MATHEMATICAL MODELS/MUSICAL ANALYSIS. (3) (3 hours) (Prerequisites: MUTH 211 or MUCO 240 and MUSP 231 and MUSP 171) A survey of the theoretical and analytical writings from 1955 to the present, with emphasis on the following topics: a) atonal music (the works of Forte, Lewin, Rahn, Clough, Benjamin); b) twelve-tone music (Babbitt, Lewin, Mead); c) contour theory (Friedmann, West Marvin, Morris); and d) mathematical groups and transformational models (Lewin, Morris, Starr).

54 Natural Resource Sciences

Department of Natural Resource Sciences
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Website: www.mcgill.ca/nrs

Chair — B. Côté

Program Director- Agricultural Economics — J. C. Henning

Graduate Program Director — R.D. Titman

54.1 Staff

Emeritus Professors

A.C. Blackwood; B.Sc., M.Sc.(Alta.), Ph.D.(Wisc.), F.R.S.C.;
Microbiology

R. Knowles; B.Sc.(Birm.), Ph.D., D.Sc.(Lond.); F.R.S.C.;
Microbiology

A.F. MacKenzie; B.S.A., M.Sc.(Sask.), Ph.D.(C'nell); Soil Science
R.A. MacLeod; B.A., M.A.(Br. Col.), Ph.D.(Wisc.), F.R.S.C.;

Microbiology

P.H. Schuepp; Dipl.Sc.Nat.(Zür.), Ph.D.(Tor.); Agricultural Physics
R.K. Stewart; B.Sc.(Agr.), Ph.D.(Glas.); Entomology

Professors

D.M. Bird; B.Sc.(Guelph), M.Sc., Ph.D.(McG.); Wildlife Biology

P. Brown; B.A.(Haver.), M.A., Ph.D.(Col.) (*joint appt. with
Geography and McGill School of Environment*)

J.W. Fyles; B.Sc., M.Sc.(Vic. (BC)), Ph.D.(Alta.); Forest
Resources (*Tomlinson-Fowler Chair in Forestry*)

W.H. Hendershot; B.Sc.(Tor.), M.Sc.(McG.), Ph.D.(Br. Col.); Soil
Science

Associate Professors

B. Côté; B.Sc., Ph.D.(Laval); Forest Resources

M.A. Curtis; B.Sc., M.Sc., Ph.D.(McG.); Biological Oceanography

B.T. Driscoll; B.Sc., Ph.D.(McM.); Microbiology

G.B. Dunphy; B.Sc.(New Br.), M.Sc., Ph.D.(Nfld.); Entomology

J.C. Henning; B.Sc., Ph.D.(Guelph); Agricultural Economics

D.J. Lewis; B.Sc., M.Sc., Ph.D.(Nfld.); Entomology

G.R. Mehuys; B.Sc., Ing.Agron.(Gembloux), Ph.D.(Calif.);
Soil Science

D.F. Niven; B.Sc., Ph.D.(Aber.); Microbiology

M.E. Rau; B.Sc., Ph.D.(W. Ont); Parasitology

I. Strachan; B.Sc.(Tor.), M.Sc., Ph.D.(Qu.); Micrometeorology

P.J. Thomassin; B.Sc.(McG.), M.S., Ph.D.(Hawaii Pac.);

Agricultural and Environmental Economics

R.D. Titman; B.Sc.(McG.), M.Sc.(Bishop's), Ph.D.(New Br.);
Wildlife Biology

J. Whalen; B.Sc.(Agr.)(Dal.), M.Sc.(McG.), Ph.D.(Ohio St.); Soil
Science

T.A. Wheeler; B.Sc.(Nfld.), M.Sc., Ph.D.(Guelph); Entomology

L.G. Whyte; B.Sc.(Regina), Ph.D.(Wat.); Microbiology

Assistant Professors

E. Bennett; B.A.(Oberline Coll.), M.S., Ph.D.(Wisc.) (*joint appt.
with McGill School of Environment*)

C. Buddle; B.Sc.(Guelph), Ph.D.(Alta.); Forest Insect Ecology

G. Hickey; B.Sc.(Melb.), Ph.D.(Br. Col.), EMPA (ANZSO,
Monash); Environmental Assessment

M. Humphries; B.Sc.(Manit.), M.Sc.(Alta.), Ph.D.(McG.); Wildlife
Biology

A. Naseem; B.Sc.(McG.), M.Sc., Ph.D.(Mich.); Agricultural
Economics

Associate Members

C.A. Chapman (*Anthropology*), L.J. Chapman (*Biology*), D. Green (*Redpath Museum*), W.D. Marshall (*Food Science and Agricultural Chemistry*), M. Scott (*Institute of Parasitology*), D. Smith (*Plant Science*)

Adjunct Professors

R. Anderson, Y. Bassett, S. Beauchemin, D. Berteaux, G. Boivin, M.A. Bouchard, J. Cumming, K. Fernie, C. Greer, T. Herman, C. Miguez, P. Outridge, E. Pattey, J.P. Savard, A. Scheuhammer, D. Shin, E. Smith, G. Sunahara, C. Vincent

54.2 Programs Offered

The Department of Natural Resource Sciences offers programs leading to M.Sc. and Ph.D. degrees in Entomology (includes Environment and Neotropical Environment), Microbiology (includes Bioinformatics and Environment), Renewable Resources (includes Agrometeorology, Environment, Forest Science, Neotropical Environment, Soil Science and Wildlife Biology) and a M.Sc. degree in Agricultural Economics. It is also possible for students to pursue doctoral studies through the Department of Economics with Agricultural Economics as a field of specialization. A non-thesis option in Environmental Assessment (M.Sc. Ren. Res.) and an inter-disciplinary option in Bioinformatics for doctoral students are available.

The Department possesses, or has access to, excellent facilities for laboratory research and research in the field. Affiliated with the Department are the Lyman Entomological Museum and Research Laboratory, the Molson Nature Reserve, the Morgan Arboretum, the Avian Science and Conservation Centre, and the Ecomuseum of the St. Lawrence Valley Natural History Society.

54.3 Admission Requirements**M.Sc. Thesis (Agricultural Economics)**

Direct admission to the M.Sc. requires the completion of a B.Sc. in Agricultural Economics or a closely related area, with the equivalent cumulative grade point average of 3.0/4.0 (second class-upper division) or 3.2/4.0 during the last two years of full-time university study. High grades are expected in courses considered by the academic unit to be preparatory to the graduate program.

The ideal preparation includes courses in agricultural economics, economic theory (intermediate micro and macro), calculus, linear algebra, and statistics. Students with deficiencies in these areas will be required to take additional courses as part of their degree program.

M.Sc. Thesis (Entomology, Microbiology, Renewable Resources)

Candidates are required to have a Bachelor's degree with an equivalent cumulative grade point average of 3.0/4.0 (second class-upper division) or 3.2/4.0 during the last two years of full-time university study. High grades are expected in courses considered by the academic unit to be preparatory to the graduate program.

M.Sc. in Renewable Resources (Non-Thesis) – Environmental Assessment Option

Candidates are required to have a Bachelor's degree in a relevant subject, with an equivalent cumulative grade point average of 3.0/4.0 (second class-upper division) or 3.2/4.0 during the last two years of full-time university study. High grades are expected in courses considered by the academic unit to be preparatory to the graduate program. Applicants should also have at least one year of professional experience in environmental assessment or a similar field.

Ph.D. Thesis (Entomology, Microbiology, Renewable Resources)

Candidates, normally, are required to hold a M.Sc. degree and will be judged primarily on their ability to conduct an original and independent research study.

54.4 Application Procedures

(For all programs excluding the Environmental Assessment Option.)

Applicants for graduate studies must forward supporting documents to:

Department of Natural Resource Sciences
(Graduate Student Office)
McGill University, Macdonald Campus
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue, QC H9X 3V9
Canada
Telephone: (514) 398-7941
Fax: (514) 398-7990
E-mail: marie.kubecki@mcgill.ca

Applications will be considered upon receipt of a signed and completed application form, \$80 application fee, and the following supporting documents.

Transcripts - Two official copies of all university level transcripts with proof of degree(s) granted are required for admission. Transcripts written in a language other than English or French must be accompanied by a certified translation. An explanation of the grading system used by the applicant's university is essential. It is the applicant's responsibility to arrange for transcripts to be sent.

It is desirable to submit a list of the titles of courses taken in the major subject, since transcripts often give code numbers only. Applicants must be graduates of a university of recognized reputation and hold a Bachelor's degree equivalent to a McGill Honours degree in a subject closely related to the one selected for graduate work. This implies that about one-third of all undergraduate courses should have been devoted to the subject itself and another third to cognate subjects.

Letters of Recommendation - Two letters of recommendation on letterhead (official paper) of originating institution or bearing the university seal and with original signatures from two instructors familiar with the applicant's work, preferably in the applicant's area of specialization. It is the applicant's responsibility to arrange for these letters to be sent.

Competency in English - Non-Canadian applicants whose mother tongue is not English, who did not graduate from a Canadian institution (anglophone or francophone) and who have not completed an undergraduate degree using the English language are required to submit documented proof of competency in oral and written English, by appropriate exams, e.g., TOEFL (minimum score 550 on the paper-based test, 213 on the computer-based test or 86 on the Internet-based test with each component score not less than 20) or IELTS (minimum overall band 6.5). The MCHE is not considered equivalent. Results must be submitted as part of the application. The University code is 0935 (McGill University, Montreal); please use Department code 31(Graduate Schools), Biological Sciences- Agriculture, to ensure that your TOEFL reaches this office without delay.

For entrance into the Masters program in Agricultural Economics the following test scores are required: (minimum score 570 on the paper-based test, 230 on the computer-based test or 88 on the Internet-based test with each component score not less than 20) or IELTS (minimum 7 overall band).

Graduate Record Exam (GRE) - The GRE is not required, but it is highly recommended.

DOCUMENTS SUBMITTED WILL NOT BE RETURNED.

Application Fee (non-refundable) - A fee of \$80 Canadian must accompany each application (including McGill students), otherwise it cannot be considered. This sum must be remitted using one of the following methods:

1. Credit card (by completing the appropriate section of the application form). NB: online applications must be paid for by credit card.
2. Certified cheque in Cdn.\$ drawn on a Canadian bank.
3. Certified cheque in U.S.\$ drawn on a U.S. bank.

4. Canadian Money order in Cdn.\$.
5. U.S. Money Order in U.S.\$.
6. An international draft in Canadian funds drawn on a Canadian bank requested from the applicant's bank in his/her own country.

Deadlines – Applications, including all supporting documents must reach the Department of Natural Resource Sciences (Graduate Student Office) no later than June 1 (March 1 for International) for the *Fall Term (September)*; October 15 (September 1 for International) for the *Winter Term (January)*; March 1 (December 31 for International) for the *Summer Term (May)*. It may be necessary to delay review of the applicant's file until the following admittance period if application materials including supporting documents are received after these dates. International applicants are advised to apply well in advance of the deadline because immigration procedures may be lengthy. Applicants are encouraged to make use of the online application form available on the Web at www.mcgill.ca/applying/graduate.

Financial aid is very limited and highly competitive. It is suggested that students give serious consideration to their financial planning before submitting an application.

Acceptance to all programs depends on a staff member agreeing to serve as the student's supervisor and the student obtaining financial support. Normally, a student will not be accepted unless adequate financial support can be provided by the student and/or the student's supervisor. Academic units cannot guarantee financial support via teaching assistantships or other funds.

Qualifying Students – Some applicants whose academic degrees and standing entitle them to serious consideration for admission to graduate studies, but who are considered inadequately prepared in the subject selected may be admitted to a *Qualifying Program* if they have met the Graduate and Postdoctoral Studies Office minimum CGPA of 3.0/4.0. The course(s) to be taken in a *Qualifying Program* will be prescribed by the academic unit concerned. *Qualifying students* are registered in graduate studies, **but not as candidates for a degree**. Only one qualifying year is permitted. **Successful completion of a qualifying program does not guarantee admission to a degree program.**

Application Procedures for Environmental Assessment Option (Non-Thesis)

Applicants for graduate studies in the Non-thesis Environmental Assessment option must forward supporting documents to:

Department of Natural Resource Sciences
(Environmental Assessment Office MS2-082)
McGill University, Macdonald Campus
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue, QC H9X 3V9
Canada
Telephone: (514) 398-7901
Fax: (514) 398-7990
E-mail: robert.oxley@mcgill.ca

Applications will be considered upon receipt of:

1. A signed and completed application form and \$80 application fee.
2. Two official copies of all university level transcripts with proof of degree(s) granted. Transcripts written in a language other than English or French must be accompanied by a certified translation. An explanation of the grading system used by the applicant's university is essential. If transcripts contain course numbers only, please submit a list of the titles of courses taken in the major subject.
3. Two letters of recommendation on letterhead (official paper) of originating institution or bearing the university seal and with original signatures from two instructors familiar with the applicant's work, preferably in the applicant's area of specialization. If the degree was awarded more than five years ago, letters of recommendation can be written by employers rather than professors.

4. A curriculum vitae.
5. Letter of intent outlining the applicant's reasons for wishing to pursue the program of study.

It is the applicant's responsibility to arrange for the following documents to be sent. **DOCUMENTS SUBMITTED WILL NOT BE RETURNED.**

Competency in English - Non-Canadian applicants whose mother tongue is not English, who did not graduate from a Canadian institution (anglophone or francophone) and who have not completed an undergraduate degree using the English language are required to submit documented proof of competency in oral and written English, by appropriate exams, e.g., TOEFL (minimum score 570 on the paper-based test, 230 on the computer-based test or 88 on the Internet-based test with each component score not less than 20) or IELTS (minimum 7 overall band). The MCHE is not considered equivalent. Results must be submitted as part of the application. The University code is 0935 (McGill University, Montreal); please use Department code 31 (Graduate Schools), Biological Sciences- Agriculture, to ensure that your TOEFL reaches this office without delay.

Application Fee (non-refundable) - A fee of \$80 Canadian must accompany each application (including McGill students), otherwise it cannot be considered. This sum must be remitted using one of the following methods:

1. Credit card (by completing the appropriate section of the application form). NB: online applications must be paid for by credit card.
2. Certified cheque in Cdn.\$ drawn on a Canadian bank.
3. Certified cheque in U.S.\$ drawn on a U.S. bank.
4. Canadian Money order in Cdn.\$.
5. U.S. Money Order in U.S.\$.
6. An international draft in Canadian funds drawn on a Canadian bank requested from the applicant's bank in his/her own country.

Deadlines - There is only one start date per year for this program, and applications will be taken for the winter term ONLY. Applications, including all supporting documents must reach the Department of Natural Resource Sciences (Environmental Assessment Office) no later than August 15 for both International and Canadian students. It may be necessary to delay review of the applicant's file until the following admittance period if application materials including supporting documents are received after these dates. Applicants are encouraged to make use of the online application form available on the Web at www.mcgill.ca/applying/graduate.

Financial aid is very limited and highly competitive. It is suggested that students give serious consideration to their financial planning before submitting an application.

54.5 Program Requirements

M.Sc. in Agricultural Economics (Thesis) (46 credits)

Students may specialize, by way of their research program, in agribusiness, development, finance, marketing and trade, policy, and resource and ecological economics.

Required Course (1 credit)

AGEC 690 (1) Seminar

Complementary Courses (18 credits)

6 credits, two theory courses chosen from:

AGEC 611 (3) Price Analysis
AGEC 633 (3) Environmental and Natural Resource Economics
ECON 610 (3) Microeconomic Theory 1
ECON 611 (3) Microeconomic Theory 2
ECON 620 (3) Macroeconomic Theory 1
ECON 621 (3) Macroeconomic Theory 2

3 credits, one quantitative methods course chosen from:

AEMA 610	(3)	Statistical Methods 2
ECON 525	(3)	Project Analysis
ECON 662	(6)	Econometrics
ECON 665	(3)	Quantitative Methods
MGSC 634	(3)	Econometric Methods in Management
MGSC 679	(3)	Applied Deterministic Optimization

9 credits, three 3-credit graduate-level courses - at least one of which must be in Agricultural Economics, chosen in consultation with the Agricultural Economics Advisor.

Thesis Component - Required (27 credits)

AGEC 691	(6)	M.Sc. Thesis 1
AGEC 692	(3)	M.Sc. Thesis 2
AGEC 693	(6)	M.Sc. Thesis 3
AGEC 694	(6)	M.Sc. Thesis 4
AGEC 695	(6)	M.Sc. Thesis 5

M.Sc. in Entomology (Thesis) (45 credits)

Required Courses (3 credits)

NRSC 643	(1)	Graduate Seminar 1
NRSC 644	(1)	Graduate Seminar 2
NRSC 651	(1)	Graduate Seminar 3

Complementary Courses (6 credits)

Two 3-credit courses at the 500-level or higher; normally one of these will be a course in statistics.

Thesis (36 credits)

NRSC 691	(12)	M.Sc. Thesis Research 1
NRSC 692	(12)	M.Sc. Thesis Research 2
NRSC 693	(12)	M.Sc. Thesis Research 3

M.Sc. in Entomology (Thesis) – Environment Option/Concentration (46 credits)

Required Courses (7 credits)

ENVR 610	(3)	Foundations of Environmental Policy
ENVR 650	(1)	Environmental Seminar 1
ENVR 651	(1)	Environmental Seminar 2
ENVR 652	(1)	Environmental Seminar 3
NRSC 651	(1)	Graduate Seminar 3

Complementary Courses (3 credits)

3 credits, one of the following courses:

ENVR 519	(3)	Global Environmental Politics
ENVR 544	(3)	Environmental Measurement and Modelling
ENVR 580	(3)	Topics in Environment 3
ENVR 611	(3)	The Economy of Nature
ENVR 620	(3)	Environment and Health of Species
ENVR 622	(3)	Sustainable Landscapes
ENVR 630	(3)	Civilization and Environment 1
ENVR 680	(3)	Topics in Environment 4

or other graduate course recommended by the advisory committee and approved by the Environment Option Committee

Thesis Component – Required (36 credits)

NRSC 691	(12)	M.Sc. Thesis Research 1
NRSC 692	(12)	M.Sc. Thesis Research 2
NRSC 693	(12)	M.Sc. Thesis Research 3

M.Sc. in Entomology (Thesis) – Neotropical Environment Option/Concentration (48 credits)

Required Courses (9 credits)

BIOL 640	(3)	Tropical Biology and Conservation
ENVR 610	(3)	Foundations of Environmental Policy
NRSC 643	(1)	Graduate Seminar 1
NRSC 644	(1)	Graduate Seminar 2
NRSC 651	(1)	Graduate Seminar 3

Complementary Course (3 credits)

3 credits, one of the following courses:

AGRI 550	(3)	Sustained Tropical Agriculture
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BIOL 553	(3)	Neotropical Environments
BIOL 641	(3)	Issues in Tropical Biology
ENVR 611	(3)	The Economy of Nature
ENVR 612	(3)	Tropical Environmental Issues
ENVR 680	(3)	Topics in Environment 4
POLI 644	(3)	Tropical Environmental Politics
SOCI 565	(3)	Social Change in Panama

Thesis (36 credits)

NRSC 691	(12)	M.Sc. Thesis Research 1
NRSC 692	(12)	M.Sc. Thesis Research 2
NRSC 693	(12)	M.Sc. Thesis Research 3

Participation in the MSE-Panama Symposium presentation in Montreal is also required.

M.Sc. in Microbiology (Thesis) (45 credits)

Required Courses (3 credits)

NRSC 643	(1)	Graduate Seminar 1
NRSC 644	(1)	Graduate Seminar 2
NRSC 651	(1)	Graduate Seminar 3

Complementary Courses (6 credits)

Two 3-credit courses at the 500-level or higher; normally one of these will be a course in statistics.

Thesis (36 credits)

NRSC 691	(12)	M.Sc. Thesis Research 1
NRSC 692	(12)	M.Sc. Thesis Research 2
NRSC 693	(12)	M.Sc. Thesis Research 3

M.Sc. in Microbiology (Thesis) – Environment Option/Concentration (46 credits)

Required Courses (7 credits)

ENVR 610	(3)	Foundations of Environmental Policy
ENVR 650	(1)	Environmental Seminar 1
ENVR 651	(1)	Environmental Seminar 2
ENVR 652	(1)	Environmental Seminar 3
NRSC 651	(1)	Graduate Seminar 3

Complementary Courses (3 credits)

3 credits, one of the following courses:

ENVR 519	(3)	Global Environmental Politics
ENVR 544	(3)	Environmental Measurement and Modelling
ENVR 580	(3)	Topics in Environment 3
ENVR 611	(3)	The Economy of Nature
ENVR 620	(3)	Environment and Health of Species
ENVR 622	(3)	Sustainable Landscapes
ENVR 630	(3)	Civilization and Environment 1
ENVR 680	(3)	Topics in Environment 4

or other graduate course recommended by the advisory committee and approved by the Environment Option Committee

Thesis Component – Required (36 credits)

NRSC 691	(12)	M.Sc. Thesis Research 1
NRSC 692	(12)	M.Sc. Thesis Research 2
NRSC 693	(12)	M.Sc. Thesis Research 3

M.Sc. in Renewable Resources (Thesis) (45 credits)

(including Agrometeorology, Forest Science, Soil Science and Wildlife Biology as areas of research)

Required Courses (3 credits)

NRSC 643	(1)	Graduate Seminar 1
NRSC 644	(1)	Graduate Seminar 2
NRSC 651	(1)	Graduate Seminar 3

Complementary Courses (6 credits)

One 3-credit graduate level statistics course.

One 3-credit course at the 500-level or higher.

Thesis (36 credits)

NRSC 691	(12)	M.Sc. Thesis Research 1
NRSC 692	(12)	M.Sc. Thesis Research 2
NRSC 693	(12)	M.Sc. Thesis Research 3

M.Sc. in Renewable Resources (Thesis) – Environment Option/Concentration (46 credits)**Required Courses** (7 credits)

ENVR 610	(3)	Foundations of Environmental Policy
ENVR 650	(1)	Environmental Seminar 1
ENVR 651	(1)	Environmental Seminar 2
ENVR 652	(1)	Environmental Seminar 3
NRSC 651	(1)	Graduate Seminar 3

Complementary Courses (6 credits)

3 credits, one of the following courses:

ENVR 519	(3)	Global Environmental Politics
ENVR 544	(3)	Environmental Measurement and Modelling
ENVR 580	(3)	Topics in Environment 3
ENVR 611	(3)	The Economy of Nature
ENVR 620	(3)	Environment and Health of Species
ENVR 622	(3)	Sustainable Landscapes
ENVR 630	(3)	Civilization and Environment 1
ENVR 680	(3)	Topics in Environment 4

or other graduate course recommended by the advisory committee and approved by the Environment Option Committee

3 credits of statistics at the graduate level

Thesis Component – Required (33 credits)

NRSC 691	(12)	M.Sc. Thesis Research 1
NRSC 692	(12)	M.Sc. Thesis Research 2
NRSC 694	(9)	M.Sc. Thesis Research 4

M.Sc. in Renewable Resources (Thesis) – Neotropical Environment Option/Concentration (48 credits)**Required Courses** (9 credits)

BIOL 640	(3)	Tropical Biology and Conservation
ENVR 610	(3)	Foundations of Environmental Policy
NRSC 643	(1)	Graduate Seminar 1
NRSC 644	(1)	Graduate Seminar 2
NRSC 651	(1)	Graduate Seminar 3

Complementary Course (3 credits)

3 credits, one of the following courses:

AGRI 550	(3)	Sustained Tropical Agriculture
BIOL 553	(3)	Neotropical Environments
BIOL 641	(3)	Issues in Tropical Biology
ENVR 611	(3)	The Economy of Nature
ENVR 612	(3)	Tropical Environmental Issues
ENVR 680	(3)	Topics in Environment 4
POLI 644	(3)	Tropical Environmental Politics
SOCI 565	(3)	Social Change in Panama

Thesis (36 credits)

NRSC 691	(12)	M.Sc. Thesis Research 1
NRSC 692	(12)	M.Sc. Thesis Research 2
NRSC 693	(12)	M.Sc. Thesis Research 3

Participation in the MSE-Panama Symposium presentation in Montreal is also required.

M.Sc. in Renewable Resources (Non-Thesis) – Environmental Assessment Option/Concentration (45 credits)**Required Courses** (21 credits)

NRSC 610	(3)	Advanced Environmental Assessment
NRSC 611	(3)	Environmental Assessment Knowledge Base
NRSC 612	(3)	Environmental Assessment and Sustainable Development
NRSC 613	(3)	Strategic and Sectoral Environmental Assessment
NRSC 614	(3)	Meeting Environmental Assessment Regulations
NRSC 617	(6)	Environmental Assessment: Institutional Approaches

Required Internship (15 credits)

NRSC 615	(15)	Environmental Assessment Internship
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Required Project (9 credits)

NRSC 616	(9)	Environmental Assessment Project Paper
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Ph.D. in Entomology, Microbiology, or Renewable Resources (which includes Agrometeorology, Forest Science, Soil Science and Wildlife Biology)**Required Courses**

NRSC 751	(0)	Graduate Seminar 4
NRSC 752	(0)	Graduate Seminar 5
NRSC 753	(0)	Graduate Seminar 6
NRSC 754	(0)	Graduate Seminar 7

Coursework

Course requirements are specified by the staff in the discipline but are flexible and depend largely on the student's background, immediate interests, and ultimate objectives.

Ph.D. Comprehensive - Required (0 credits)

NRSC 701	(0)	Ph.D. Comprehensive Examination
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Thesis

Presentation and subsequent defence of a satisfactory thesis based on the student's research.

Ph.D. in Entomology – Environment Option/Concentration**Required Courses**(6 credits)

ENVR 610	(3)	Foundations of Environmental Policy
ENVR 650	(1)	Environmental Seminar 1
ENVR 651	(1)	Environmental Seminar 2
ENVR 652	(1)	Environmental Seminar 3
NRSC 754	(0)	Graduate Seminar 7

Coursework

Course requirements are specified by the staff in the discipline but are flexible and depend largely on the student's background, immediate interests, and ultimate objectives.

Complementary Courses (3 credits)

One course chosen from:

ENVR 519	(3)	Global Environmental Politics
ENVR 544	(3)	Environmental Measurement and Modelling
ENVR 580	(3)	Topics in Environment 3
ENVR 611	(3)	The Economy of Nature
ENVR 620	(3)	Environment and Health of Species
ENVR 622	(3)	Sustainable Landscapes
ENVR 630	(3)	Civilization and Environment 1
ENVR 680	(3)	Topics in Environment 4

or other graduate course recommended by the advisory committee and approved by the Environment Option Committee

Ph.D. Comprehensive - Required

NRSC 701	(0)	Ph.D. Comprehensive Examination
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Thesis

Presentation and subsequent defence of a satisfactory thesis based on the student's research.

Ph.D. in Entomology – Neotropical Environment Option/Concentration**Required Courses** (6 credits)

BIOL 640	(3)	Tropical Biology and Conservation
ENVR 610	(3)	Foundations of Environmental Policy
NRSC 751	(0)	Graduate Seminar 4
NRSC 752	(0)	Graduate Seminar 5
NRSC 753	(0)	Graduate Seminar 6
NRSC 754	(0)	Graduate Seminar 7

Complementary Course (3 credits)

3 credits, one of the following courses:

AGRI 550	(3)	Sustained Tropical Agriculture
BIOL 553	(3)	Neotropical Environments
BIOL 641	(3)	Issues in Tropical Biology
ENVR 611	(3)	The Economy of Nature

ENVR 612 (3) Tropical Environmental Issues
 ENVR 680 (3) Topics in Environment 4
 POLI 644 (3) Tropical Environmental Politics
 SOCI 565 (3) Social Change in Panama

Ph.D. Comprehensive - Required (0 credits)

NRSC 701 (0) Ph.D. Comprehensive Examination

Participation in the MSE-Panama Symposium presentation in Montreal is also required.

Thesis

Presentation and subsequent defence of a satisfactory thesis based on the student's research.

Ph.D. in Microbiology – Bioinformatics Option/Concentration**Required Courses** (3 credits)

COMP 616 (3) Bioinformatics Seminar
 NRSC 751 (0) Graduate Seminar 4
 NRSC 752 (0) Graduate Seminar 5
 NRSC 753 (0) Graduate Seminar 6
 NRSC 754 (0) Graduate Seminar 7

Complementary Courses (6 credits)

6 credits from the following courses:

BINF 621 (3) Bioinformatics: Molecular Biology
 BMDE 652 (3) Bioinformatics: Proteomics
 BTEC 555 (3) Structural Bioinformatics
 COMP 618 (3) Bioinformatics: Functional Genomics
 PHGY 603 (3) Systems Biology and Biophysics

Additional courses at the 500, 600, or 700 level may be required at the discretion of the candidate's supervisory committee.

Ph.D. Comprehensive - Required (0 credits)

NRSC 701 (0) Ph.D. Comprehensive Examination

Thesis – Required

Students will meet the degree requirements of the department in which they are registered (including requirements for course, Ph.D. comprehensives, thesis proposal and thesis).

Ph.D. in Microbiology – Environment Option/Concentration**Required Courses** (6 credits)

ENVR 610 (3) Foundations of Environmental Policy
 ENVR 650 (1) Environmental Seminar 1
 ENVR 651 (1) Environmental Seminar 2
 ENVR 652 (1) Environmental Seminar 3
 NRSC 754 (0) Graduate Seminar 7

Coursework

Course requirements are specified by the staff in the discipline but are flexible and depend largely on the student's background, immediate interests, and ultimate objectives.

Complementary Courses (3 credits)

One course chosen from:

ENVR 519 (3) Global Environmental Politics
 ENVR 544 (3) Environmental Measurement and Modelling
 ENVR 580 (3) Topics in Environment 3
 ENVR 611 (3) The Economy of Nature
 ENVR 620 (3) Environment and Health of Species
 ENVR 622 (3) Sustainable Landscapes
 ENVR 630 (3) Civilization and Environment 1
 ENVR 680 (3) Topics in Environment 4

or other graduate course recommended by the advisory committee and approved by the Environment Option Committee

Ph.D. Comprehensive - Required

NRSC 701 (0) Ph.D. Comprehensive Examination

Thesis

Presentation and subsequent defence of a satisfactory thesis based on the student's research.

Ph.D. in Renewable Resources – Environment Option/Concentration**Required Courses** (6 credits)

ENVR 610 (3) Foundations of Environmental Policy
 ENVR 650 (1) Environmental Seminar 1
 ENVR 651 (1) Environmental Seminar 2
 ENVR 652 (1) Environmental Seminar 3
 NRSC 754 (0) Graduate Seminar 7

Coursework

Course requirements are specified by the staff in the discipline but are flexible and depend largely on the student's background, immediate interests, and ultimate objectives.

Complementary Courses (3 credits)

One course chosen from:

ENVR 519 (3) Global Environmental Politics
 ENVR 544 (3) Environmental Measurement and Modelling
 ENVR 580 (3) Topics in Environment 3
 ENVR 611 (3) The Economy of Nature
 ENVR 620 (3) Environment and Health of Species
 ENVR 622 (3) Sustainable Landscapes
 ENVR 630 (3) Civilization and Environment 1
 ENVR 680 (3) Topics in Environment 4

or other graduate course recommended by the advisory committee and approved by the Environment Option Committee

Ph.D. Comprehensive - Required

NRSC 701 (0) Ph.D. Comprehensive Examination

Thesis

Presentation and subsequent defence of a satisfactory thesis based on the student's research.

Ph.D. in Renewable Resources – Neotropical Environment Option/Concentration**Required Courses** (6 credits)

BIOL 640 (3) Tropical Biology and Conservation
 ENVR 610 (3) Foundations of Environmental Policy
 NRSC 751 (0) Graduate Seminar 4
 NRSC 752 (0) Graduate Seminar 5
 NRSC 753 (0) Graduate Seminar 6
 NRSC 754 (0) Graduate Seminar 7

Complementary Course (3 credits)

3 credits, one of the following courses:

AGRI 550 (3) Sustained Tropical Agriculture
 BIOL 553 (3) Neotropical Environments
 BIOL 641 (3) Issues in Tropical Biology
 ENVR 611 (3) The Economy of Nature
 ENVR 612 (3) Tropical Environmental Issues
 ENVR 680 (3) Topics in Environment 4
 POLI 644 (3) Tropical Environmental Politics
 SOCI 565 (3) Social Change in Panama

Ph.D. Comprehensive - Required (0 credits)

NRSC 701 (0) Ph.D. Comprehensive Examination

Participation in the MSE-Panama Symposium presentation in Montreal is also required.

Thesis

Presentation and subsequent defence of a satisfactory thesis based on the student's research.

54.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

The course credit weight is given in parentheses after the title.

★ Denotes courses taught only in alternate years.

AGEC 611 PRICE ANALYSIS. (3) Topics in advanced microeconomic theory with applications in agricultural economics.

AGEC 630 FOOD AND AGRICULTURAL POLICY. (3) This course examines the role of government in the agriculture and food industry through the nature and causes of the problems addressed, the instruments and institutions by which policy is implemented and the effects of different policies. Emphasis is placed on the application of economic models to analyze policy problems.

★ **AGEC 633 ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS.** (3) An advanced course in the theory and problems of environmental and resource economics and in the analytical techniques used to assess environmental and resource use issues.

AGEC 642 ECONOMICS OF AGRICULTURAL DEVELOPMENT. (3) This course focuses on the role of agriculture in economic development. Topics covered will be - development theories, economic efficiency, employment, technology adoption and structural change in developing countries. Also, agriculture, food and development policies and implications for long term planning will be discussed.

AGEC 685 SELECTED TOPICS IN AGRICULTURAL ECONOMICS. (3) This course is designed to permit students to explore agricultural economics topics that are not covered in other courses. Students may be asked to prepare a presentation or lead discussion on the selected topic for the benefit of other students and staff. (Pass/Fail grading.)

AGEC 690 SEMINAR. (1) This course will focus on current research on economic problems of agriculture through presentations by staff, students and special guests. All graduate students are required to register for this course, and make at least one major presentation.

AGEC 691 M.Sc. THESIS 1. (6)

AGEC 692 M.Sc. THESIS 2. (3)

AGEC 693 M.Sc. THESIS 3. (6)

AGEC 694 M.Sc. THESIS 4. (6)

AGEC 695 M.Sc. THESIS 5. (6)

★ **ENTO 515 PARASITOID BEHAVIOURAL ECOLOGY.** (3) (Winter) (Prerequisite: ENTO 330 (formerly NRSC 330) or equivalent) (Restriction: Not open to students who have taken NRSC 515) The origin and diversity of parasitoid species will be presented. Aspects of behavioural ecology that pertain to host selection, optimal allocation of progeny and sex and host-parasitoid interactions are examined. The importance of these processes is discussed in a biological control perspective.

ENTO 520 INSECT PHYSIOLOGY. (3) (Winter) (Prerequisite: Permission of instructor) (Restriction: Not open to students who have taken NRSC 520) Organismal approach to insects, emphasizing the physiology and development, and the physiological relations of insects to their environment.

★ **ENTO 535 AQUATIC ENTOMOLOGY.** (3) (Winter) Diversity, biology, ecology and recognition of the main groups of aquatic insects.

ENTO 550 VETERINARY AND MEDICAL ENTOMOLOGY. (3) (Winter) (Prerequisite: Permission of instructor) (Restriction: Not open to students who have taken NRSC 550) Environmental aspects of veterinary and medical entomology. An advanced course dealing with the biology and ecology of insects and acarines as aetiological agents and vectors of disease, and their control. Integrated approaches to problem solving.

ENTO 600 INSECT PATHOLOGY. (3) A detailed study of the interaction between insects and their pathogens (viruses, bacteria, fungi and nematodes). Emphasis is divided equally between the identification and reactions of anti-pathogen systems in insects and the microbiology (particularly virulence mechanisms) of the pathogens. Students must have a general microbiology course and courses in biochemistry and insect physiology.

ENTO 610 INSECT PHYLOGENY AND DIVERSITY. (3) (Winter) Discussion of current topics in phylogenetic systematics, evolution, and biodiversity, with special reference to insects and related arthropods.

★ **ENTO 615 FOREST ENTOMOLOGY.** (3) (Winter) (Prerequisite: Permission of the instructor.) Current topics in forest entomology.

MICR 772 ADVANCED MICROBIAL GENETICS. (3) (Restriction: Not open to students who have successfully completed NRSC 772) Topics in bacterial archaeal, eucaryal, and bacteriophage genetics.

MICR 773 ADVANCED MICROBIAL PHYSIOLOGY. (3) (Restriction: Not open to students who have successfully completed NRSC 773.) Topics in microbial physiology and metabolism, ranging from current to classic, from biochemical to genetic aspects.

★ **NRSC 510 AGRICULTURAL MICROMETEOROLOGY.** (3) (Fall) (3 lectures) (Restriction: Not open to students who have taken AEPH 510) Interaction between plant communities and the atmosphere. The physical processes governing the transfer of heat, mass and momentum as they relate to research and production in agricultural and environmental systems. Experimental techniques for measuring fluxes of heat, water-vapour, CO₂ and natural and man-made pollutants.

NRSC 512 WATER: ETHICS, LAW AND POLICY. (3) (Fall) The various legal expressions of the relationship between humanity and water such as those grounded in markets, basic rights, First Nations traditions, utilitarianism and cost/benefit analysis. Public, private and international law, and intergovernmental institutions relevant to the protection and management of water resources.

NRSC 514 FRESHWATER ECOSYSTEMS. (3) (Fall) Origin, diversity, structure, function and evolution of freshwater ecosystems; fauna, flora and biotic communities of freshwater habitats; indicator organisms; biotic indices; human impact on freshwater ecosystems.

★ **NRSC 540 SOCIO-CULTURAL ISSUES IN WATER.** (3) (Winter) (Prerequisite: A 300- or 400-level course in water or permission of instructor.) (3-hour seminar) Discussion of current debates and problems related to water, especially in developing countries. Topics include: gender relations and health in the context of cultural and economic systems, and the impacts of new technologies, market structures and population growth.

NRSC 610 ADVANCED ENVIRONMENTAL ASSESSMENT. (3) (Restriction: Limited to students enrolled in the Non-Thesis Masters in Environmental Assessment Program, or by permission of program coordinator.) A detailed account of the evolution of environmental assessment related concepts, processes, procedures and best practices in Canada and internationally.

NRSC 611 ENVIRONMENTAL ASSESSMENT KNOWLEDGE BASE. (3) (Restriction: Limited to students enrolled in the Non-Thesis Masters in Environmental Assessment Program, or by permission of program coordinator.) A thorough explanation of the fundamental knowledge bases for accountability and best practice in environmental and integrated assessment.

NRSC 612 ENVIRONMENTAL ASSESSMENT AND SUSTAINABLE DEVELOPMENT. (3) (Restriction: Limited to students enrolled in the Non-Thesis Masters in Environmental Assessment Program, or by permission of program coordinator.) A detailed consideration of environmental assessment as a tool for sustainable development.

NRSC 613 STRATEGIC AND SECTORAL ENVIRONMENTAL ASSESSMENT. (3) (Restriction: Limited to students enrolled in the Non-Thesis Masters in Environmental Assessment Program, or by permission of program coordinator.) A detailed account of strategic environmental assessment and sector-specific environmental assessment with special focus on key economic sectors.

NRSC 614 MEETING ENVIRONMENTAL ASSESSMENT REGULATIONS. (3) (Restriction: Limited to students enrolled in the Non-Thesis Masters in Environmental Assessment Program, or by permission of program coordinator.) Meeting environmental assessment regulatory requirements through advanced planning and efficient

management of the assessment and follow-up phases of the EA process.

NRSC 615 ENVIRONMENTAL ASSESSMENT INTERNSHIP. (15) (Restriction: Limited to students enrolled in the Non-Thesis Masters in Environmental Assessment Program.) Placement in a government, academic or private sector agency for 15 weeks of full time work on an EA project (35 hours per week).

NRSC 616 ENVIRONMENTAL ASSESSMENT PROJECT PAPER. (9) (Restriction: Limited to students enrolled in the Non-Thesis Masters in Environmental Assessment Program.) Written report describing the approach to and resolution of the environmental assessment issue addressed during the internship in Environmental Assessment.

NRSC 617 ENVIRONMENTAL ASSESSMENT: INSTITUTIONAL APPROACHES. (6) (Restriction: Limited to students enrolled in the Non-Thesis Masters in Environmental Assessment Program.) Weekly one-day visits and on-site colloquia throughout the term at environmental assessment agencies and organizations in the Montreal and Ottawa region with expertise in environmental assessment.

NRSC 643 GRADUATE SEMINAR 1. (1) (Section 001 Agrometeorology, Forest Science and Soil Science students) (Section 002 Entomology and Wildlife Biology students) (Section 003 Microbiology students) Open to students in the M.Sc. Program. Presentation on a selected topic, research proposal, or research results based on progress towards the M.Sc. degree.

NRSC 644 GRADUATE SEMINAR 2. (1) (Section 001 Agrometeorology, Forest Science and Soil Science students) (Section 002 Entomology and Wildlife Biology students) (Section 003 Microbiology students) Open to students in the M.Sc. Program. Presentation on a selected topic, research proposal, or research results based on progress towards the M.Sc. degree.

NRSC 651 GRADUATE SEMINAR 3. (1) (Section 001 Agrometeorology, Forest Science and Soil Science students) (Section 002 Entomology and Wildlife Biology students) (Section 003 Microbiology students) Open to students in the M.Sc. Program. Presentation of an M.Sc. student's final thesis results.

NRSC 680 SPECIAL TOPICS 1. (1) Students pursue topics not otherwise available in formal courses, under staff supervision.

NRSC 682 SPECIAL TOPICS 3. (2) Students pursue topics not otherwise available in formal courses, under staff supervision.

NRSC 684 SPECIAL TOPICS 5. (3) Students pursue topics not otherwise available in formal courses, under staff supervision.

NRSC 685 SPECIAL TOPICS 6. (3) Students pursue topics not otherwise available in formal courses, under staff supervision.

NRSC 691 M.Sc. THESIS RESEARCH 1. (12) Independent research under the direction of a supervisor towards the completion of the M.Sc. degree.

NRSC 692 M.Sc. THESIS RESEARCH 2. (12) Independent research under the direction of a supervisor towards the completion of the M.Sc. degree.

NRSC 693 M.Sc. THESIS RESEARCH 3. (12) Completion of the M.Sc. thesis, its approval by reviewers and acceptance by the Graduate and Postdoctoral Studies Office all required for a pass to be granted.

NRSC 694 M.Sc. THESIS RESEARCH 4. (9) Independent research under the direction of a supervisor towards the completion of the M.Sc. degree.

NRSC 701 Ph.D. COMPREHENSIVE EXAMINATION. (0)

NRSC 751 GRADUATE SEMINAR 4. (0) (Restriction: Open to students in the Ph.D. Program) (Section 001 Agrometeorology, Forest Science and Soil Science students) (Section 002 Entomology and Wildlife Biology students) (Section 003 Microbiology students) Presentation on a selected topic, research proposal or research results based on progress in the Ph.D. degree.

NRSC 752 GRADUATE SEMINAR 5. (0) (Restriction: Open to students in the Ph.D. Program) (Section 001 Agrometeorology, For-

est Science and Soil Science students) (Section 002 Entomology and Wildlife Biology students) (Section 003 Microbiology students) Presentation on a selected topic, research proposal or research results based on progress in the Ph.D. degree.

NRSC 753 GRADUATE SEMINAR 6. (0) (Restriction: Open to students in the Ph.D. Program) (Section 001 Agrometeorology, Forest Science and Soil Science students) (Section 002 Entomology and Wildlife Biology students) (Section 003 Microbiology students) Presentation on a selected topic, research proposal or research results based on progress in the Ph.D. degree.

NRSC 754 GRADUATE SEMINAR 7. (0) (Restriction: Open to students in the Ph.D. Program) (Section 001 Agrometeorology, Forest Science and Soil Science students) (Section 002 Entomology and Wildlife Biology students) (Section 003 Microbiology students) Presentation on a selected topic, research proposal or research results based on progress in the Ph.D. degree.

SOIL 521 SOIL MICROBIOLOGY AND BIOCHEMISTRY. (3) (Winter) (Restriction: Not open to students who have taken NRSC 521) Soil environments, soil microorganisms and their function in the biogeochemical cycles of C, N, P and S. Basics of soil bioremediation.

SOIL 602 ADVANCED SOIL ECOLOGY 1. (3) Discussion of significant research in soil ecology including transformations of soil organic matter and nutrients, ecological and pedological functions of soil organisms, soil food webs, plant-soil biota interactions, and analytical techniques for monitoring soil organisms.

SOIL 603 ADVANCED SOIL ECOLOGY 2. (3) Discussion of significant research in soil ecology including the occurrence and activity of soil organisms, methods of monitoring and manipulating soil biota for soil fertility management, and human impacts on soil biota at different scales in the environment.

★ **SOIL 610 PEDOLOGY.** (3) Processes of profile development, principles of classification, comparative taxonomy, U.S. and Canadian systems.

★ **SOIL 630 SOIL MINEROLOGY.** (3) (2 lectures per week, one term) Structure and identification of minerals, weathering, properties of clay surfaces, adsorption on clays, ion exchange.

SOIL 631 ADVANCED SOIL PHYSICS. (3) (2 lectures per week, one term) State and fluxes of matter and energy in the soil. Applications to movement of water, salts, nutrients; diffusion of gases; heat transfer. Discussion of significant research in soil physics.

WILD 605 ADVANCED WILDLIFE ECOLOGY. (3) (2 class hours per week) Discussion of current topics in wildlife ecology with special reference to the research interests of staff and students involved.

WILD 610 FISH ECOLOGY. (3) (3 class hours per week) A critical examination of current topics in fish ecology; discussion of migration, reproductive strategies, sex determination mechanisms, competition, communication and predator-prey relationships.

WOOD 640 RECENT ADVANCES: TREE ECOPHYSIOLOGY. (3) (3 lectures per week) Discussion of the effects of environmental factors on the physiology of trees. Both anthropogenic and natural factors will be discussed.

WOOD 660 RECENT ADVANCES: FOREST ECOLOGY. (3) (2 hours seminar) Review and discussion of current literature in forest ecology. Topics covered will depend on the research interests of students and may include population biology of forest plants, forest succession, forest nutrition and nutrient cycling, computer modelling of forest systems.

55 Neurology and Neurosurgery

Graduate Program in Neuroscience
Division of Neuroscience
Department of Neurology and Neurosurgery
Departments of Psychiatry, Ophthalmology, and Anaesthesia
Montreal Neurological Institute, Room 141
3801 University Street
Montreal, QC H3A 2B4
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Website: www.mcgill.ca/gpns

Chair, Graduate Program in Neuroscience — P. Barker

Chair, Dept. of Neurology and Neurosurgery — R. Riopelle

55.1 Staff

Professors

A. Aguayo; M.D.(Cordoba Natn.), F.R.C.P.(C)
E. Andermann; M.D., C.M., M.Sc., Ph.D.(McG)
F. Andermann; B.A.(Paris), B.Sc.,(McG), M.D.(Montr.), F.R.C.P.(C)
J. Antel; M.D., B.Sc.(Man.), F.R.C.P.(C)
D. Arnold; B.Sc., M.D.(C'nell), F.R.C.P.(C) (*James McGill Professor*)
M. Avoli; M.D.(Rome), Ph.D.(McG)
P. Barker; Ph.D.(Alta), B.Sc.(S. Fraser)
C. Bourque; B.Sc.(Ott.), Ph.D.(McG)
S. Carbonetto; M.Sc.(Mass.), Ph.D.(N.Carolina)
H. Chertkow; M.D.(W. Ont.), F.R.C.P.(C)
D. Colman; Ph.D.(SUNY)
S. David; Ph.D.(Man.)
R. Del Maestro; M.D.(W. Ont.), Ph.D.(Uppsala), F.R.C.S.(C), D.A.B.N.S., F.A.C.S.
M. Diksic; B.Sc., Ph.D.(Zagreb)
J.R. Dunn; B.Sc., Ph.D.(Br. Col.)
H. Durham; M.Sc.(W. Ont.), Ph.D.(Alta.)
A. Evans; M.Sc.(Sur.), Ph.D.(Leeds)
J.P. Farmer; M.D., M.Sc.(McG), F.R.C.P.(C)
S.G. Gauthier; B.A., M.D.(Montr.), F.R.C.P.(C)
J. Gotman; M.Eng.(Dart.), Ph.D.(McG)
D. Guitton; Dipl. IVK(U. Libre de Brux.), B.Eng., M.Eng., Ph.D.Eng., Ph.D.Physiol.(McG)
E. Hamel; B.Sc.(Sher.), Ph.D.(Montr.)
K. Hastings; B.Sc., Ph.D.(McG)
P.C. Holland; B.A.(Lanc.), Ph.D.(N'cle)
B. Jones; B.A., M.A., Ph.D.(Delaware)
M. Jones-Gotman; B.A.(Calif.), M.A., Ph.D.(McG)
G. Karpati; M.D.(Dal.), F.R.C.P.(C)
A. Leblanc; M.Sc.(Moncton), Ph.D.(Dal.)
R. Leblanc; M.Sc.(McG), M.D.(Ott.), F.R.C.S.(C)
P. McPherson; M.Sc.(Man.), Ph.D.(Iowa) (*William Dawson Scholar*)
B. Milner; B.A., Sc.D.(Cant.), Ph.D.(McG)
G. Mohr; M.D.(Stras.)
A. Olivier; M.D.(Montr.), Ph.D.(Laval), F.R.C.S.(C)
M. Petrides; B.Sc., M.Sc.(Lond.), Ph.D.(Cant.) (*James McGill Professor*)
B. Pike; B.Eng.(Mem.), M.Eng., Ph.D.(McG) (*William Dawson Scholar*)
M. Rasminsky; B.A.(Tor.), M.D.(Harv.), Ph.D.(Lond.), F.R.C.P.(C)
J. Richardson; B.Sc., M.D., C.M., Ph.D.(McG), F.R.C.P.(C)
R.J. Riopelle; M.D.(Ott.), F.R.C.P.(C)
A. Sadikot; M.D., C.M.(McG), Ph.D.(Laval), F.R.C.S.(C)
H. Schipper; M.D., Ph.D.(McG)
M. Shevell; B.Sc., M.D.(Vanderbilt)
E. Shoubridge; M.Sc., Ph.D.(Br. Col.)
W. Sossin; S.B.(MIT), Ph.D.(Stan.)

S. Stifani; Ph.D.(Rome); Ph.D.(Alta.)
D. Tampieri; M.D.(Bologna)
G. Tannenbaum; M.Sc., Ph.D.(McG)
R.J. Zatorre; A.B.(Boston), M.Sc., Ph.D.(Brown)

Associate Professors

M. Aubé; B.A., M.D.(Montr.), F.R.C.P.(C)
A. Bar-Or; M.D., C.M.(McG); F.R.C.P.(C), D.A.B.N.P.
S. Bekhor; M.B., Ch.B.(Baghdad), F.R.C.P.(C)
A. Bernasconi; M.D.(Basel U.)
J. Carlton; B.S., M.D.(Johns Hop.), F.R.C.P.(C)
C. Chalk; B.Sc.(Qu.), M.D., C.M.(McG) F.R.C.P.(C)
L. Collins; M.Eng., Ph.D.(McG)
R. Cote; M.D.(Montr.), F.R.C.P.(C)
A. Dagher; M.Eng.(McG), M.D.(Tor.), F.R.C.P.(C)
F. Dubeau; M.D.(Montr.), F.R.C.P.(C)
E. Fon; M.D.(Montr.), F.R.C.P.(C)
L. Jacques; B.Sc.(Laval), M.Sc., M.D.(Montr.), F.R.C.P.(C)
T. Kennedy; B.Sc.(McM.), Ph.D.(Col.)
Y. Lapierre; B.A., M.D.(Montr.), F.R.C.P.(C)
I. Libman; B.A., M.D., C.M.(McG), F.R.C.P.(C)
D. Melançon; B.A., M.D.(Montr.)
C. Melmed; B.Sc., M.D.(Manit.), F.R.C.P.(C)
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A. Ptiito; Ph.D.(Montr.)
D. Ragsdale; B.S.(Ill.), Ph.D.(Calif.)
Y. Rao; B.Sc.(China), Ph.D.(Tor.)
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G. Savard; M.D.(Montr.), F.R.C.P.(C)
R. Schirrmacher; Ph.D.(Mainz)
R. Schondorf; M.Sc., Ph.D., M.D., C.M.(McG), F.R.C.P.(C)
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A. Thiel; Ph.D.(Cologne), M.D.(Bonn)
D. Trojan; M.D.(Conn.)
J. Woods; M.B., B.Ch.(Dub.), M.Sc.(McG), F.R.C.P.(C)

Assistant Professors

M. Angle; M.D., C.M.(McG), F.R.C.P.(C)
J. Atkinson; M.D.(Tor.) F.R.C.S.C.
B. Bedell; B.S.(Leigh), M.D., C.M.(McG), Ph.D.(Texas)
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M.-E. Dilenge; M.D.(Sher.), F.R.C.P.(C)
J. Djordjevic; M.Sc.(Belgrade), Ph.D.(McG)
L. Durcan; M.D.(Man.), F.R.C.P.(C)
L. Fellows; B.Sc.(McG), D.Phil.(Oxf.), M.D.C.M.(McG), F.R.C.P.(C)
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 C. Pack; B.Sc.(Tufts); Ph.D.(Boston)
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 D. Stellwagan; B.Sc.(Brown), Ph.D.(Calif.)
 A. Strafella; M.D., Ph.D.(Bologna)
 T. Stroh; Dip.(J. Liebig U), Ph.D.(Max Planck Institute)
 V. Sziklas; Ph.D.(McG.)
 D. Van Meyel; Ph.D.(W. Ont.)
 M. Veilleux; M.D.(Sher.), F.R.C.P.(C)
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 T. Wein; M.D.(Vt.), F.R.C.P.(C)
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 J. Zhang; M.D.(Shanghai II Medical U), M.Sc.(Paris XI), Ph.D. (Laval)

Lecturers

S. Antel, D. Diorio, S. Narayanan, W. Vanast

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Adjunct Professors

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55.2 Programs Offered

M.Sc. and Ph.D. in Neuroscience.

55.3 Admission Requirements

General

The applicant must be a university graduate and hold a Bachelor's degree in a field related to the subject selected for graduate work.

The applicant must present evidence of high academic achievement. A standing equivalent to a cumulative grade point average of 3.0 out of a possible 4.0 is required by the Graduate and Postdoctoral Studies Office; however, the GPNS prefers applicants to show a higher academic standing, and requires a minimum GPA of 3.3.

Applicants with degrees from a non-Canadian university may submit results of the GRE exam with their application.

Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit results of the TOEFL exam with their application and have a minimum score of 600 on the paper-based test (250 on the computer-based test, or 96 on the Internet-based test with each component score not less than 20).

M.Sc. Degree

Bachelor's degree with adequate background in basic sciences, or an M.D.

Ph.D. Degree

Applicants must hold a Master's degree in a field related to neuroscience, or an MD degree preferably with postgraduate training.

Students currently registered in the Master's program in neuroscience may be permitted to transfer to the Ph.D. program.

Applicants are expected to have a high academic standing in their previous academic studies and research.

55.4 Application Procedures

Applications will be considered upon receipt of:

1. application form,
2. transcripts,
3. letters of reference,
4. \$80 application fee,
5. TOEFL test results.

All information is to be submitted to above address.

Deadlines:

September entrance – paper and online applications (www.mcgill.ca/applying/graduate) available.

- online application deadline: May 1 (February 1 for International candidates)
- paper application deadline: May 1 (February 1 for International candidates)

January entrance –

September 15 (June 1 for International candidates).

To meet the diversity of individual interests and backgrounds, the graduate program for each student is designed at the time of entry. As part of the admission process each applicant will identify, with the participation of the prospective thesis supervisor and the Graduate Studies Committee, a research thesis topic and the course work necessary to complete the training deemed necessary for the degree sought. These decisions become an integral part of the graduation requirements for the student.

55.5 Program Requirements

GENERAL

1. Students must select an Advisory Committee, in conjunction with their thesis supervisor. This committee will consist of the thesis supervisor and two other individuals who will participate in discussions with students about their research program.

2. Students are required to submit a written thesis proposal to the Graduate Studies Committee (at the end of their first year for M.Sc. students, and at least one month prior to the Candidacy Examination for Ph.D. students). This document must state the hypothesis being tested, the relevant literature, and a summary of the methods that will be used to address the research question. This proposal will then be orally presented to the student's Advisory Committee which will also review the written proposal and communicate its recommendations to the student and the Graduate Studies Committee.
3. Students will present a formal seminar on their research work prior to writing their thesis. This presentation will be attended by the student's Advisory Committee and members of the Graduate Studies Committee who will report their impressions and recommendations to the student.
4. An annual oral informal presentation of research work accomplished will be presented to the student's Advisory Committee which in turn presents its report to the Graduate Studies Committee.

M.Sc. DEGREE

M.Sc. in Neuroscience (Thesis) (45 credits)

Students with a B.Sc., B.A. or M.D. degree: A minimum of 45 credits distributed as follows:*

Required Courses (33 credits)

NEUR 697	(9)	Master's Project Proposal first term of studies
NEUR 698	(9)	Master's Seminar Presentation second term of students
NEUR 699	(12)	Master's Thesis Submission third term of studies
NEUR 630	(3)	Principles of Neuroscience 1

Complementary Courses (12 credits)

one of:

NEUR 631	(3)	Principles of Neuroscience 2
or NEUR 610	(5)	Central Nervous System

6 credits in other graduate level specialty courses relevant to program

Upon recommendation, depending upon their particular background and needs, students may be requested to take additional selected courses.

Remaining Credits

Any remaining credits needed to complete the minimum of 45 may be chosen from:

NEUR 695	(3)	Master's Thesis Research 1
NEUR 696	(6)	Master's Thesis Research 2

* Please note that all M.Sc. level students must register for a minimum of 12 credits a term during the first three terms of their Master's program.

Research requirements:

Presentation of a thesis in a subfield of neuroscience. The thesis must be based upon the research of the student. While not necessarily requiring an exhaustive review of work in a particular field, or a great deal of original scholarship, the thesis must show familiarity with previous work in the field and must demonstrate the ability of the candidate to carry out research and to organize results, all of which must be presented in good literary style. The Graduate Studies Committee expects the student's research should be of sufficient quality for publication in a peer-reviewed journal. A seminar on the thesis topic is given prior to writing the thesis, and each year, a report from the student's Advisory Committee is required by the graduate Studies Committee.

Residence requirements:

Three terms of full-time study.

PH.D. DEGREE

Ph.D. in Neuroscience

Required Core Courses (3 credits)

NEUR 630*	(3)	Principles of Neuroscience 1
NEUR 700	(0)	Doctoral Candidacy Examination

Complementary Courses (9 - 11 credits)

must take one of:

NEUR 631*	(3)	Principles of Neuroscience 2
or NEUR 610*	(5)	Central Nervous System

6 credits (2 courses) of approved courses at the 500 level or higher in consultation with the graduate program advisor.

* Note: A student may receive certain exemptions if the student can display equivalency for NEUR 630, NEUR 631, or NEUR 610. Requests for course exemptions will be considered only for these courses.

Course requirements:

Students with an M.Sc. degree continuing in this Department have no required courses if they have taken the minimum four required graduate courses at the Master's level (including NEUR 630, and either NEUR 631 or NEUR 610). It may be recommended that they take specialty courses related to their field of study in neuroscience. Students with an M.Sc. degree from another program will be required to take NEUR 630 and NEUR 631 and/or other courses listed under the M.Sc. degree depending upon their background and field of study.

Students with an M.D. degree proceeding directly into a Ph.D. program will be required to take NEUR 630 and NEUR 631. Recently graduated M.D.s should have the equivalent of NEUR 610, and may be granted equivalence. They will also be required to take 6 credits of graduate level courses.

Doctoral Candidacy Examination (NEUR 700)

All students registering directly into the Ph.D. program, regardless of prior degrees from McGill or any other academic institutions, must complete the Doctoral Candidacy Examination within 18 months of initial registration in the Program. This is a qualifying examination consisting of a formal presentation and oral examination of the thesis proposal. The questioning will pertain to the student's knowledge and understanding of his/her field of specialization in neuroscience as well as the research proposal. Its primary purpose is to evaluate the student's ability to carry out original scholarship.

The Candidacy Examination will be conducted in conjunction with the Transfer seminar for all students currently registered in the M.Sc. program who apply for transfer to the Ph.D.

Research requirements:

Presentation of a thesis in a subfield of neuroscience. The thesis must display original scholarship expressed in satisfactory literary style and must be a distinct contribution to knowledge. After the thesis has been submitted to, and approved by the Graduate and Postdoctoral Studies Office, a final oral exam will be held on the subject of the thesis and subjects immediately related to it.

Residence requirements:

Three years of resident study of which one year may be completed in the Master's program.

55.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

The course credit weight is given in parentheses after the title.

★ Denotes courses taught only in alternate years.

★ **NEUR 550 FREE RADICAL BIOMEDICINE.** (3) (Prerequisite: BIOL 200, BIOL 201, BIOC 311, BIOC 312, PHGY 209, PHGY 210 or Permission of Instructor.) An interdisciplinary course on the biochemistry and cellular/molecular biology of free radicals, transition metals, oxidative stress and antioxidants and their roles in health and disease.

NEUR 602 CURRENT TOPICS IN NEUROSCIENCE. (3) (Topic for 2006-07: Topics in Neuroscience) (Prerequisite: Permission of Unit Instructor) Current topics in Neuroscience.

★ **NEUR 603 COMPUTATIONAL NEUROSCIENCE.** (3) A survey of computational methods commonly used to model brain function, including mathematical modeling to describe the relationship between neuronal activity and perception, action, and cognition. Mathematical basis for vision, motor control and attention. Data relevant to brain processes and models explaining these data, using engineering, statistics and artificial intelligence.

NEUR 604 NEUROSCIENCE SEMINAR 3. (3) (Topic for 2006-07: Biology of Neurological Disease) (Offered alternate years - odd numbered years) (Prerequisites: NEUR 630, NEUR 631 or NEUR 610; and permission of instructor) (Enrolment limited to 12) Advanced seminars in neurobiology emphasizing current concepts of the molecular and cellular mechanisms underlying disease of the nervous system and muscle and how the study of disease has contributed to our understanding of cell biology. Topics: genetic mutations responsible for diseases, mechanisms of selective vulnerability of cell populations, and environmental influences.

NEUR 605 NEUROSCIENCE SEMINAR 4. (3) (Topic for 2006-07: Control of Neural Development) (Offered alternate years - odd numbered years) This course focuses on neuronal development and maturation from a molecular aspect. We introduce various model organisms and systems that are used to study molecular aspects of development, explore their particular advantages and explore the cellular and molecular events that contribute to the development of the nervous system.

NEUR 606 METHODS IN NEUROIMAGING. (3) (Prerequisite: Permission of instructor.) An introduction to the design and analysis of neuroimaging experiments in humans.

NEUR 610 CENTRAL NERVOUS SYSTEM. (5) An interdisciplinary course including lectures in neuroanatomy and neurophysiology; laboratories in neuroanatomy, and clinical problems and demonstrations in neurology.

NEUR 630 PRINCIPLES OF NEUROSCIENCE 1. (3) (Prerequisites: BIOL 200 and BIOL 201 or equivalent; permission of instructor) An overview of cellular and molecular neuroscience at the graduate level. Topics include: synthesis, processing and intracellular transport of macromolecules; development of the nervous system including neurogenesis, axonal pathfinding, synaptogenesis and myelination; neuronal survival and response to injury; generation and propagation of action potentials; neurotransmitters and synaptic transmission.

NEUR 631 PRINCIPLES OF NEUROSCIENCE 2. (3) (Prerequisite: A knowledge of basic mechanisms of biology, physiology, and anatomy as covered by respective undergraduate classes is expected and necessary to succeed in this course.) (Restriction: Students must be enrolled in a graduate program at McGill University. Students from other universities, as well as undergraduate students from McGill require special permission from the Instructor.) An overview of the structure, function and interaction of neuronal systems of vertebrates. Topics include basic neuroanatomy, coding and processing of sensory information (somatic sensory, visual and auditory systems), control of posture and voluntary movement, learning and memory, processing of language and speech, cerebral blood flow, the neuroendocrine system and neuroimmunology.

NEUR 695 MASTER'S THESIS RESEARCH 1. (3) Independent work under the direction of the student's supervisor.

NEUR 696 MASTER'S THESIS RESEARCH 2. (6) Independent work under the direction of the student's supervisor.

NEUR 697 MASTER'S PROJECT PROPOSAL. (9) (Restriction: M.Sc. students only) Presentation of a written thesis proposal by the end of the first year in the program. This document stating the hypothesis being tested, relevant literature and methodology will be orally presented to the student's Advisory Committee which will also review the written proposal and communicate its recommendations to the student and the Graduate Studies Committee.

NEUR 698 MASTER'S SEMINAR PRESENTATION. (9) Student's presentation of a thesis research seminar. In this seminar, the student shall explain the direction of his/her research and present his/her findings to date. The presentation shall take approximately 30 to 45 minutes and shall be followed by a question period. This seminar will be attended by the Graduate Studies Committee, the student's Advisory Committee, and interested observers.

NEUR 699 MASTER'S THESIS SUBMISSION. (12) Submission of a Master's thesis.

NEUR 700 DOCTORAL CANDIDACY EXAMINATION. (0) A qualifying examination consisting of a formal presentation and oral examination of the thesis proposal. The questioning will pertain to the student's knowledge and understanding of his/her field of specialization in neuroscience as well as the research proposal. Its primary purpose is to evaluate the student's ability to carry out original scholarship. (The Candidacy Examination course is also conducted as part of the Transfer seminar for all students currently registered in the M.Sc. program who apply for transfer to the Ph.D.)

COURSES IN OTHER DEPARTMENTS

Note: All undergraduate courses administered by the Faculty of Science (courses at the 100- to 500- level) have limited enrolment.

Biology

BIOL 531 NEUROBIOLOGY LEARNING MEMORY. (3) (Fall) (3 hours lecture and discussion) (Prerequisite: BIOL 306 or PHGY 311 or PSYC 308 or NEUR 310 or permission of instructor.) Properties of nerve cells that are responsible for learning and memory. Recent advances in the understanding of neurophysiological, biochemical and structural processes relevant to neural plasticity. Emphasis on a few selected model systems involving both vertebrate and invertebrate animals.

BIOL 532 DEVELOPMENTAL NEUROBIOLOGY SEMINAR. (3) (Winter) (1 hour lecture, 2 hours seminar) (Prerequisites: BIOL 303 or BIOL 306 or permission of instructor.) Discussions of all aspects of nervous system development including pattern formation, cell lineage, pathfinding and targeting by growing axons, and neuronal regeneration. The basis for these discussions will be recent research papers and other assigned readings.

★ **BIOL 588 MOLECULAR/CELLULAR NEUROBIOLOGY.** (3) (Fall) (1 1/2 hours lecture, 1 1/2 hours seminar) (Prerequisite: BIOL 300 and BIOL 306 or permission) Discussion of fundamental molecular mechanisms underlying the general features of cellular neurobiology. An advanced course based on lectures and on a critical review of primary research papers.

Biomedical Engineering

BMDE 501 SELECTED TOPICS IN BIOMEDICAL ENGINEERING. (3) (3-0-6) An overview of how techniques from engineering and the physical sciences are applied to the study of selected physiological systems and biological signals. Using specific biological examples, systems will be studied using: signal or finite-element analysis, system and identification, modelling and simulation, computer control of experiments and data acquisition.

BMDE 650 ADVANCED MEDICAL IMAGING. (3) (Prerequisite: MDPH 607) Review of advanced techniques in medical imaging including: fast magnetic resonance imaging (MRI), functional MRI, MR angiography and quantitative flow measurement, spiral and dynamic x-ray computed tomography, 2D/3D positron emission tomography (PET), basic PET physiology, tracer kinetics, surgical planning and guidance, functional and anatomical brain mapping, 2D and 3D ultrasound imaging, and medical image processing.

Dentistry

DENT 654 MECHANISMS AND MANAGEMENT OF PAIN. (3) (Restriction: Open to all health professionals) Presentation of the neurobiology of pain and analgesia, clinical pain conditions, basic and applied research methods in the study of pain, and the theory and practice of pain management. The course is designed for graduate students interested in pain mechanisms and clinical residents interested in pain management.

Medical Physics

MDPH 607 INTRODUCTION TO MEDICAL IMAGING. (3) (Prerequisite: MDPH 615) A review of the principles of medical imaging as applied to conventional diagnostic radiography, digital subtraction radiography, computed tomography and magnetic resonance imaging. The course emphasizes a linear system approach to the formation, processing and display of medical images.

Physiology

PHGY 556 TOPICS IN SYSTEMS NEUROSCIENCE. (3) (Winter) (Restriction: Permission of the instructor required.) (Restriction: Not open to students who have taken PHGY 456) Topics of current interest in systems neurophysiology and behavioural neuroscience including: the neural representation of sensory information and motor behaviours, models of sensory motor integration, and the computational analysis of problems in motor control and perception. Students will be expected to present and critically discuss journal articles in class.

Psychiatry

PSYT 500 ADVANCES: NEUROBIOLOGY OF MENTAL DISORDERS. (3) (Winter) (3 hours) (Prerequisite (Undergraduate): BIOC 212 and BIOC 311, or BIOC 312, or BIOL 200 and BIOL 201, or PHGY 311, or PSYC 308 and an upper-level biological science course with permission of the instructors, or equivalent. Basic knowledge of cellular and molecular biology is required.) (Restriction: Open to U3 and graduate students only.) (Restriction: Graduate Studies: strongly recommended for M.Sc. students in Psychiatry.) Current theories on the neurobiological basis of most well known mental disorders (e.g. schizophrenia, depression, anxiety, dementia). Methods and strategies in research on genetic, physiological and biochemical factors in mental illness will be discussed. Discussion will also focus on the rationale for present treatment approaches and on promising new approaches.

PSYT 615 ADVANCED STUDIES IN ADDICTION. (3) (Winter) (Prerequisite: PSYT 301 or permission from one of the instructors.) (Restriction: Registered in either a Psychiatry, Psychology, or Neuroscience graduate program.) Critical assessment of research tools, reported data, and theoretical perspectives on drug addiction, with an emphasis on multi-factorial and inter-disciplinary approaches.

PSYT 630 STATISTICS FOR NEUROSCIENCES. (3) Statistics needed for analysing the types of data generated in a laboratory setting, with emphasis on the neurosciences, will be covered. Hypothesis testing, parametric and non-parametric statistics will be studied with a practical approach, using data generated by the students. Computer analysis will be introduced.

Psychology

PSYC 526 ADVANCES IN VISUAL PERCEPTION. (3) (Fall) (2 lectures) We examine in detail the structure of the visual system, and its function as reflected in the perceptual abilities and behaviour of the organism. Parallels are also drawn with other sensory systems to demonstrate general principles of sensory coding.

56 Nursing

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— Madeleine Buck

Assistant Director and Academic Advisor, Graduate Programs —
Franco Carnevale

Associate Director, Research — C. C eleste Johnston

Academic Coordinator and Academic Advisor, Ph.D. Program —
Margaret Purden

56.1 Staff

Emeritus Professor
Elizabeth C. Logan; N., B.Sc.(Acad.), M.Sc.(Yale)

Professors
Nancy Frasure-Smith; B.A., Ph.D.(Johns H.) (*part-time*)
Laurie N. Gottlieb; N., B.N., M.Sc.(A.), Ph.D.(McG.) (*Shaw Professor of Nursing*)
C. C eleste Johnston; N., M.S.(Boston), B.N., D.Ed.(McG.) (*James McGill Professor*)

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H el ene Ezer; N., B.Sc.(N.), M.Sc.(A.)(McG.), Ph.D.(Montr.)
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M elanie Lavoie-Tremblay; N., B.Sc.(N.), M.Sc.(N.), Ph.D.(Laval), Post Doc(Tor.)
Carmen G. Loiselle; N., B.Sc.(N.)(Montr.), M.S., Ph.D.(Wis.-Madison)
Margaret Purden; N., B.Sc.(N.), Ph.D.(McG.)
Sonia Semenic; N., B.A., M.Sc.(A.), Ph.D.(McG.)

Faculty Lecturers
Cheryl Armistead; N., B.Sc.(N.), M.Sc.(N.)(Ott.)
Madeleine M. Buck; N., B.Sc.(N.), M.Sc.(A.)(McG.)
Elaine Doucette; N., B.Sc.(C'dia), B.Sc.(N.), M.Sc.(N.)(Ott.)
Catherine P. Gros; N., B.Sc.(Mass.), M.Sc.(A.)(McG.) (*part-time*)
Fiona Hanley; N., B.A., B.Sc.(N.)(Alta.), M.Sc.(N.)(Montr.)
Sandie Larouche; N., B.Sc.(N.)(Laval), M.Sc.(A.)(McG.)

Contracted Faculty [part-time]
Deborah Abner; N., B.Sc.(N.), M.Sc.(A.)(McG.)
Natalie Anderson ; N., B.Sc.,M.Sc.(A.)(McG.)
Sabrina Berdouk ; N., B.Sc.(N.)(McG.)
Jane Chambers-Evans; N., B.Sc.(N.), M.Sc.(A.)(McG.)

Renee Chauvin; N., B.A.(C'dia), B.Sc.(N.)(Br. Col.), M.Ed.(McG.)
 Luisa Ciofani; N., B.Sc.(N.), M.Sc.(A.)(McG)
 Christina Clausen; N., B.A.(Qu.), M.A., M.Sc.(A.)(McG.)
 Robin Cohen; B.Sc., M.Sc., Ph.D.(McG.)
 Hermes Cornejo; N., B.Sc.(N.)(Chile), M.Sc.(N.)(Montr.)
 Hedda Coronado; N., B.Sc.(N.)(Philippines)
 Josée Davignon; N., B.Sc.(N.)(Montr.)
 Lili del Campo; N., B.Sc.(N.)
 Suzanne Dhaini, N., B.Sc.(N.)(Amer.); M.A. (Ed.) (C'dia)
 Susan Drouin; N., B.N.(UNB), M.Sc.(A.)(McG.)
 Moira Edwards; N., B.A.(C'dia), M.Ed.(McG.)
 Lynda Egglefield; N., B.Sc.(N.), M.Sc.(A.)(McG.)
 Jessica Emed; N., B.A., B.Sc., M.Sc.(A.)(McG.)
 Lucia Fabijan; N., B.Sc.(N.)(Calg.), M.Sc.(A.)(McG.)
 Giuseppina Federici; N., B.Sc.(N.)(McG.)
 Shari Patricia Gagné; N., B.Sc.(N.)(Ott.), M.Sc.(A.)(McG.)
 Elizabeth Garfunkel-Katz; N., B.Sc.(N.)(McG.)
 Marie-Claude Germain; N., B.Sc.(N.)(Montr.)
 Richard Gosselin; M.D.(Laval)
 Selam Gurmu; N., B.Sc.(N.)
 Wendy Higden; N., B.Sc.(N.)(McG.)
 Mélanie Hogue; N., B.Sc.(N.)(Montr.)
 Sudaf Khan; N., B.Sc.(N.), M.Sc.(A.)(McG.)
 Donna Kindrat; N., B.Sc.(N.)(Ott.)
 Andrea Laizner; N., B.Sc.(N.), M.Sc.(A.)(McG), Ph.D.(Penn.), Post
 Doc(Montr.)
 Anne Marie Lanctôt; N., B.A., M.Sc.(A.)(McG.)
 Linda Lee; N., B.Sc.(N.)(McG.)
 Mary Ellen Macdonald; B.A.(McG.), M.A.(Dal.), Ph.D., Post
 Doc(McG.)
 Carline Marchionni; N., B.Sc.(McG.), M.Sc.(John M.),
 M.Sc.(A.)(McG.)
 Anne-Marie Martinez; N., B.Sc.(N.), M.Sc.(N.)(Montr.)
 Linda McHarg; N., B.N., M.Ed.(McG.), Ph.D.(Montr.)
 Lisa Merry; N., B.Sc., M.Sc.(A.)(McG.)
 Linda Morneault; N., B.Sc.(N.)(McG.), M.Sc.(SUNY)
 Frederick Peter Nestel; B.Sc.(McG), M.Sc.(Qu.), Ph.D.(McG.)
 Maggie Newing; N., M.Sc.(A.)(McG.)
 Mary Owen; N., B.A.(C'dia), B.Sc.(N.)(Br. Col.)
 Lisa Peldjak; N., B.Sc.(N.)(Ott.)
 Josette Perreault; N., B.N.(McG.)
 Anna Pevreal; N., B.N.(Griff.), M.B.A.(Qld.)
 Silvia Pistagnesi; N., B.Sc.(N.)(McG.)
 Beverly Rowat; N., B.Sc.(N.), M.Sc.(McG.)
 Emmanuelle Rolland; L.L.B.(Montr.)
 Sarah Shea; N., B.Sc.(N.)(McG.)
 Barbara Webster; N., B.Sc.(N.)(Ott.), M.Sc.(A.)(McG.)
 Rosanna Zappavigna; N., B.Sc.(N.), M.Ed.(McG.)

McGILL UNIVERSITY HEALTH CENTRE (MUHC)

Montreal Children's Site
 Montreal General Site
 Montreal Neurological Site
 Royal Victoria/Montreal Chest Site

McGILL UNIVERSITY TEACHING HOSPITALS AND AFFILIATED CENTRES (MUTHC)

Douglas Hospital
 Jewish General Hospital
 Shriner's Hospital for Children
 St. Mary's Hospital

OTHER TEACHING CENTRES

Batshaw Youth and Family Centre
 Catherine Booth Hospital
 Concordia University Health Clinic
 CSSS Ahuntsic-Montreal Nord
 CSSS Bordeaux-Cartierville-St-Laurent (U of M) (CLSC
 St-Laurent)
 CSSS Cavendish (CLSC NDG-MTL Ouest/René Cassin/CH
 Richardson)
 CSSS de la Montagne (CLSC Côte des Neiges/Méτρο/Parc
 Extension)

CSSS de l'Ouest de l'Île (CLSC Pierrefonds-Lac St Louis)
 CSSS Dorval-Lachine-Lasalle (CLSC Lasalle/Vieux Lachine)
 CSSS Jardins-Rousillon (CLSC Châteauguay)
 CSSS Lucille-Teasdale
 CSSS Montérégie (CLSC Champlain)
 CSSS Pointe de L'Île
 CSSS St. Leonard-St. Michel
 CSSS Sud Ouest Verdun (CLSC St Henri/Verdun/Côte St Paul)
 Cummings Jewish Centre for Seniors
 Dept. de Santé Publique de Montréal
 Fulford Residence
 Griffith-McConnell Residence
 Henri-Bradet Day Center
 Jewish Elder Care Day Centre
 Jewish Rehabilitation Hospital
 Kateri Memorial Hospital
 Lakeshore General Hospital
 Maimonides Hospital Geriatric Centre
 Montreal Heart Institute
 Mount Sinai Hospital
 Northern Quebec Module
 Salvation Army Montclair Residence
 Ste. Anne's Veteran Hospital
 Ste. Margaret's Day Center
 Tulattavik Health Centre Kuujuaq
 West Island Palliative Care Residence
 West Montreal Readaptation Centre
 Yellow Door

DIRECTORS OF NURSING RESEARCH IN TEACHING HOSPITALS

MUHC — Judith Ritchie
Jewish General Hospital — Margaret Purden

Clinical and Affiliated Faculty Members:

Professors

Susan E. French, Judith Ritchie

Associate Professors

Frederick Peter Nestel, Carolyn Pepler, Edith Zorychta

Assistant Professors

Madeleine Boulay-Bolduc, Jane Chambers-Evans, Susan Drouin,
 Margaret Eades, Linda Edgar, Lucia Fabijan, Valerie Frunchak,
 Andrea Laizner, Suzanne Lanctôt, Ariella Lang, Virginia Lee,
 Diane E. Lowden, Ann Lynch, Mary Ellen Macdonald, Linda
 McHarg, Lynne McVey, Michelle Nadon, Patricia O'Connor, Janet
 Rennick, Marie-Claire Richer, Andreanne Saucier, Charles
 Sounan, Linda Ward

Faculty Lecturers

Deborah Abner, Nathalie Aubin, Sophie Baillargeon, Denise
 Bédard, Gisèle Bélanger, Vasiliki Bitzas, Linda P. Boisvert, Diane
 Borisov, Rose Boyle, Sharon Brissette, Franca Cantini, Robin
 Canuel, Isabelle Caron, Lucy Mary-Anne Caron, Luisa Ciofani,
 Christina Clausen, Martine Claveau, Carole Cormier, Hermes
 Cornejo, Esther Dajczman, Cindy Dalton, Danielle J. Drouin,
 Nancy Drummond, Jessica Emed, Charlotte Evans, Donna Fitz-
 Gerald, Constance Forget Falcicchio, Maryse Godin, Iris Gourdji,
 Cynthia Graham-Certosini, Maria Hamakiotis, Norine M.
 Heywood, Rosalie Johnson, Yasmin Khalili, Philippe Lamer, Anne
 Marie Lanctôt, Anne Marie Martinez, Althea Hazel McBean, Lisa
 Merry, Sharon Mooney, Linda Morneault, Maggie Newing,
 Catherine Oliver, Marsha Ptack, Helene Racine, Nathalie
 Rodrigue, Patricia Rose, Christina Rosmus, Rosalia Sanzone,
 Maryse Savoie, Eleanor Scharf, Valerie Joy Schneidman, Melanie
 Sheridan, Rosa Sourial, Diane St-Cyr, Janice Karen Stephenson,
 Gillian Taylor, Claire Thibault, Kelly Thorstad, Lucie Tremblay,
 Jodi Tuck, Antoinetta Vitale, Lucy Wardell, Rosanna Zappavigna

Adjunct Professor

Bruce Gottlieb

Associate Members

Rhonda Amsel, S. Robin Cohen, Mary K. Decell, Jae-Marie Ferdinand, Richard Gosselin, Ronald D. Gottesman, Sophie Nadeau, Claire Dominique Walker

Clinical Instructors

A list of nurses holding a McGill instructor appointment is available at the School of Nursing.

56.1.1 History

The McGill School of Nursing, a professional School within the Faculty of Medicine, has been educating nurses since 1920. The School is internationally recognized for its distinctive vision, leadership in nursing and the quality of its programs. McGill nursing graduates have earned a reputation as outstanding clinicians, educators, researchers, and leaders in the discipline.

Over the years the Faculty of the School at McGill has worked to formulate a philosophy about the responsibilities and practice of nursing. This philosophy, known as the McGill Model of Nursing, directs the curriculum of the programs at the School and emphasizes health, the family, learning and development, collaboration with clients and working with the resources of individuals, families and communities. Its intent is to actively promote health and well-being in people of all ages and across all situations. The McGill Model is also central to the Department of Nursing of the McGill University Health Centre.

The first programs offered at the McGill School of Nursing in the 1920s were intended to develop knowledge and skill for nurses working in the field of community health. In those early years, education programs offered at McGill were directed at nurses holding diplomas from hospital schools. Since 1957 the School has offered a first level undergraduate degree in nursing to university students interested in health care. The increasing complexity of nursing practice, coupled with the rapid growth of knowledge about human behaviour during health and illness led to the development of the Master's program in nursing in 1961. In 1975, the School opened the first direct entry masters program in Nursing. This program, which remains the only one of its kind in Canada, admits students with a B.A. or B.Sc. in the social or biological sciences and selected course requisites to a three year clinically based program of study that leads to a Masters degree in Nursing and to licensure as a registered nurse. In 1994, the joint Doctoral program began in collaboration with the University of Montreal. Continuing its long tradition of innovation and responsiveness, in 2004, the School opened a new Bachelor of Nursing degree for students who complete the DEC 180.A.0 in Quebec and meet the University entrance requirements. The neonatal nurse practitioner program opened in 2005 and the nurse practitioner program in primary care in 2007.

The first doctoral degree in nursing in Canada was awarded at McGill in 1990. In addition the McGill School continues to publish the Canadian Journal of Nursing Research, Canada's first refereed journal of research and scholarly papers in nursing.

The School is located in Wilson Hall, which houses classrooms, learning labs, computer facilities, faculty offices, and lounges. Students registered in the School also take courses in other faculties within the University. Selected experience in nursing is provided in the McGill University Health Centre, other McGill affiliated hospitals, and in a wide variety of health agencies in Montreal.

56.2 Programs Offered

For information on undergraduate Nursing programs, please consult the *Health Sciences Calendar*.

Master's Program: Master of Science (Applied)

The objective of this program is to prepare specialists in nursing able to participate in the development, implementation and management of services in all domains of health care. Opportunity is provided for the advanced clinical study of nursing, and for incorporating research and evaluation methods in the investigation of nursing problems.

Students entering the Master's program may select between two areas of study. The clinical stream is intended to prepare students for clinical nurse specialist or nurse practitioner roles in selected areas. The adjunct area is available for students wishing to plan an individual program of study in such areas as nursing administration or global health.

Graduate Diploma in Nursing

The graduate diploma in nursing prepares students with completed graduate studies in the discipline and experience in a specialty area to assume new roles as nurse practitioners. The program of study focuses on the acquisition of advanced level knowledge from the biomedical sciences and application of knowledge in the context of the nurse practitioner role. Graduate diplomas are offered in selected specialty areas only.

Doctoral Studies: Ph.D. in Nursing

The School of Nursing of McGill University and the Faculté des Sciences Infirmières of the Université de Montréal offer a joint doctorate program leading to a Ph.D. in Nursing. This program is offered in English at McGill. A cross-disciplinary option in psychosocial oncology is offered in collaboration with the Department of Psychology at McGill.

The program is designed to train nurse scientists who will make a contribution to the advancement of knowledge in the discipline of nursing and assume a leadership role both in the profession and in the health care system.

56.3 Admission Requirements

PROFICIENCY IN ENGLISH

The language of instruction at McGill University is English. Students must write term papers, examinations and theses in English or in French. Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone) must submit documented proof of competency in oral and written English. **Before acceptance**, appropriate exam results must be submitted directly from the TOEFL (Test of English as a Foreign Language - www.toefl.org) or IELTS (International English Language Testing Systems - www.ielts.org) Office. An institutional version of the TOEFL is not acceptable. Applications will not be considered if a TOEFL or IELTS test result is not available. TOEFL exam requirements: a minimum score of 600 (paper-based) or 250 (computer-based) or 100 with each component score no less than 20 (internet based). IELTS exam requirements: a minimum overall score 7.5 is required.

Students who have not completed their studies in North America will be asked to arrange for an interview as part of the application process.

GRE (Graduate Record Examination) general test results may be required in individual circumstances.

MASTER'S PROGRAMS

Our graduate programs offer applicants the possibility of developing a program of study that fits with their career plans. The programs are intended to enable students to assume roles as clinical nurse specialists in a variety of different areas, as neonatal and primary care nurse practitioners, or to tailor their program towards a career in administration or in global health studies.

Nurse applicants to the Master's program may complete their studies on a part-time basis, i.e., minimum of 6 credits per term to a maximum of four years.

All nurse applicants are expected to hold current registration in the province or country from which they come. Nurses who are not licensed in Quebec must be registered with the Ordre des infirmières et infirmiers du Québec.

International nurse applicants are required to have had experience as nurses in their country of origin and in North America (recommended).

B.A./B.Sc. APPLICANTS

Applicants holding a general B.Sc. or B.A., including a number of prerequisite courses, may be admitted to a Qualifying Year. A minimum cumulative CGPA (Grade Point Average) of 3.0 (3.2 is strongly preferred) on a scale of 4.0 is required in order to be considered for entry. Upon successful completion of the Qualifying Year, candidates apply to the Master's program. Persons prepared in another professional discipline or in nursing are not eligible for this program.

Direct-Entry applicants must complete their Qualifying Year and the Master's program of study on a full-time basis, i.e., total of three years.

Applicants should make arrangements to obtain C.P.R. (Cardio-Pulmonary Resuscitation) certification prior to entry into the Qualifying year. Applicants will be asked to provide proof of certification once registered in the program.

NURSE APPLICANTS (NURSING BACHELOR'S ENTRY - NBE)

Applicants for the Master's degree must have completed a bachelor's degree in nursing with a minimum CGPA of 3.0 on a scale of 4.0. This preparation must be comparable to that offered in the bachelor's program at McGill. An introductory statistics course (3 credits) is required. Experience in Nursing is recommended. (Nurse applicants may already have CPR certification; if not they must obtain one prior to entry.)

GRADUATE DIPLOMA IN NURSING

Applicants must hold a Master's degree in Nursing comparable to McGill with a minimum CGPA of 3.2 on a 4.0 scale required. Prior to entry, applicants should have a minimum of 2 years of experience in the United States and in Canada, in the specialty area over the previous 5 years.

PH.D. PROGRAM

Applicants admitted to the Doctoral program through McGill University must have completed Master's level studies with either their undergraduate or graduate degree in nursing. Applicants must have a GPA of 3.3 on a scale of 4.0 or a high B standing.

56.4 Application Procedures

McGill's online application for graduate program candidates is available at www.mcgill.ca/applying/graduate.

M.Sc.(A)Program

(Nurse Bachelor entry candidates) (Direct-entry applicants apply to the M.Sc.(A) program online and if admitted these candidates will be entering the Qualifying Year):

- International deadline: March 1, 2009
- Canadian deadline: March 1, 2009

See Nursing Web at www.nursing.mcgill.ca for more information on the Application Process as well as the supporting documents required in addition to the Minerva on-line application.

Graduate Diploma in Nursing

See Nursing Web at www.nursing.mcgill.ca for more information on the Application Process.

Ph.D. Program

Before submitting an application on Minerva, applicants must have been in contact with a faculty member who could serve as a potential supervisor. The faculty member, after reviewing the completed application indicates in writing agreement to supervise. If applicable, applicants must also submit their TOEFL or IELTS score as early as possible in the application process.

Applicants must provide the following information:

1. An up-to-date C.V.
2. Two official copies of academic transcripts (undergraduate and graduate).
3. A sample of written scholarly work, preferably in which the applicant is the sole or primary author (25 pages or less). Examples are: A published or unpublished manuscript illustrative of concept

analysis, an in-depth literature review in a focused area or a research report (international students whose original scholarly writing is not in English or French should submit a copy of the writing translated into English or French).

4. A statement letter (3-4 pages):

- a. Why are you pursuing doctoral study in nursing science?
- b. Why did you specifically select a Ph.D. in nursing science at McGill?
- c. Please comment on your qualifications and readiness for doctoral study.
- d. What are your long-term career goals, and how do you see the program contributing to meeting them?
- e. Briefly describe a problem area in nursing science on which you think you would like to focus.
- f. List potential thesis supervisor(s) with whom you have had contact

5. Letters of reference from two professors who are familiar with the candidate's academic work and who can comment on his/her research aptitudes.

O.I.I.Q. (Ordre des infirmières and infirmiers du Québec) registration required only if candidate is planning to practice as a nurse in Québec.

- International deadline: February 1, 2009
- Canadian deadline: March 1, 2009

56.5 Registration and Regulations

Official registration through Minerva must be completed by the Orientation Session in August. Students registering late for reasons unrelated to the admission procedure are subject to the late payment fee.

New students will be informed by the School of Nursing regarding the Advising/Orientation session held around the end of August. Information related to the selection of the elective courses will be included in the registration package sent by the School of Nursing directly to the applicant.

Returning students are responsible for ensuring that registration is complete as per university timetables.

Course Requirements

Students are provided with the course objectives, requirements and methods of the mean of evaluation at the beginning of each course. Students will not be permitted to write an examination in any course unless they have fulfilled the requirements, including attendance.

Vaccination/Immunization Requirements

New students in the School of Nursing must refer to the Vaccination Requirements outlined in the *General Information, Regulations and Research Guidelines* in the Health Sciences Calendar. A copy of the immunization form outlining requirements can be found at www.mcgill.ca/studenthealth/immunization. Annual flu vaccination is strongly recommended. Entry into the McGill University Teaching Hospital Network is dependent on having met the immunization requirements. All students must have immunizations complete (or in process for hepatitis B) by the start of clinical rotations in September.

CPR and First Aid Requirements

Valid First Aid and CPR Certification (level C) is required no later than September 15th of the Qualifying year of the Master's program. This Certification must be maintained throughout the program of study.

Achievement Builders - Student Services

Any student who is experiencing difficulty in meeting course requirements must take advantage of the Achievement Builders Program offered through Student Services. Information is available at: www.mcgill.ca/firstyear/achievementbuilders.

Regulations Concerning Clinical Placements Courses

- Students must be registered with the O.I.I.Q. before they can have access to clinical placements. Students who have not completed the registration procedure cannot commence clinical studies.
- Students must have met the vaccination/immunization requirements prior to commencing clinical studies in September.
- Students are required to purchase equipment such as a stethoscope and physical-assessment equipment. Information is provided at registration or within specific courses.
- Students are expected to demonstrate professional behaviour at all times. The Code of Ethics for Nurses and the McGill University Code of Student Conduct (as outlined in the Handbook Student rights and Responsibilities) provide guidelines. Professional behaviour is expected in relation to classmates, teachers, patients, and the institutions within which studies take place.
- In any formal documentation, students must identify themselves as a McGill Nursing Student with the respective year of study noted. Name badges must be worn at all times in clinical studies (these are ordered in the fall semester of the first year of studies) and students must comply with the uniform policy during clinical placements.
- Attendance in clinical courses is mandatory and absences must be discussed with the instructor. Students with repeat absences may be asked to defer clinical studies if progress in the clinical course is compromised.
- Students whose performance in clinical studies does not meet the course objectives will be informed in writing and a learning plan will be developed. Students whose performance is below expectations or who are unsafe in clinical studies may be required to withdraw from the course at any time
- Students who are identified as below expectations or considered to be incompetent or unsafe in clinical studies can be required to withdraw from the course at any time - in this case the student will receive a grade of WF or F.
- While an effort is made to place students within reasonable travelling distance for clinical studies, each student must budget a sum of money to travel to and from a patient home and clinical institutions.
- Clinical courses that are offered during the summer session may require that students study during the day time, evening and weekends.
- Clinical agencies may require students entering their facility to undergo a Criminal Reference Check prior to being granted permission to enter their facility.

Requirements for Licensure

Following completion of a 1st level program in nursing, graduates must obtain licensure from the professional organization in the province or state in which they complete their studies. In Quebec, the O.I.I.Q. (Ordre des infirmières et infirmiers du Québec) administers the professional examination for graduates of all nursing programs in Quebec. The examination can be written in English. Students intending to practice in Quebec, but who do not meet the language eligibility requirements, must also complete a French language proficiency exam with l'Office de la langue Française within 2 years after graduation.

While reciprocal agreements concerning licensure exist between most provinces and states, practices may vary. Graduates may have to write more than one licensure examination. Therefore, it is recommended that students who do not plan to practice nursing in Quebec should contact their province or state of origin to obtain the current information regarding licensure requirements.

Ordre des infirmières et infirmiers du Québec
4200, boulevard Dorchester Ouest
Montréal (Québec) H3Z 1V4
Telephone: (514) 935-2505; Toll Free: 1 (800) 363-6048
E-mail: inf@oiq.org
Website: www.oiq.org

56.6 Program Requirements

MASTER'S PROGRAMS

The general rules concerning higher degrees apply. (See the Graduate and Postdoctoral Studies Office General Information and Regulations.) A minimum of two years of full-time study (or equivalent) is required for the Master's programs.

M.Sc. A. Program (48 to 60 credits)

48 credits - Nurse Bachelor Entry - (Adjunct)
49 credits - Nurse Bachelor Entry - (Clinical)
53 credits - Direct-entry - (Clinical)
60 credits - Nurse Bachelor Entry - (Nurse Practitioner)

Required Courses (All Streams) (30 credits)

NUR2 515 (3) Applied Statistics for Nursing
NUR2 611D1/D2 (6) Seminar in Nursing
NUR2 612 (3) Research Methods in Nursing 1
NUR2 614D1/D2 (6) Clinical Laboratory - Nursing 1
NUR2 626 (3) Professional Issues in Nursing
NUR2 630 (3) Clinical Project 1
NUR2 631 (3) Clinical Project 2
NUR2 642 (3) Ethics in Advanced Practice

Complementary Courses (18 to 30 credits)

23 credits - Direct Entry students (clinical)
19 credits - Nursing Bachelors Entry students (clinical)
30 credits - Nursing Bachelors Entry students (Nurse Practitioner)
18 credits - Nursing Bachelors Entry students (adjunct)

Students should consult with the program advisor regarding the recommended courses for each stream of study. Students take the appropriate number of credits from the following list of courses:

NUR2 615 (3) Health Care Evaluation
NUR2 616 (4) Advanced Clinical Skills
NUR2 623 (3) Clinical Assessment and Therapeutics
NUR2 624 (4) Clinical Laboratory in Nursing 2
NUR2 627 (3) Nursing Practicum
NUR2 628 (4) Advanced Assessment
NUR2 640 (4) Clinical Reasoning 1
NUR2 641 (4) Clinical Reasoning 2
NUR2 643 (3) Role Development
NUR2 644 (3) Special Topics 1
or NUR2 645 (3) Special Topics 2
or NUR2 646 (3) Special Topics 3
or NUR2 647 (3) Special Topics 4
NUR2 650 (8) Practitioner Internship

or other graduate level courses in consultation with faculty advisor.

QUALIFYING YEAR (41 credits)

(non-nurse applicants entering with B.A. or B.Sc.)

Fall Term

NUR1 222 (1) McGill Model of Nursing
NUR2 511D1 (3) Practice of Nursing Part 1
NUR2 514D1 (5) Clinical Laboratory in Nursing

2 complementary courses*

Winter Term

NUR1 235 (4) Health and Physical Assessment
NUR2 511D2 (3) Practice of Nursing Part 1
NUR2 514D2 (5) Clinical Laboratory in Nursing

2 complementary courses*

Summer Term

NUR2 512 (8) Practice and Theory in Nursing

***Complementary Courses:** A total of 12 credits from Physiology, Pathology, and Pharmacology, social sciences and nursing, are chosen in consultation with faculty to complement the student's previous academic background.

Students must successfully complete the Qualifying Year with a minimum of B- in all courses and be recommended by the Standing and Promotions Committee for entry to the Master of Science (Applied) Program. Students in the Qualifying Year will be required to submit an online application to the Master's of Science (Applied) by the application deadline.

Graduate Diploma in Nursing (30 credits)

Required Courses (27 credits)

NUR2 616	(4)	Advanced Clinical Skills
NUR2 628	(4)	Advanced Assessment
NUR2 630	(3)	Clinical Project 1
NUR2 640	(4)	Clinical Reasoning 1
NUR2 641	(4)	Clinical Reasoning 2
NUR2 650	(8)	Practitioner Internship

Complementary Course (3 credits)

3 credits, one of the following courses:

NUR2 644	(3)	Special Topics 1
NUR2 645	(3)	Special Topics 2

Ph.D. PROGRAM

Each student's program is designed with the thesis supervisor taking into account the student's previous academic preparation, needs and research interests. The requirements for the doctoral degree are:

- Two years of full-time residence (or equivalent). A student who has obtained a Master's degree at McGill University or at an approved institution elsewhere may, on the recommendation of the School, be registered in the second year of the Ph.D. program.
- A minimum of 18 credits beyond the Master's level. Courses and seminars in research design, issues of measurement, advanced nursing, development of theory in nursing, advanced statistics and complementary course(s) in the student's major field of study are compulsory. The student's program is decided in consultation with the thesis supervisor. The following table outlines the suggested sequence of courses for the program:

Ph.D. Year 2:

NUR2 702	(3)	Quantitative Research
NUR2 703	(3)	Issues of Measurement
NUR2 730	(3)	Theory Development in Nursing

Selected courses (Statistics, complementary or substantive courses)*

Ph.D. Year 3:

NUR2 780	(3)	Advanced Nursing
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Selected courses (Statistics, complementary or substantive courses)*

NUR2 701	(1)	Comprehensive Examination
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* A minimum of 3 credits in advanced statistics and substantive courses is planned with the thesis supervisor.

- Successful defence of the thesis proposal (Comprehensive Examination)
- Dissertation and Ph.D. Oral Defense examination

Ph.D. in Nursing – Psychosocial Oncology Option/Concentration (PSO)

All doctoral Nursing students registered in the Psychosocial Oncology Option complete the courses listed below. The Ph.D. thesis topic must be germane to psychosocial oncology and approved by the the P.S.O. coordinating committee..

Required Courses

NUR2 702	(3)	Quantitative Research
NUR2 703	(3)	Issues of Measurement
NUR2 730	(3)	Theory Development in Nursing

Selected course(s) (Statistics)*

NUR2 780	(3)	Advanced Nursing
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NUR2 783	(3)	Psychosocial Oncology Research
NUR2 705	(3)	Palliative Care in Cancer
NUR2 701	(1)	Comprehensive Examination

* A minimum of 3 credits in advanced statistics

Complementary Course (3 credits)

One of the following courses:

PSYC 505	(3)	The Psychology of Pain
PSYC 507	(3)	Emotions, Stress, and Illness
PSYC 753	(3)	Health Psychology Seminar 1
SWRK 609	(3)	Understanding Social Care
SWRK 668	(3)	Life-Threatening Illness and Bereavement

56.7 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click **Class Schedule**) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. **Class Schedule lists courses by term and includes days, times, locations, and names of instructors.**

Details of the courses to be offered in the current year are also available from the School.

Courses with numbers ending D1 and D2 are taught in two consecutive terms (most commonly Fall and Winter). Students must register for both the D1 and D2 components. No credit will be given unless both components (D1 and D2) are successfully completed in consecutive terms.

The course credit weight is given in parentheses after the title.

QUALIFYING PROGRAM

NUR1 222 MCGILL MODEL OF NURSING. (1) This introductory course provides an overview of the history and the philosophical and theoretical tenets underlying the core concepts of the Model. Students are introduced to McGill's perspective on health, family, learning, and collaborative nursing through a study of selected theoretical and research papers.

NUR1 235 HEALTH AND PHYSICAL ASSESSMENT. (4) This course will develop basic knowledge and skills required to do a health history and to carry out basic physical assessment in infants, children, and adults.

NUR2 511D1 (3), NUR2 511D2 (3) PRACTICE OF NURSING PART 1. (Students must register for both NUR2 511D1 and NUR2 511D2.) (No credit will be given for this course unless both NUR2 511D1 and NUR2 511D2 are successfully completed in consecutive terms) A study of selected concepts related to the practice of nursing including health, family, normative life transitions and interpersonal interaction. The major focus is on developing an understanding of human behaviour using the process of scientific inquiry. Special emphasis is placed on the observation of people in their physical and social environments and on the analysis of clinical data as the basis for the development of innovative nursing approaches.

NUR2 512 PRACTICE AND THEORY IN NURSING. (8) Learning to nurse patients in acute care settings, who are experiencing a variety of common illness-related problems.

NUR2 514D1 (5), NUR2 514D2 (5) CLINICAL LABORATORY IN NURSING. (Students must register for both NUR2 514D1 and NUR2 514D2.) (No credit will be given for this course unless both NUR2 514D1 and NUR2 514D2 are successfully completed in consecutive terms) Learning to nurse through field experiences with individuals and families in the community and in acute care settings. The focus is on the application of knowledge and theory in practice and includes the testing and analysis of nursing approaches. Students work with clients and families experiencing a variety of life events including aging, birth and parenting as well as acute illness and hospitalization.

GRADUATE PROGRAM

NUR2 611D1 (3), NUR2 611D2 (3) SEMINAR IN NURSING. (Students must register for both NUR2 611D1 and NUR2 611D2) (No credit will be given for this course unless both NUR2 611D1 and NUR2 611D2 are successfully completed in consecutive terms) A critical study of selected concepts in nursing and health related to individuals and families. An introduction to the study of concepts and theories relevant to nursing.

NUR2 612 RESEARCH METHODS IN NURSING 1. (3) Basic knowledge and skills needed to conduct research. The philosophy and principles of scientific inquiry, research design, sampling, techniques of data collection, ethics, and incorporating research into practice are discussed with emphasis for nursing.

NUR2 614D1 (3), NUR2 614D2 (3) CLINICAL LABORATORY - NURSING 1. (Students must register for both NUR2 614D1 and NUR2 614D2) (No credit will be given for this course unless both NUR2 614D1 and NUR2 614D2 are successfully completed in consecutive terms) Field experience in nursing to test and develop concepts critical to the health of individuals and families. The examination of theories relevant to nursing practice in the clinical field.

NUR2 615 HEALTH CARE EVALUATION. (3) An evaluation of educational and health care systems with particular reference to the nursing input in problems of health, health care and health care delivery. Evaluative research includes qualitative and quantitative approaches to assessing health status and quality of care.

NUR2 616 ADVANCED CLINICAL SKILLS. (4) Supervised clinical experiences in health care agencies are aimed at developing competence in technical and family nursing skills at an advanced level. Experience is determined on an individual basis according to learning needs and the student's area of interest.

NUR2 620 CURRENT THEORIES OF NURSING. (2) (Prerequisites: NUR2 611, NUR2 614 or equivalent) Current theories of nursing e.g. Orem, Roy, King, Rogers are examined along with their implications for practice, curriculum, administration, and research. The internal and external adequacy of these theories will be evaluated using selected schema. Critical analysis of issues and problems of theories in a practice discipline will be undertaken.

NUR2 621D1 (3), NUR2 621D2 (3) SEMINAR IN NURSING 2. (Students must register for both NUR2 621D1 and NUR2 621D2) (No credit will be given for this course unless both NUR2 621D1 and NUR2 621D2 are successfully completed in consecutive terms) An opportunity for investigation of some of the critical problems in nursing as related to the student's area of inquiry. Particular emphasis is placed on theory development in nursing.

NUR2 623 CLINICAL ASSESSMENT AND THERAPEUTICS. (3) (Prerequisites: PATH 300; PHGY 201, PHGY 202 or equivalent.) Development of skills in the medical-nursing assessment and management of patients and families dealing with chronic and life-threatening illnesses. Includes instruction in history-taking and physical assessment.

NUR2 624 CLINICAL LABORATORY IN NURSING 2. (4) Field experience in nursing, incorporating extensive assessment, experimentation and evaluation of differing nursing approaches.

NUR2 625 CLINICAL LABORATORY IN NURSING 3. (6) Field experience in nursing, incorporating extensive assessment, experimentation and evaluation of differing nursing approaches.

NUR2 626 PROFESSIONAL ISSUES IN NURSING. (3) An examination of theories of learning and organizational behaviour as related to the preparation of nurses for the delivery of health care services. Implications of these theories for the assessment, development, and evaluation of nursing programs will be investigated.

NUR2 627 NURSING PRACTICUM. (3) Research, administrative or teaching projects in nursing are defined by interested faculty and developed with students. The goal is to promote and enhance scholarly activity and productivity. At completion, there should be some final product such as a manuscript, a data collection system set-up, or the synthesis of pilot data.

NUR2 628 ADVANCED ASSESSMENT. (4) (Prerequisite: NUR1 235 or permission of instructor.) Development of advanced skills in health assessment and physical examination of clients across the life span, including diagnostic tests and interventions, documentation and follow-up.

NUR2 630 CLINICAL PROJECT 1. (3) Identification of a clinical problem and development of a project to test or implement best-practice approaches.

NUR2 631 CLINICAL PROJECT 2. (3) (Prerequisite: NUR2 630.) Implementation of a project plan related to best practice approaches in health care delivery.

NUR2 635 PAIN MEASUREMENT IN CHILDREN. (3) (Prerequisite: Graduate-level course in inferential statistics and graduate or undergraduate course in child development, or permission of the instructor.) (Restriction: Health Sciences or Psychology graduate students or permission of the instructor.) Research issues surrounding the measurement of pain throughout childhood. Topics include measurement theory, theoretical and conceptual definitions of pain in children, scale construction, format and scaling issues, reliability, validity, clinical utility, developmental considerations, self-report formats, observational formats, physiological indicators of pain.

NUR2 640 CLINICAL REASONING 1. (4) (Prerequisites: PHGY 201, PHGY 202 or PHGY 209, PHGY 210; PATH 300; PHAR 300; or permission of instructor.) Advanced patho-physiology of diseases across the lifespan, decision-making, and interventions for advanced practice related to illness management.

NUR2 641 CLINICAL REASONING 2. (4) (Prerequisite: NUR2 640.) Advanced pathophysiology and advanced practice interventions in selected illness situations and in a multiple-problem context, including independent clinical reasoning in the management of health and illness concerns.

NUR2 642 ETHICS IN ADVANCED PRACTICE. (3) Analysis of common as well as complex ethical issues in advanced nursing practice. General ethical standards for professional practice are reviewed as well as selected controversies.

NUR2 643 ROLE DEVELOPMENT. (3) Development of advanced practice roles, including professional and legal accountability, interdisciplinary practice, planning change, conflict resolution, referral, and consultation.

NUR2 644 SPECIAL TOPICS 1. (3) Health and illness management issues for nurse practitioners in neonatology.

NUR2 645 SPECIAL TOPICS 2. (3) Health and illness management issues for nurse practitioners in oncology.

NUR2 646 SPECIAL TOPICS 3. (3) Health and illness management issues for nurse practitioners in cardiac and critical care.

NUR2 647 SPECIAL TOPICS 4. (3) Health and illness management issues for nurse practitioners in nephrology.

NUR2 650 PRACTITIONER INTERNSHIP. (8) Supervision of clinical practice for nurse practitioner roles.

NUR2 650D1 (4), NUR2 650D2 (4) PRACTITIONER INTERNSHIP. (Students must register for both NUR2 650D1 and NUR2 650D2.) (No credit will be given for this course unless both NUR2 650D1 and NUR2 650D2 are successfully completed in consecutive terms.) Supervision of clinical practice for nurse practitioner roles.

NUR2 701 COMPREHENSIVE EXAMINATION. (1)

NUR2 702 QUANTITATIVE RESEARCH. (3) Examination of various experimental, quasi-experimental, correlational, and survey designs with particular focus on the use of these designs in nursing research.

NUR2 705 PALLIATIVE CARE IN CANCER. (3) (Note: Required for the Psychosocial Oncology Option for Ph.D. students in the School of Nursing and Dept. of Psychology. Other Ph.D. students are welcome to join.) Psychosocial aspects of care as an integral part of whole person care for people living with a life-threatening illness.

NUR2 706 QUALITATIVE NURSING RESEARCH. (3) (Corequisite: NUR2 702) (Restriction: Enrolled in Ph.D. in Nursing or permission of instructor) Advanced examination of the utilization of qualitative research in nursing.

NUR2 720 NURSING WORKFORCE DETERMINANTS. (3) Factors affecting the planning and management of the nursing workforce in the context of forecasting models, demographic changes, public organizational response, models of organizational behavior and determinants of nursing sensitive outcomes, and productivity.

NUR2 730 THEORY DEVELOPMENT IN NURSING. (3) (Prerequisite: NUR2 620 or equivalent) This course surveys the history of nursing theory development with special emphasis placed on the approaches theory development and the factors affecting these approaches. Issues such as the level of theory, where theory derives are examined in light of the needs of a practice discipline. Future directions for theory development in nursing are explored.

NUR2 780 ADVANCED NURSING. (3) (3 hours seminar weekly) (Prerequisite: NUR2 621, NUR2 624, NUR2 625 or equivalent and permission of instructor) An in-depth analysis of selected issues and developments within nursing and health care. Included will be topics relevant to the areas of research and clinical expertise of the student and faculty.

NUR2 783 PSYCHOSOCIAL ONCOLOGY RESEARCH. (3) (Restriction: Open to doctoral students and postdoctoral fellows in health sciences, social work, psychology, management and by permission of the instructor.) This seminar focuses on evidence-based research developments in psychosocial oncology. Students will explore state-of-the-art theory, research methods, findings, and intervention programs from a variety of disciplines including nursing, psychology, medicine, health services management and social work that have contributed to the emergent field of psychosocial oncology.

57 Occupational Health

Department of Epidemiology, Biostatistics and Occupational Health
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Canada

Website: www.mcgill.ca/occh

Chair — R. Fuhrer

M.Sc.(A) (Resident) and Ph.D. programs:
Telephone: (514) 398-6258
Fax: (514) 398-8851
E-mail: graduate.occh@mcgill.ca

M.Sc.(A) (Distance Education) program:
Telephone: (514) 398-6989
Fax: (514) 398-7153
E-mail: dist.occh@mcgill.ca
Website: www.mcgill.ca/occh/programs/distance

57.1 Staff

Emeritus Professors

M.R. Becklake; M.B.B.Ch., M.D.(Witw.), F.R.C.P.
J.C. McDonald; M.D., B.S.(Lond.), M.Sc.(Harv.), F.R.C.P.(C)

Professors

M. Abrahamowicz; Ph.D.(Cracow) (*James McGill Professor*)
J.F. Boivin; M.D.(Laval), S.M., Sc.D.(Harv.) (*on leave*)
E.L.F. Franco; M.P.H., Dr.P.H.(Chapel Hill) (*James McGill Professor*)
R. Fuhrer; B.A.(CUNY (Brooklyn College)), M.Sc., Ph.D.(UCSF) (*Canada Research Chair*)
T.W. Gyorkos; B.Sc.(McG.), M.Sc.(Bishop's), Ph.D.(McG.)
J.A. Hanley; B.Sc., M.Sc.(N.U.I.), Ph.D.(Wat.)

J. Heymann; B.A.(Yale), M.P.H., M.D., Ph.D.(Harv.) (*joint appt. with Political Science*) (*Canada Research Chair*)
C. Infante-Rivard; M.D.(Montr.), M.P.H.(Calif.-LA), Ph.D.(McG.), F.R.C.P.(C) (*James McGill Professor*)

L. Joseph; M.Sc., Ph.D.(McG.)
M.S. Kramer; B.A.(Chic.), M.D.(Yale) (*joint appt. with Pediatrics*) (*James McGill Professor*)
A. Lippman; B.A.(C'nell), Ph.D.(McG.)
J. McCusker; M.D., C.M.(McG.), M.P.H., Ph.D.(Col.)
R. Menzies; M.D., C.M., M.Sc.(McG.) (*joint appt. with Medicine*)
O.S. Miettinen; M.D.(Helsinki), M.P.H., M.S., Ph.D.(Minn.)
G. Paradis; M.D., M.Sc.(McG.)
I.B. Pless; B.A., M.D.(W. Ont.) (*joint appt. with Pediatrics*)
S.H. Shapiro B.S.(Bucknell), M.S., Ph.D.(Stan.)
S. Suissa; M.Sc.(McG.), Ph.D.(Flor.) (*joint appt. with Medicine*) (*James McGill Professor*)
R. Tamblyn; M.Sc.(McM.), Ph.D.(McG.) (*joint appt. with Medicine*) (*James McGill Professor*)
G. Thériault; M.D.(Laval), M.I.H., Dr. P.H.(Harv.)
C. Wolfson; B.Sc., M.Sc., Ph.D.(McG.) (*joint appt. with Medicine*)
S. Wood-Dauphinee; B.Sc.(Phys.Ther.), Dip. Ed., M.Sc.A., Ph.D.(McG.) (*joint appt. with Physical and Occupational Therapy*)

Associate Professors

A. Ciampi; M.Sc., Ph.D.(Qu.), Ph.D.(Rome)
A. Dufresne; B.Sc., M.Sc.(Que.), Ph.D.(McG.)
P. Héroux; B.Sc.(Laval), M.Sc., Ph.D.(I.N.R.S.)
J. Pickering; B.A.(Tor.), M.D., M.Sc.(McG.) (*joint appt. with Medicine*)
R.W. Platt; M.Sc.(Man.), Ph.D.(Wash.) (*joint appt. with Pediatrics*)
M. Rossignol; B.Sc., M.D.(Sher.), M.Sc.(McG.), F.R.C.P.(C)
N. Steinmetz; B.Sc., M.D., C.M.(McG.), M.P.H.(Mich.), F.R.C.P.(C)
P. Tousignant; B.A., M.D.(Laval), M.Sc.(McG.), F.R.C.P.(C) (PT)

Assistant Professors

A. Adrien; M.D., M.Sc.(McG.)
J. Atherton; M.Sc.(MIT), Ph.D.(McG.)
A. Benedetti; B.Sc., M.Sc., Ph.D.(McG.) (*joint appt with Medicine*)
D. Buckeridge; MD(Qu.), M.Sc.(Tor.), Ph.D.(Stan.) (*Canada Research Chair*)
J. Cox; M.D.(Dal.) M.Sc.(McG.) (*joint with Family Medicine*)
N. Dendukuri; M.Sc.(Indian I.T.), Ph.D.(McG.) (PT)
E. Loucks; B.Sc., Ph.D.(Br. Col.) (*joint appt. with Psychiatry*)
A. Manges; B.A.(Col.), M.P.H., Ph.D.(Calif., Berk.)
E.E.M. Moodie; B.A.(Winn.), Ph.D.(Wash.)
M. Pai; MBBS(Stanley Medical College), MD(Christian Medical College), Ph.D.(Calif., Berk.)
L. Patry; B.Sc., M.D.(Laval), F.R.C.P.(C) (PT)
A. Quesnel-Vallee; B.A., M.Sc.(Montr.), M.A., Ph.D.(Duke) (*joint with Sociology*)
E. Strumpf; B.A.(Smith), Ph.D.(Harv.) (*joint with Economics*)
G. Tan; D.Phil.(Oxf.) (PT)

Associate Members

Dentistry: P. Allison, J. Feine; *Pediatrics*: G. Dougherty, F. Ducharme, B. Foster, G. Pekeles, C. Quach-Thanh; *Family Medicine*: T. Tannenbaum; *Dietetics and Human Nutrition*: K. Gray-Donald; *Geography*: N. Ross; *Medicine*: A. Barkun, M. Behr, S. Bernatsky, T. Brewer, J. Bourbeau, P. Brassard, J. Brophy, A. Clarke, K. Dasgupta, P. Dobkin, M. Eisenberg, P. Ernst, M. Goldberg, S. Kahn, M. Klein, E. Latimer, J.D. MacLean, N. Mayo, L. Pilote, E. Rahme, K. Schwartzman, M. Sewitch, I. Shrier, V. Tagalakis; *Pathology*: B. Case; *Psychiatry*: N. Schmitz, B. Thombs

Lecturers

J. P. Gauvin, M. Malowany, B. Pathak, W. Wood

Instructors

P. Dubé

Adjunct Professors

Direction régionale de la santé publique: R. Allard, M. Baillargeon, Y. Bonnier-Viger, R. Lessard, E. Robinson; *Hôpital Hôtel-Dieu*: J. Leloir; *Hôpital Sacre-Cœur*: D. Gautrin; *Statistics Canada*: J. Berthelot; *U. de Montréal*: J. Siemiatycki; *IRSST*: C. Dion; *Cree Council of Quebec*: F. Richer; *Caro Research*: J. Caro;

Alcan: I. Arnold, S. Martin; *Stabilis:* P. Simon; *Mount Sinai:* M. Baltzan; *INSPQ:* R. Masse, P. Robillard, S. Stock; *Univ. of Sherbrooke:* E. Roy; *Univ. of Br. Col.:* J.P. Collet; *Independent:* S. Arnold, J. Lemke, M. Schweigert, L. Scott

57.2 Programs Offered

The Department of Occupational Health offers two graduate degree programs: a doctorate (Ph.D.) and Master (M.Sc.A) in occupational health sciences. The Master's program is available on campus or in distance education format. Special student status may be granted to students who wish to take only specific courses from our M.Sc. program. There is a maximum of 12 credits overall, with a maximum of 6 credits per semester.

M.Sc. Applied Program (Resident) (on campus)

A one year program in health and hygiene appropriate for physicians, nurses, graduates from engineering and basic sciences. Occupational health training allows candidates to evaluate work environments and attenuate work hazards using prevention and control.

M.Sc. Applied Program (Distance Education)

A three and one-half year program completed mostly over the Internet.

Ph.D. Program

The objective of this program is to train independent researchers in the field of work environment and health.

57.3 Admission Requirements

Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English, by appropriate exams e.g., TOEFL (Test of English as a Foreign Language) with a minimum score of 550, or 213 on the computer-based test, or 86 on the Internet-based test with each component score not less than 20.

M.Sc. Applied Program (Resident) (on campus)

Candidates should have completed, with a standing equivalent to a minimum Cumulative Grade Point Average (CGPA) of 3.0 out of 4, one of the requisites below:

- a bachelor of science degree or its equivalent, in a discipline relevant to occupational health or hygiene such as: chemistry, engineering, environmental sciences, physics;
- an M.D. (medicine);
- a B.Sc. in health sciences or nursing

Distance Education

Candidates should have completed, with a standing equivalent to a minimum Cumulative Grade Point Average (CGPA) of 3.0 out of 4, one of the requisites below:

- an M.D. (medicine)
- a B.Sc. in health sciences or nursing
- a bachelor of science degree, or its equivalent in a discipline relevant to occupational health or hygiene such as: chemistry, engineering, environmental sciences, physics

Candidates should have at least three years of experience in industrial hygiene and/or in safety.

For medical doctors and nurses, priority will be given to candidates with at least three years of experience in occupational health.

Ph.D. Program

Candidates must hold a M.Sc. degree or its equivalent in occupational health sciences, or in a relevant discipline, such as: community health, environmental health, epidemiology, chemistry, engineering, physics, or health sciences (medicine, nursing, etc.).

57.4 Application Procedures

Application forms are available online at www.mcgill.ca/applying/graduate.

Resident (on campus)

Candidates must submit with their application two official copies of their university transcripts, two letters of reference, a copy of their curriculum vitae and a letter describing their background (occupational health, occupational hygiene, worker safety, etc.) as well as a \$80(Cdn) application fee.

Eligible candidates may be invited for an interview with members of the Admissions Committee of the Department.

Applications are accepted for Fall term only.

Distance Education

Candidates must submit with their application two official transcripts from their university of graduation, two letters of recommendation, a copy of their résumé, a letter describing their career plan, the reasons for their enrolment, and how they plan to accommodate their study time within their work schedule as well as a \$80(Cdn) application fee.

Students are required to have access to a computer and the Internet as the course material is available through the Web.

Ph.D. Program

Candidates must submit with their application two official copies of their university transcripts (undergraduate and graduate), two letters of reference (or completed special forms), a copy of their curriculum vitae and a letter describing their field of interest as well as a \$80(Cdn) application fee.

Candidates must also submit with their application an outline of their scientific interests, indicating the field and the topic of their proposed research. Each student will be assigned to one academic staff member of the Department, who will act as his/her supervisor, who will guide him/her in the preparation of a definite research protocol.

57.5 Program Requirements

Students are required to have access to a computer and the Internet as some of the course material is most readily available by accessing the Web.

- Computer skills (word processing, worksheets and graphing) are required for all programs.
- Students must obtain at least B (65%) in each course in the program.
- Students who fail one course may be granted an exam re-write, but students with two failures will be invited to withdraw from the program.

M.SC. APPLIED PROGRAM (RESIDENT) (ON CAMPUS)

A total of 45 credits is required to complete the M.Sc. program.

Teaching is organized in eight 3-credit courses and one 6-credit course totalling 30 credits. Promotion to the following term is dependent upon passing grade.

After successfully completing the course requirements and passing the comprehensive examination, students must carry out an extended project (15 credits). The projects can be surveys, laboratory work, bibliographic studies or research protocol development. The project requires students to identify an issue in their chosen area, to review the present state of knowledge relevant to that issue, and to carry out their particular project plan, which must be approved by faculty.

Normally, students extend the duration of their project into the Fall term by registering for an additional session.

Required Courses (30 credits)

OCCH 602	(3)	Occupational Health Practice
OCCH 603	(3)	Work and Environment Epidemiology 1
OCCH 604	(3)	Monitoring Occupational Environment
OCCH 605	(6)	Physical Health Hazards

OCCH 608	(3)	Biological and Chemical Hazards
OCCH 612	(3)	Principles of Toxicology
OCCH 614	(3)	Topics in Occupational Health
OCCH 615	(3)	Occupational Safety Practice
OCCH 616	(3)	Occupational Hygiene
OCCH 600	(0)	Master's Integrative Exam*

*Note: students must pass the Master's Integrative Examination before writing their Project.

Project Component – Required (15 credits)

OCCH 699	(15)	Project Occupational Health and Safety
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M.SC. APPLIED PROGRAM (DISTANCE EDUCATION)

The M.Sc.(A) as a distance education program takes three and one-half years to complete.

The first part of the program consists of 10 three-credit theory courses. Students enrolled in the program must successfully complete ten courses (30 credits). Equivalencies may be granted upon examination of the application by the professors concerned, and the Graduate and Postdoctoral Studies Office.

The second part consists of writing an extended project report (15 credits). The project report will be carried out under the supervision of a member of the teaching staff. Note that students must pass the comprehensive exam before writing their report. A total of 45 credits is offered, the number required to complete the M.Sc. program.

Courses (30 credits)

OCCH 602	(3)	Occupational Health Practice
OCCH 603	(3)	Work and Environment Epidemiology 1
OCCH 604	(3)	Monitoring Occupational Environment
OCCH 608	(3)	Biological and Chemical Hazards
OCCH 612	(3)	Principles of Toxicology
OCCH 615	(3)	Occupational Safety Practice
OCCH 616	(3)	Occupational Hygiene
OCCH 617	(3)	Occupational Diseases
OCCH 624	(3)	Social and Behavioural Aspects - Occupational Health
OCCH 625	(3)	Work and Environment Epidemiology 2
OCCH 626	(3)	Basics: Physical Health Hazards
OCCH 627	(3)	Work Physiology and Ergonomics
OCCH 630	(3)	Occupational Disease for OHNS
OCCH 635	(3)	Environmental Risks to Health
OCCH 600	(0)	Master's Integrative Exam*

Each course has a final (proctored) examination at the end of the term.

*Note: students must pass the Master's Integrative Examination before writing their Project.

On-campus Practicums may be held at the discretion of each professor. These sessions are held in Montreal on the McGill University Campus. Their aim is to offer students additional specific learning activities. Participation in the practica is an essential component of the program.

The second part consists of writing an extended project report (15 credits). The project report is carried out under the supervision of a member of the teaching staff.

Project (15 credits)

OCCH 699	(15)	Project Occupational Health and Safety
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PH.D. PROGRAM

Three years of resident study are required for this program.

Students are required to take course OCCH 706 Ph.D Seminar on Occupational Health and Hygiene (2 credits) and are encouraged to take up to 12 credits in areas pertinent to their specialty or in areas necessary to complete their knowledge of occupational health.

All Ph.D. students must take a comprehensive examination (OCCH 700) within 18 months of registration.

A thesis committee will be established to ensure proper supervision and coverage of the different fields of expertise as required.

57.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

The course credit weight is given in parentheses after the title.

☐ Denotes limited enrolment

OCC1 550 ENABLING HUMAN OCCUPATION. (3) (4 hrs/week) (4 hrs/week) (U3 and M1 OT students only) Occupational performance (productivity, self-care, leisure) is examined through the Canadian Occupational Performance Model and the Model of Human Occupation, both of which focus on the interaction of the individual with the environment. Human performance is analyzed focusing on prevention of disability and/or restoration of function.

OCC1 551 PSYCHOSOCIAL PRACTICE IN OT. (3) (Prerequisite: ANAT 321.) (Restriction: OT students only.) Principles of basic psychosocial assessments and treatment approaches for psychiatric conditions.

OCCH 600 MASTER'S INTEGRATIVE EXAM. (0)

☐ **OCCH 602 OCCUPATIONAL HEALTH PRACTICE.** (3) This course analyzes the functions, structure and organization of occupational health programs and services.

☐ **OCCH 603 WORK AND ENVIRONMENT EPIDEMIOLOGY 1.** (3) This course provides students with basic knowledge of epidemiology and statistics as applied to occupational health.

OCCH 604 MONITORING OCCUPATIONAL ENVIRONMENT. (3) Principles and practices of environmental and biological monitoring of workplace hazards are addressed. Familiarization with instrumentation and calibration procedures is undertaken. Students learn to identify workplace health hazards, develop effective sampling strategies, use industrial hygiene equipment and interpret results of exposure measurements.

OCCH 605 PHYSICAL HEALTH HAZARDS. (6) Properties, mechanisms of action and health effects of physical agents in the workplace and in the general environment: electromagnetic risks, noise and vibration, ionizing radiation, ventilation and thermal environment. Administrative, engineering and medical control methods, exposure standards and safety measures for these agents.

OCCH 605D1 (3), OCCH 605D2 (3) PHYSICAL HEALTH HAZARDS. (Students must register for both OCCH 605D1 and OCCH 605D2) (No credit will be given for this course unless both OCCH 605D1 and OCCH 605D2 are successfully completed in consecutive terms) Course covers hearing conservation, health effects of electromagnetism, ionizing radiation safety and ventilation controls. For each of these agents, properties, mechanisms of actions, health effects, engineering control methods, exposure standards and safety measures are studied. Ventilation strategies for industry are also covered.

☐ **OCCH 608 BIOLOGICAL HAZARDS.** (3) Biological hazards and infectious diseases susceptible of being acquired at work and the several preventive and protective measures to be put in place, including airborne, foodborne, vectorborne infectious diseases, bioterrorism, and mold.

☐ **OCCH 612 PRINCIPLES OF TOXICOLOGY.** (3) General principles of toxicology, routes of toxicant entry, human organs as targets of toxic action, adverse effects, time-course of reactions to toxicants. Risk assessment techniques, in vivo-in vitro toxicity models, links between human population observations and animal, cellular and biochemical models.

OCCH 614 TOPICS IN OCCUPATIONAL HEALTH. (3) Using a problem oriented approach, this course aims at integrating all notions seen previously in the program. Advanced learning, lectures, readings, student presentations, written assignments.

□ **OCCH 615 OCCUPATIONAL SAFETY PRACTICE.** (3) Principles of safety and loss prevention; incident investigations and analyses, occupational safety management tools; loss recognition; safety standards, guidelines and legislation. Selected topics include: fire prevention; workshop, tool and machine safety; fall protection; laboratory safety; confined space entry; safe work permit systems; and materials handling.

□ **OCCH 616 OCCUPATIONAL HYGIENE.** (3) An introduction to the principles and practices of industrial hygiene designed to provide the students with the knowledge required to identify health and safety hazards in the workplace.

OCCH 617 OCCUPATIONAL DISEASES. (3) Review of occupational health problems structured around target organs: respiratory, musculo-skeletal, skin, cardiovascular, mental disorders and aggressive agents: trauma, physical agents, solvents and metals and infectious agents. Also covered are occupational cancer, conditions associated with hypo- and hyperbaric environments, mutagenicity, teratogenicity and reproduction disorders, pre-employment, period examination and medical activities in the workplace.

OCCH 624 SOCIAL AND BEHAVIOURAL ASPECTS - OCCUPATIONAL HEALTH. (3) This course explores the social science of occupational health practice, and describes influences on that practice of recent political, social and economic changes in the workforce and at the workplace; the theory of health promotion; management skills; and evaluation methods.

OCCH 625 WORK AND ENVIRONMENT EPIDEMIOLOGY 2. (3) Combined with OCCH 608 to prepare students to evaluate the relations between exposure to workplace contaminants and health. The course involves the multidisciplinary analysis of four problems: Work-related cancer; Musculo-skeletal problems; Biological hazards; Chemical intoxication.

OCCH 626 BASICS: PHYSICAL HEALTH HAZARDS. (3) Basics of hearing conservation, health effects of electromagnetism, ionizing radiation safety and ventilation controls. For each of these agents, basic properties, mechanisms of action, health effects, engineering control methods, exposure standards and safety measures are studied. Basic ventilation strategies for industry are also covered.

OCCH 627 WORK PHYSIOLOGY AND ERGONOMICS. (3) Provide students with basic knowledge of physiological and psychological work requirements, ergonomic approach to work-related health problems and application of this type of approach to preventive and corrective measures.

OCCH 630 OCCUPATIONAL DISEASES FOR OHNS. (3) Designed to meet independent and specific needs of occupational health nurses, it examines potential pathologies in the workplace, and subsequent disease outcomes. Focus is on an evidence-based approach to assessment, nursing diagnosis, appropriate interventions in the identification, management of occupational diseases. Worker screening strategies and disease prevention activities are introduced.

OCCH 635 ENVIRONMENTAL RISKS TO HEALTH. (3) Focuses on pathways of exposure from industry to non working populations, on measurement of exposure and observation of effects, modeling and prediction of effects. Identifying, assessing and adapting existing data to predict effects given new exposures is a major theme. Spatial analysis, risk communication and disaster response are covered, too.

OCCH 699 PROJECT OCCUPATIONAL HEALTH AND SAFETY. (15) Under supervision, the student will identify an issue relevant to occupational health and report on work accomplished (i) to review the present state of knowledge and (ii) to conduct a survey and make recommendations or to devise a study proposal and to carry out a preliminary feasibility study.

OCCH 699D1 (7.5), OCCH 699D2 (7.5) PROJECT OCCUPATIONAL HEALTH AND SAFETY. (Students must register for both OCCH 699D1 and OCCH 699D2) (No credit will be given for this course unless both OCCH 699D1 and OCCH 699D2 are successfully completed in consecutive terms) (OCCH 699D1 and OCCH 699D2 together are equivalent to OCCH 699) Under supervision,

the student will identify an issue relevant to occupational health and report on work accomplished (i) to review the present state of knowledge and (ii) to conduct a survey and make recommendations or to devise a study proposal and to carry out a preliminary feasibility study.

OCCH 700 PHD COMPREHENSIVE EXAMINATION. (0)

OCCH 706 PH.D SEMINAR ON OCCUPATIONAL HEALTH AND HYGIENE. (2) A critical appraisal of the occupational health sciences literature which addresses issues in hygiene, safety, epidemiology and toxicology. Students will develop a critical sense of the literature and increase their understanding of different research paradigms.

OCCH 706D1 (1), OCCH 706D2 (1) PH.D SEMINAR ON OCCUPATIONAL HEALTH AND HYGIENE. (Students must register for both OCCH 706D1 and OCCH 706D2) (No credit will be given for this course unless both OCCH 706D1 and OCCH 706D2 are successfully completed in consecutive terms) (OCCH 706D1 and OCCH 706D2 together are equivalent to OCCH 706) A critical appraisal of the occupational health sciences literature which addresses issues in hygiene, safety, epidemiology and toxicology. Students will develop a critical sense of the literature and increase their understanding of different research paradigms.

58 Otolaryngology

Department of Otolaryngology
Royal Victoria Hospital
687 Pine Ave. West, Room E3-37
Montreal, QC H3A 1A1
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Telephone: (514) 843-2820

Fax: (514) 843-1403

Website: www.mcgill.ca/ent

Chair — S. Frenkiel

58.1 Staff

Emeritus Professor

J.D. Baxter; M.D., C.M., M.Sc.(McG.), F.R.C.S.(C)

Professors

S. Frenkiel; B.Sc., M.D., C.M.(McG.), F.R.C.S.(C)
A. Katsarkas; M.D.(Thess.), M.Sc.(Otol.), F.R.C.S.(C)
H. Galiana; B.Sc., B.Eng., M.Eng., Ph.D.(McG.)
M.D. Schloss; M.D.(Br. Col.), F.R.C.S.(C)
T.L. Tewfik; M.D.(Alex.), F.R.C.S.(C)

Associate Professors

M.J. Black; M.D., C.M.(McG.), F.R.C.S.(C)
M. Desrosiers; M.D. (Montr.), F.R.C.S.C.
N. Fanous; M.B., BCh.(Cairo), F.R.C.S.(C)
W.R.J. Funnell; B.Eng., M.Eng., Ph.D.(McG.)
M. Hier; M.D., C.M.(McG.), F.R.C.S.(C)
K. Kost; M.D., C.M.(McG.), F.R.C.S.(C)
J. Manoukian; M.B., Ch.B.(Alex.), F.R.C.S.(C)
W.H. Novick; M.D.(Qu.), F.R.C.S.(C)
J. Rappaport; M.D.(Dal.), F.R.C.S.(C)
B. Segal; B.Sc., B.Eng., M.Eng., Ph.D.(McG.)
R.S. Shapiro; M.D., C.M.(McG.), F.R.C.S.(C)
A.G. Zeitouni; M.D.(Sher.), M.Sc.(Otol.), F.R.C.S.(C)

Assistant Professors

F. Chagnon; M.D.C.M.(McG.), F.R.C.S.(C)
M. Black; M.D.(Tor), F.R.C.S.C.
S. Daniel; M.D.C.M.(McG.), M.Sc.(Otol), F.R.C.S.C.
I. Fried; M.D.(Dal.), F.R.C.S.(C)
L. Nguyen; M.D., C.M.(McG.), M.Sc.(Otol), F.R.C.S.(C)
R. Payne; M.D., C.M.(McG.), M.Sc.(Otol), F.R.C.S.(C)
M. Samaha; M.D.(Qu.), F.R.C.S.(C)
G. Sejean; M.D.(Beirut), F.R.C.S.(C)
R. Sweet; M.D., C.M.(McG.)

L. Tarantino; M.D.(Naples), F.R.C.S.(C)

Lecturers

A. Finesilver, J. Rothstein

Adjunct Professors

J.-J. Dufour

58.2 Program Offered

The Master of Science degree in Otolaryngology trains otolaryngologists for clinical or basic science research in Otolaryngology.

58.3 Admission Requirements

Admission to the M.Sc. program requires acceptance by a research supervisor, and the proposed program must be approved by the Departmental Research Committee.

Applicants should be otolaryngologists, or they should be currently enrolled in a residency program leading to certification in Otolaryngology, or they should be physicians with a strong interest in Otolaryngology research.

58.4 Application Procedures

Applications require the following documentation:

1. completed application form and personal statement form;
2. letters of reference from two professors;
3. two official copies of academic transcripts;
4. application fee: \$80;
5. results of Test of English as a Foreign Language (TOEFL) (minimum of 550 on the paper-based test, 213 on the computer-based test or 86 on the Internet-based test with each component score not less than 20) for applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone).

Prospective students should contact research supervisors individually.

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

58.5 Program Requirements

M.Sc. in Otolaryngology (45 credits)

The M.Sc. program comprises a minimum of 45 credits as follows:

Required Courses (12 credits)

- | | | |
|----------|-----|--|
| OTOL 602 | (3) | Physiology, Histopathology and Clinical Otolaryngology 1 |
| OTOL 612 | (3) | Physiology, Histopathology and Clinical Otolaryngology 2 |
| OTOL 603 | (3) | Advanced Scientific Principles of Otolaryngology 1 |
| OTOL 613 | (3) | Advanced Scientific Principles of Otolaryngology 2 |

When appropriate, courses OTOL 602, OTOL 612, OTOL 603 or OTOL 613 may be replaced by other basic science or clinical (500-level or higher) courses of relevance to Otolaryngology, as recommended or approved by the Department.

Complementary Course (3 credits)

- | | | |
|----------|-----|--------------------------------------|
| EPIB 607 | (3) | Inferential Statistics or equivalent |
|----------|-----|--------------------------------------|

Thesis Component – Required (30 credits)

- | | | |
|----------|------|----------|
| OTOL 690 | (3) | Thesis 1 |
| OTOL 691 | (3) | Thesis 2 |
| OTOL 692 | (6) | Thesis 3 |
| OTOL 693 | (6) | Thesis 4 |
| OTOL 694 | (12) | Thesis 5 |

Students aiming to acquire an interdisciplinary background will be expected to take additional elective courses, at the undergraduate level if necessary.

58.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

The course credit weight is given in parentheses after the title.

OTOL 602 PHYSIOLOGY, HISTOPATHOLOGY AND CLINICAL OTOLARYNGOLOGY 1. (3) (6 hours/week) University and hospital rounds and seminars presenting various topics in Clinical Otolaryngology.

OTOL 603 ADVANCED SCIENTIFIC PRINCIPLES - OTOLARYNGOLOGY 1. (3) (1.5 hours/week) Lectures in advanced basic-science topics of relevance to the otolaryngologist.

OTOL 612 PHYSIOLOGY, HISTOPATHOLOGY AND CLINICAL OTOLARYNGOLOGY 2. (3) (6 hours/week) University and hospital rounds and seminars presenting various additional topics in Clinical Otolaryngology.

OTOL 613 ADVANCED SCIENTIFIC PRINCIPLES - OTOLARYNGOLOGY 2. (3) (1.5 hours/week) Lectures in additional basic-science topics of relevance to the otolaryngologist.

OTOL 690 M.Sc. THESIS 1. (3) A literature search and research proposal under supervision of the research supervisor that leads to a written proposal.

OTOL 691 M.Sc. THESIS 2. (3) Supervised training and research in connection with the Master's thesis.

OTOL 692 M.Sc. THESIS 3. (6) Independent research in connection with the Master's thesis.

OTOL 693 M.Sc. THESIS 4. (6) A seminar and written report to be presented to an ad hoc committee describing appropriate progress at the end of the first year of training.

OTOL 694 M.Sc. THESIS 5. (12) Independent study in connection with the Master's thesis. Presentation of results at a departmental seminar, or at a scientific meeting. Completion and final acceptance of the M.Sc. Thesis by the Department and the Graduate and Postdoctoral Studies Office.

59 Parasitology

Institute of Parasitology
Macdonald Campus
21,111 Lakeshore Road
Sainte Anne-de-Bellevue, QC H9X 3V9
Canada

Telephone: (514) 398-7722

Fax: (514) 398-7857

E-mail: graduate.parasitology@mcgill.ca

Website: www.mcgill.ca/parasitology

Director — Timothy G. Geary

59.1 Staff

Professors

Timothy G. Geary; B.Sc.(Notre Dame), Ph.D.(Mich.) (*Canada Research Chair in Parasite Biotechnology*)

Roger Prichard; B.Sc., Ph.D.(NSW) (*James McGill Professor*)

Associate Professors

Robin N. Beech; B.Sc.(Nott.), Ph.D.(Edin.)

Elias Georges; B.Sc., Ph.D.(McG.)

Armando Jardim; B.Sc., Ph.D.(Vic. (BC))

Paula Ribeiro; B.Sc., Ph.D.(York)
Marilyn E. Scott; B.Sc.(New Br.), Ph.D.(McG.)

Assistant Professors

Florence Dzierszinski; B.Sc., M.Sc., Ph.D.(Lille, France)
Reza Salavati; B.A., M.A.(Calif. St.), Ph.D.(Wesl.)

Associate Members

Gregory J. Matlashewski (*Medicine, Microbiology and Immunology*); Manfred E. Rau (*Natural Resource Sciences, Entomology*); Mary Stevenson (*Medicine, Experimental Medicine*); Brian Ward (*Medicine, Experimental Medicine*)

Biotechnology Graduate Programs
Institute of Parasitology
McGill University, Macdonald Campus
21,111 Lakeshore Road
Sainte Anne-de-Bellevue, QC H9X 3V9
Canada

Telephone: (514) 398-7725

Fax: (514) 398-7857

E-mail: program.biotech@mcgill.ca

Website: www.mcgill.ca/biotechgradprog

59.2 Programs Offered

M.Sc. and Ph.D. thesis research degrees in Parasitology, with Bioinformatics and Environment options; and non-thesis Graduate Certificate and M.Sc.(Applied) degree in Biotechnology.

The Institute of Parasitology teaches and researches the phenomenon of parasitism of man and livestock. Current research involvement includes the biology, biochemistry, bioinformatics, pharmacology, control, ecology, epidemiology, immunology, molecular biology, neurobiology, and population and molecular genetics of parasitic organisms, viruses and cancer cells. The non-thesis programs in Biotechnology offer a course-based curriculum with practical training in laboratory courses and internships.

The Institute is housed in its own building adjacent to the Macdonald Campus Library, and has well equipped laboratories. The Institute has small and large animal facilities on campus. The Institute is affiliated to the McGill Centre for Tropical Diseases at the Montreal General Hospital.

59.3 Admission Requirements

Candidates for either the M.Sc. or the Ph.D. thesis research degree should possess a Bachelor's degree in the biological or medical sciences with a minimum cumulative grade point average of 3.2/4.0 (second class-upper division). High grades are expected in courses considered by the academic unit to be preparatory to the graduate program. Previous experience in parasitology is not essential.

Candidates for the Graduate Certificate and the M.Sc.(Applied) in Biotechnology must possess a Bachelor's degree in Biological Sciences or equivalent with a minimum cumulative grade point average of 3.0/4.0 or 3.2/4.0 GPA in the last two full-time years of university study for the Graduate Certificate, and a minimum of 3.2/4.0 CGPA for the M.Sc.(A), as well as prerequisites or equivalents. Prerequisites or equivalents: Applicants are required to have sufficient background in Biochemistry, Cellular Biology and Molecular Biology, preferably at an advanced level for the Master's Applied.

59.4 Application Procedures

Applicants for the thesis research degrees (M.Sc. and Ph.D.) must forward supporting documents to:

Thesis Research Graduate Programs
Institute of Parasitology
Macdonald Campus of McGill University
21,111 Lakeshore Road
Sainte Anne-de-Bellevue, QC H9X 3V9
Canada

Telephone: (514) 398-7722

Fax: (514) 398-7857

E-mail: graduate.parasitology@mcgill.ca

Website: www.mcgill.ca/parasitology

Applicants for the Biotechnology Programs must forward supporting documents to:

Applications will be considered upon receipt of a completed application form, \$80 application fee, and the following supporting documents:

DOCUMENTS SUBMITTED WILL NOT BE RETURNED.

Transcripts - Two official copies of all university level transcripts with proof of degree(s) granted. Transcripts written in a language other than English or French must be accompanied by a certified translation. An explanation of the grading system used by the applicant's university is essential. It is the applicant's responsibility to arrange for transcripts to be sent.

It is desirable to submit a list of the titles of courses taken in the major subject, since transcripts often give code numbers only. Applicants must be graduates of a university of recognized reputation and hold a Bachelor's degree equivalent to a McGill Honours degree in a subject closely related to the one selected for graduate work. This implies that about one-third of all undergraduate courses should have been devoted to the subject itself and another third to cognate subjects.

Letters of Recommendation - Two letters of recommendation on letterhead (official paper) of originating institution or bearing the university seal and with original signatures from two instructors familiar with the applicant's work, preferably in the applicant's area of specialization. It is the applicant's responsibility to arrange for these letters to be sent.

Competency in English - Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English, by appropriate exams, e.g., TOEFL (minimum score 577 on the paper-based test, 233 on the computer-based test or 90 on the Internet-based test with each component not less than 20). The MCHE is not considered equivalent. Results must be submitted as part of the application. The University code is 0935 (McGill University, Montreal); please use Department code 31 (Graduate Schools), Biological Sciences - Agriculture, to ensure that your TOEFL reaches this office without delay.

Graduate Record Exam (GRE) - The GRE is not required, but it is highly recommended.

Application Fee (non-refundable)

- A fee of \$80 Canadian must accompany each application (including McGill students), otherwise it cannot be considered. This sum must be remitted using one of the following methods:

1. Credit card (by completing the appropriate section of the application form). NB: online applications must be paid for by credit card.
2. Certified cheque in Cdn.\$ drawn on a Canadian bank.
3. Certified cheque in U.S.\$ drawn on a U.S. bank.
4. Canadian Money order in Cdn.\$.
5. U.S. Money Order in U.S.\$.
6. An international draft in Canadian funds drawn on a Canadian bank requested from the applicant's bank in his/her own country.

Deadlines

- Applications for the M.Sc. and Ph.D. thesis research degrees in Parasitology, including all supporting documents, must reach the Institute no later than May 15 (March 1 for International) for the *Fall Term (September)*; October 15 (July 1 for International) for the *Winter Term (January)*; February 15 (November 1 for International) for the *Summer Term (May)*.
- Applications for the Biotechnology Programs must reach the Institute no later than April 1 (February 15 for International) for the *Fall Term (September)*; October 15 (no International admissions) for the *Winter Term (January)*. Note that there is no admittance in the *Winter Term* for International and for the M.Sc.(Applied) degree.
- It may be necessary to delay review of the applicant's file until the following admittance period if application materials including supporting documents are received after these dates. International applicants are advised to apply well in advance of the deadline because immigration procedures may be lengthy. Applicants are encouraged to make use of the online application form available on the Web at www.mcgill.ca/applying/graduate.

Financial aid is very limited and highly competitive. It is suggested that students give serious consideration to their financial planning before submitting an application.

Acceptance to all thesis research programs depends on a staff member agreeing to serve as the student's supervisor and the student obtaining financial support. Normally, a student will not be accepted unless adequate financial support can be provided by the student and/or the student's supervisor. Academic units cannot guarantee financial support via teaching assistantships or other funds.

Qualifying Students – Some applicants whose academic degrees and standing entitle them to serious consideration for admission to graduate studies, but who are considered inadequately prepared in the subject selected may be admitted to a *Qualifying Program* if they have met the Graduate and Postdoctoral Studies Office minimum CGPA of 3.0/4.0. The course(s) to be taken in a *Qualifying Program* will be prescribed by the academic unit concerned. *Qualifying students* are registered in graduate studies, **but not as candidates for a degree**. Only one qualifying year is permitted. **Successful completion of a qualifying program does not guarantee admission to a degree program.**

59.5 Program Requirements

PARASITOLOGY PROGRAMS

M.Sc. in Parasitology (Thesis) (46 credits)

Although emphasis in the graduate program is on research, satisfactory completion of graduate courses PARA 635 and PARA 655 is required. Other course work in related subjects may be required, depending upon the candidates' background and research orientation. The minimum requirement of the M.Sc. degree is 46 credits.

Candidates are required to write a research proposal in the second term of their registration to fulfil the requirements of PARA 600. While in the Institute, all students are required to register and participate in the seminar courses PARA 606 and PARA 607. Seminar speakers include students, professors and invited guests.

Required Courses (14 credits)

PARA 600	(4)	Thesis Proposal for M.Sc
PARA 606	(2)	Parasitology Seminar
PARA 607	(2)	Parasitology Research Seminar
PARA 635	(3)	Cell Biology and Infection
PARA 655	(3)	Host-Parasite Interactions

Thesis Component – Required (32 credits)

PARA 687	(10)	Thesis Research 1
PARA 688	(10)	Thesis Research 2

PARA 689 (12) Thesis Research 3

M.Sc. in Parasitology (Thesis) – Bioinformatics Option/Concentration (47 credits)

Required Courses (17 credits)

COMP 616	(3)	Bioinformatics Seminar
PARA 600	(4)	Thesis Proposal for M.Sc
PARA 606	(2)	Parasitology Seminar
PARA 607	(2)	Parasitology Research Seminar
PARA 635	(3)	Cell Biology and Infection
PARA 655	(3)	Host-Parasite Interactions

Complementary Courses (6 credits)

6 credits from the following list:

BINF 621	(3)	Bioinformatics: Molecular Biology
BMDE 652	(3)	Bioinformatics: Proteomics
BTEC 555	(3)	Structural Bioinformatics
COMP 618	(3)	Bioinformatics: Functional Genomics
PHGY 603	(3)	Systems Biology and Biophysics

Additional courses at the 500- or 600-level may be required at the discretion of the candidate's supervisory committee.

Thesis Component – Required (24 credits)

PARA 688	(10)	Thesis Research 2
PARA 689	(12)	Thesis Research 3
PARA 690	(2)	Thesis Research 4

M.Sc. in Parasitology (Thesis) – Environment Option/Concentration (46 credits)

Required Courses (14 credits)

ENVR 610	(3)	Foundations of Environmental Policy
ENVR 650	(1)	Environmental Seminar 1
ENVR 651	(1)	Environmental Seminar 2
ENVR 652	(1)	Environmental Seminar 3
PARA 600	(4)	Thesis Proposal for M.Sc
PARA 606	(2)	Parasitology Seminar
PARA 607	(2)	Parasitology Research Seminar

Complementary Courses (6 credits)

3 credits, one of the following courses:

PARA 635	(3)	Cell Biology and Infection
PARA 655	(3)	Host-Parasite Interactions

3 credits, one of the following courses:

ENVR 519	(3)	Global Environmental Politics
ENVR 544	(3)	Environmental Measurement and Modelling
ENVR 580	(3)	Topics in Environment 3
ENVR 611	(3)	The Economy of Nature
ENVR 620	(3)	Environment and Health of Species
ENVR 622	(3)	Sustainable Landscapes
ENVR 630	(3)	Civilization and Environment 1
ENVR 680	(3)	Topics in Environment 4

or other graduate course recommended by the advisory committee and approved by the Environment Option Committee
 Note: Other course work in related subjects may be required, depending upon the candidate's background and research orientation.

ENVR 519	(3)	Global Environmental Politics
ENVR 544	(3)	Environmental Measurement and Modelling
ENVR 580	(3)	Topics in Environment 3
ENVR 611	(3)	The Economy of Nature

Thesis Component – Required (26 credits)

PARA 687	(10)	Thesis Research 1
PARA 688	(10)	Thesis Research 2

Ph.D. in Parasitology

In the first year of the doctoral program, the candidates must successfully complete a written thesis proposal and make an oral presentation on their proposed research to fulfill PARA 700. Satisfactory completion of graduate courses PARA 635 and PARA 655 is required. While in the Institute, all students are

required to participate in the seminar courses (PARA 710 and PARA 711). Also required is the presentation, and subsequent defense, of a satisfactory thesis based on the student's research.

Depending upon the candidate's background, other course work may be required.

Required Courses (10 credits)

PARA 635	(3)	Cell Biology and Infection
PARA 655	(3)	Host-Parasite Interactions
PARA 710	(2)	Parasitology Ph.D. Seminar 1
PARA 711	(2)	Parasitology Ph.D. Seminar 2

Course Work

Depending upon the candidate's background, other course work may be required.

Ph.D. Comprehensive - Required (0 credits)

PARA 700	(0)	Thesis Proposal for Ph.D
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Thesis - Required

Also required is the presentation, and subsequent defence, of a satisfactory thesis based on the student's research

Ph.D. in Parasitology – Bioinformatics Option/Concentration

Required Courses (13 credits)

COMP 616	(3)	Bioinformatics Seminar
PARA 635	(3)	Cell Biology and Infection
PARA 655	(3)	Host-Parasite Interactions
PARA 710	(2)	Parasitology Ph.D. Seminar 1
PARA 711	(2)	Parasitology Ph.D. Seminar 2

Complementary Courses (6 credits)

6 credits from the following courses:

BINF 621	(3)	Bioinformatics: Molecular Biology
BMDE 652	(3)	Bioinformatics: Proteomics
BTEC 555	(3)	Structural Bioinformatics
COMP 618	(3)	Bioinformatics: Functional Genomics
PHGY 603	(3)	Systems Biology and Biophysics

Additional courses at the 500-, 600-, or 700-level may be required at the discretion of the candidate's supervisory committee.

Ph.D. Comprehensive - Required (0 credits)

PARA 700	(0)	Thesis Proposal for Ph.D
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Thesis - Required

Ph.D. in Parasitology – Environment Option/Concentration

Required Courses (14 credits)

ENVR 610	(3)	Foundations of Environmental Policy
ENVR 650	(1)	Environmental Seminar 1
ENVR 651	(1)	Environmental Seminar 2
ENVR 652	(1)	Environmental Seminar 3
PARA 710	(2)	Parasitology Ph.D. Seminar 1
PARA 711	(2)	Parasitology Ph.D. Seminar 2

Complementary Courses (6 credits)

One of the following courses:

PARA 635	(3)	Cell Biology and Infection
PARA 655	(3)	Host-Parasite Interactions

One course chosen from:

ENVR 519	(3)	Global Environmental Politics
ENVR 544	(3)	Environmental Measurement and Modelling
ENVR 580	(3)	Topics in Environment 3
ENVR 611	(3)	The Economy of Nature
ENVR 620	(3)	Environment and Health of Species
ENVR 622	(3)	Sustainable Landscapes
ENVR 630	(3)	Civilization and Environment 1
ENVR 680	(3)	Topics in Environment 4

or other graduate course recommended by the advisory committee and approved by the Environment Option Committee

Ph.D. Comprehensive - Required (0 credits)

PARA 700	(0)	Thesis Proposal for Ph.D
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Thesis - Required

BIOTECHNOLOGY PROGRAMS

M.Sc. Applied in Biotechnology (45 credits)

Students enrolled in the M.Sc.A. degree must complete 45 credits, including science and non-science courses, as well as laboratory courses and a research project involving a four- to six-month internship in a research laboratory.

Required Courses (36 credits)

BIOT 505	(3)	Selected Topics in Biotechnology
BTEC 501	(3)	Bioinformatics
BTEC 502	(3)	Biotechnology Ethics & Society
BTEC 619	(4)	Biotechnology Laboratory 2
BTEC 620	(4)	Biotechnology Laboratory 1
BTEC 621	(3)	Biotechnology Management
BTEC 622	(2)	Biotechnology Research Project 1
BTEC 623	(6)	Biotechnology Research Project 2
BTEC 624	(6)	Biotechnology Research Project 3
BTEC 625	(2)	Biotechnology Research Project 4

Complementary Courses (9 credits)

9 credits, three courses at the 500 level or higher are to be selected within the Faculties of Agricultural and Environmental Sciences, Medicine, Science or Management in consultation with the academic advisor of the program in line with the interests of the student.

Graduate Certificate in Biotechnology (16 credits)

For the Graduate Certificate in Biotechnology, students are required to complete 16 credits of courses offered within the Faculties of Agricultural and Environmental Sciences, Medicine, and Science.

Required Courses (10 credits)

BIOT 505	(3)	Selected Topics in Biotechnology
BTEC 620	(4)	Biotechnology Laboratory 1
BTEC 621	(3)	Biotechnology Management

Complementary Courses (6 credits)

Two courses chosen from the following:

General Topics

ANSC 622	(3)	Selected Topics in Molecular Biology
BINF 511	(3)	Bioinformatics for Genomics
BIOL 524	(3)	Topics in Molecular Biology
BIOL 568	(3)	Topics on the Human Genome
BTEC 501	(3)	Bioinformatics
BTEC 502	(3)	Biotechnology Ethics and Society
BTEC 535	(3)	Functional Genomics in Model Organisms
BTEC 555	(3)	Structural Bioinformatics
BTEC 691	(3)	Biotechnology Practicum
EXMD 511	(3)	Joint Venturing with Industry
EXMD 602	(3)	Techniques in Molecular Genetics

Health

EXMD 610	(3)	Biochemical Methods in Medical Research
PARA 635	(3)	Cell Biology and Infection
PHGY 518	(3)	Artificial Cells

Environment and Food

BREE 530	(3)	Fermentation Engineering
CELL 500	(3)	Techniques Plant Molecular Genetics
FDSC 535	(3)	Food Biotechnology
PLNT 600	(3)	Plant-Microbe Interactions

59.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click **Class Schedule**) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. The Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

The course credit weight is given in parentheses after the title.

AEBI 202 CELLULAR BIOLOGY. (3) (Winter) (3 hours of lectures per week) Organization and function of intercellular organelles in eukaryotic cells. Protein synthesis and control of protein transport within the cell. Cell division and DNA replication. Energy metabolism and electron transport. Signal transduction and transmembrane signalling. Differentiation of cells and cancer. Function and components of the immune system.

AEMA 306 MATHEMATICAL METHODS IN ECOLOGY. (3) (Winter) (3 hours of lectures per week) (Prerequisite: WILD 205 (formerly AEBI 205) or permission.) (Corequisite: AEMA 310 or permission.) An introduction to mathematical and graphical tools for use in ecology. Representation and interpretation of data and associated statistics in graphs and tables; theoretical modelling in plant and animal ecology, including difference and differential equation models. Introduction to stability analysis and probability theory. Emphasis is placed on graphical techniques.

FDSC 211 BIOCHEMISTRY 1. (3) (3 lectures) (Corequisite: FDSC 230) Biochemistry of carbohydrates, lipids, proteins, nucleic acids; enzymes and coenzymes. Introduction to intermediary metabolism.

PARA 410 ENVIRONMENT AND INFECTION. (3) (2 lectures per week) (Prerequisite: BIOL 111 or AEBI 120 or equivalent) Infectious pathogens of humans and animals and their impact on the global environment are considered. The central tenet is that infectious pathogens are environmental risk factors. The course considers their impact on the human condition and juxtaposes the impact of control and treatment measures and environmental change.

PARA 438 IMMUNOLOGY. (3) (3 lectures per week) (Prerequisite: AEBI 202 or permission of instructor) An in-depth analysis of the principles of cellular and molecular immunology. The emphasis of the course is on host defense against infection and on diseases caused by abnormal immune responses.

COURSES FOR HIGHER DEGREES

BIOT 505 SELECTED TOPICS IN BIOTECHNOLOGY. (3) (Fall) (Restriction: U3 students) Current methods and recent advances in biological, medical, agricultural and engineering aspects of biotechnology will be described and discussed. An extensive reading list will complement the lecture material.

BTEC 501 BIOINFORMATICS. (3) (2 lectures and 1 tutorial per week) This course introduces the application of computer software for analysis of biological sequence information. An emphasis is placed on the biological theory behind analytical techniques, the algorithms used and methods of developing a statistical framework for various types of analysis.

BTEC 502 BIOTECHNOLOGY ETHICS AND SOCIETY. (3) (Restriction: U3 and over.) Examination of particular social and ethical challenges posed by modern biotechnology such as benefit sharing, informed consent in the research setting, access to medical care worldwide, environmental safety and biodiversity and the ethical challenges posed by patenting life.

BTEC 535 FUNCTIONAL GENOMICS IN MODEL ORGANISMS. (3) (Prerequisite: 300-level course in genetics, molecular biology, biochemistry or permission of instructor.) (Restriction: Limited to 30 students.) An overview of strategies used to understand the function of genes, especially those identified through genome sequencing and bioinformatics. Use of model organisms that have proved particularly valuable for this purpose.

BTEC 555 STRUCTURAL BIOINFORMATICS. (3) (Prerequisite: 300-level undergraduate course in molecular biology, biochemistry or permission of instructor.) Fundamentals of protein structure and the application of tools for structure determination, how protein structure allows us to understand the complex biological functions, and how knowledge of protein structure can contribute to drug discovery.

BTEC 619 BIOTECHNOLOGY LABORATORY 2. (4) (Prerequisite: BTEC 620 or permission of the instructor.) A laboratory-based course in a variety of topics including: proteomics, protein expression and purification, conventional and HPLC chromatography,

protein-protein interactions, ELISA, and Western blot analysis and hybridoma techniques.

BTEC 620 BIOTECHNOLOGY LABORATORY 1. (4) (one 8-hour lab per week) Practical training in contemporary methods of molecular and cellular biology. Intended for students with background in molecular biology, biochemistry, or a related area, who are already familiar with theoretical principles of recombinant DNA technologies. Topics include: polymerase chain reaction (PCR), methods for gene cloning and mutagenesis, eukaryotic and prokaryotic gene expression systems, protein purification and methods of eukaryotic cell culture.

BTEC 621 BIOTECHNOLOGY MANAGEMENT. (3) (one 3-hour lecture per week) Topics relevant to the management of research in industry are presented by experts working in industry. This course highlights the differences existing between research done in an academic environment and research done within industry.

BTEC 622 BIOTECHNOLOGY RESEARCH PROJECT 1. (2) (Prerequisite: BTEC 620.) (Restriction: M.Sc.(Applied) in Biotechnology students and is a prerequisite to BTEC 623, BTEC 624 and BTEC 625.) Research project proposal and literature review.

BTEC 623 BIOTECHNOLOGY RESEARCH PROJECT 2. (6) (Corequisite: BTEC 622) (Restriction: M.Sc.(Applied) Biotechnology students) Intensive research project, lasting a minimum of 16 weeks in conjunction with course Biotechnology Research Project 3, conducted in a university hospital or industry laboratory involved in biotechnology research or development.

BTEC 624 BIOTECHNOLOGY RESEARCH PROJECT 3. (6) (Prerequisite: BTEC 622.) (Corequisite: BTEC 623.) (Restriction: M.Sc.(Applied) Biotechnology students.) Intensive research project, lasting a minimum of 16 weeks in conjunction with Biotechnology Research Project 2, conducted in a university hospital or industry laboratory involved in biotechnology research or development.

BTEC 625 BIOTECHNOLOGY RESEARCH PROJECT 4. (2) (Prerequisite: BTEC 622.) (Corequisites: BTEC 623, BTEC 624.) (Restriction: M.Sc.(Applied) Biotechnology students.) Student will prepare a report on the research experience and give a presentation.

BTEC 691 BIOTECHNOLOGY PRACTICUM. (3) (Prerequisite: BTEC 620) The cooperating employer and the instructor (or designate) will develop an individualized practicum experience program of at least 12 weeks duration for each student.

PARA 515 WATER, HEALTH AND SANITATION. (3) The origin and types of water contaminants including live organisms, infectious agents and chemicals of agricultural and industrial origins. Conventional and new technological developments to eliminate water pollutants. Comparisons of water, health and sanitation between industrialized and developing countries.

PARA 600 THESIS PROPOSAL FOR M.Sc. (4) Comprises a written document outlining the proposed research objectives.

PARA 606 PARASITOLOGY SEMINAR. (2) A seminar series in which students present seminars covering topics in parasitology, in areas relevant to their research interests. Students register for the course in their second term of residency. Attendance and participation are compulsory for M.Sc. students.

PARA 607 PARASITOLOGY RESEARCH SEMINAR. (2) This is a required course for M.Sc. students. A seminar course in which students registered at the Institute of Parasitology present seminars on the results of their thesis research. Students register for the course in the final term prior to thesis submission.

PARA 635 CELL BIOLOGY AND INFECTION. (3) (Prerequisite: students with some background in molecular biology) Research articles will be the primary source of information. This course will cover new principles in cell biology. In particular, the mechanisms by which gene expression is regulated through signal transduction pathways initiated at the cell surface will be presented.

PARA 655 HOST-PARASITE INTERACTIONS. (3) Lectures, tutorials and laboratory demonstrations of the principal factors which affect levels of parasite infection and treatment of infections in humans and animals. The integration and management of the

host-parasite relationship in terms of transmission, population dynamics, environmental management, behaviour, immune responses, pathology, and pharmacology to decrease parasitic disease.

PARA 665 SPECIAL TOPICS IN PARASITOLOGY. (3) This course designation will be used for special courses that staff, or visiting professors, may wish to provide when student interest warrants. Examples might include a laboratory techniques course, a mathematical modelling course or a special pharmacology seminar series.

PARA 687 THESIS RESEARCH 1. (10)

PARA 688 THESIS RESEARCH 2. (10)

PARA 689 THESIS RESEARCH 3. (12)

PARA 690 THESIS RESEARCH 4. (2) Thesis research.

PARA 691 THESIS RESEARCH 5. (6) (Restriction: Restricted to students registered in the M.Sc. in Parasitology, Environment option.) Thesis research.

PARA 700 THESIS PROPOSAL FOR PH.D. (0) Comprises a written document outlining the proposed research objectives.

PARA 710 PARASITOLOGY PH.D. SEMINAR 1. (2) This first seminar is a review of the scientific literature in the topic area of the thesis research.

PARA 711 PARASITOLOGY PH.D. SEMINAR 2. (2) A seminar series in which students present seminars covering topics in parasitology in areas relevant to their research interests. Attendance and participation are compulsory.

60 Pathology

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Canada

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Fax: (514) 398-7446

E-mail: gradstudies.pathology@mcgill.ca

Website: www.mcgill.ca/pathology

Chair — D. Haegert

Director of Graduate Program — E. Zorychta

60.1 Staff

Professors

M.N. Burnier Jr.; M.D., M.Sc., Ph.D.(Brazil)

A.M.V. Duncan; B.Sc.(Qu.), Ph.D.(Edin.)

A. Ferenczy; B.A., B.Sc., M.D.(Montr.)

R. Fraser; B.Sc., M.D., C.M.(McG.), M.Sc.(Glas.), F.R.C.P.(C)

D. Haegert; M.D.(Br. Col.), F.R.C.P.(C)

Q.A. Hamid; M.D.(Mosul), Ph.D.(Lond.) (*James McGill Professor*)

(*joint appt. with Medicine*)

R.P. Michel; B.Sc., M.D., C.M.(McG.), F.R.C.P.(C)

J.B. Richardson; B.Sc., M.D., C.M., Ph.D.(McG.), F.R.C.P.(C)

Associate Professors

L. Alpert; M.D., Ph.D.(Tufts)

J. Arseneau; M.D.(Laval), F.R.C.P.(C)

M. Auger; M.D., C.M.(McG.), F.R.C.P.(C)

C. Bernard; M.D.(Sher.)

M.L. Brisson; B.A.(Paris), B.Sc., M.D.(Montr.)

B. Case; B.Sc., M.D., C.M., M.Sc.(McG.), Dipl. Occ. Hyg.,

F.R.C.P.(C)

M.F. Chen; M.B., B.S.(Monash), F.R.C.P.(C)

E. Lamoureux; B.Sc., M.D.(Montr.), F.R.C.P.(C)

R. Onerheim; M.D.(Alta.), F.R.C.P.(C)

L. Rochon; M.D.(Sher.), F.R.C.P.(C)

I. Roy; B.Sc., M.D., C.M.(McG.), F.R.C.P.(C)

K. Watters; B.Sc., M.D., C.M.(McG.), F.R.C.P.(C)

E.A. Zorychta; B.Sc.(St. FX), M.Sc., Ph.D.(McG.)

Assistant Professors

S. Albrecht; M.D.(Sher.), F.R.C.P.(C)

R.D. Amre; MBBS (India)

K. Bakdounes; M.D.(Damascus)

M. Blumenkrantz; M.D., C.M.(McG.), F.R.C.P.(C)

G.A. Brandao; M.D.(Brazil)

P.J. Chauvin; M.Sc.(W. Ont.), D.D.S.(McG.)

A. Gologan; M.D.(Romania)

O. Gologan; M.D.(Romania)

M.-C. Guiot; B.Sc., M.D.(Bordeaux)

T. Haliotis; M.D.(Greece), Ph.D.(Qu.), F.R.C.P.(C)

S. Jung; M.D.(Korea)

Y. Kanber; M.D.(Turkey)

J. Lavoie; B.Sc., M.Sc., Ph.D.(Laval)

H.R. Lopez-Valle; M.D.(Mexico)

A.T. Marcus; B.Sc., M.D., C.M.(McG.), F.R.C.P.(C)

V.A. Marcus; M.D., C.M.(McG.), F.R.C.P.(C)

A. Nahal; M.D.(Aleppo)

V.-H. Nguyen; M.D.(Montr.), F.R.C.P.(C)

A. Omeroglu; M.D.(Istanbul)

G. Omeroglu; M.D.(Istanbul)

D. Pilavdzic; M.D.(Zagreb), F.R.C.P.(C)

A. Sauvageau; M.D., M.Sc.(Montr.)

H. Srolovitz; B.Sc.(Pitt.), M.D.(Basle)

J. St. Cyr; M.D., C.M.(McG.), F.R.C.P.(C)

60.2 Programs Offered

M.Sc. and Ph.D. degrees in Pathology.

The Pathology Department offers research training in a wide variety of areas such as atherosclerosis, immunology and transplantation, neoplasia, cell biology, pulmonary vascular and airways disease, pulmonary edema, neurodegenerative disorders, and smooth muscle pathophysiology.

Modern techniques and equipment include light, fluorescence and electron microscopy (both transmission and scanning), cell culture, advanced immunological, pharmacological, biochemical and physiological techniques, as well as morphometry and computers.

60.3 Admission Requirements

Applicants must have a B.Sc. or the equivalent degree with an extensive background in the physical and biological sciences. An academic record equivalent to or better than a CGPA of 3.2 out of 4 at McGill is required for at least the two final full-time years of undergraduate training with a minimum CGPA of 3.0 overall.

Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit the GRE and TOEFL examinations in order to properly evaluate their suitability. Students are normally accepted into the M.Sc. program, and those candidates showing exceptional ability may be permitted to transfer into the Ph.D. program after one year of training.

Applicants who already possess an additional degree (M.Sc., M.D.) and have some research experience may be allowed to register in the Ph.D. program directly.

Prospective students are encouraged to apply online at www.mcgill.ca/applying/graduate. For further information, applicants may contact the Teaching Office, Department of Pathology.

60.4 Application Procedures

Applications will be considered upon receipt of:

1. application;
2. transcripts;
3. letters of reference;
4. \$80 application fee;
5. test results (GRE, TOEFL).

All information is to be submitted directly to the Pathology Teaching Office.

All applications will be evaluated by the Graduate Students Committee. Candidates found suitable must then be accepted by a research director, and adequate funding must be obtained for both personal support and research expenses.

60.5 Program Requirements

All students must take PATH 300 plus a course in statistics if they have not completed these requirements before admission.

Candidates with insufficient background in one of the biomedical sciences will be required to take specific courses to remedy the deficiency. These and additional courses which are relevant to the student's area of research will be chosen in consultation with the research director and Graduate Students Committee.

M.Sc. in Pathology (Thesis) (45 credits)

Candidates must complete the courses listed below and any additional courses considered necessary by the research director or the Graduate Students Committee.

Required Courses (6 credits)

- PATH 620 (3) Research Seminar 1
PATH 622 (3) Research Seminar 2

Complementary Courses (9 credits)

3 credits, one of the following courses:

- PATH 613 (3) Research Topics in Pathology 1
PATH 614 (3) Research Topics in Pathology 2

6 credits, two graduate-level courses offered by the Department; subject to approval of the research director and Graduate Students Committee, up to 3 graduate-level credits may be taken in another department.

Thesis Component – Required (30 credits)

- PATH 690 (9) M.Sc.Thesis Research Project 1
PATH 691 (9) M.Sc.Thesis Research Project 2
PATH 692 (12) M.Sc. Thesis Research Project 3

Ph.D. in Pathology

Candidates will be evaluated primarily on their ability to conduct independent research and submit a thesis, which must be defended orally. They must also complete the courses listed below and any additional courses considered necessary by the research director or the Graduate Students Committee.

Required Courses (12 credits)

- PATH 613 (3) Research Topics in Pathology 1
PATH 614 (3) Research Topics in Pathology 2
PATH 620 (3) Research Seminar 1
PATH 622 (3) Research Seminar 2
PATH 701 (0) Comprehensive Examination - Ph.D. Candidates

Complementary Courses (9 credits)

9 credits, three graduate-level courses offered by the Department; subject to approval of the research director and Graduate Students Committee, up to 3 graduate-level credits may be taken in another department.

60.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click **Class Schedule**) for the most up-

to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. **Class Schedule lists courses by term and includes days, times, locations, and names of instructors.**

Note: All undergraduate courses administered by the Faculty of Science (courses at the 100- to 500-level) have limited enrolment.

The course credit weight is given in parentheses after the title.

PATH 607 BIOCHEMICAL PATHOLOGY. (3) Lectures and seminars covering a range of topics in the field of cytokine biology, the role of cytokines in disease pathogenesis and advanced molecular techniques in the expression and regulation of cytokines.

PATH 613 RESEARCH TOPICS IN PATHOLOGY 1. (3)

PATH 614 RESEARCH TOPICS IN PATHOLOGY 2. (3)

PATH 620 RESEARCH SEMINAR 1. (3)

PATH 622 RESEARCH SEMINAR 2. (3)

PATH 653 READING AND CONFERENCE. (3) (Offered in conjunction with the Department of Human Genetics.) Cytogenetics is the science and art of making and analyzing chromosome preparations. This course focuses on human chromosomes, although methodologies and principles apply broadly to other species as well. Basic facts and mysteries about chromosomes will be explained and discussed in the light of clinical examples.

PATH 690 M.Sc.THESIS RESEARCH PROJECT 1. (9)

PATH 691 M.Sc.THESIS RESEARCH PROJECT 2. (9)

PATH 692 M.Sc. THESIS RESEARCH PROJECT 3. (12)

PATH 701 COMPREHENSIVE EXAMINATION - Ph.D. CANDIDATES. (0)

61 Pharmacology and Therapeutics

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Chair — H.H. Zingg

Graduate Program Director — P. Clarke

61.1 Staff

Emeritus Professors

B. Collier; Ph.D.(Leeds)

T. Sourkes; Ph.D.(C'nell.)

Professors

G. Almazan; Ph.D.(McG.)

R. Capek; M.D., Ph.D.(Prague)

P.B.S. Clarke; M.A.(Camb.), Ph.D.(Lond.)

A.C. Cuello; M.D.(Buenos Aires), M.A., D.Sc.(Oxf.), F.R.S.C.

B.F. Hales; Ph.D.(McG.)

D. Maysinger; Ph.D.(S. Calif.)

P.J. McLeod; M.D.(Man.), F.R.C.P.(C)

A. Ribeiro-da-Silva; M.D., Ph.D.(Oporto)

B. Robaire; Ph.D.(McG.)

M. Szyf; Ph.D.(Hebrew)

J. Trasler; M.D., C.M., Ph.D.(McG.)

D.R. Varma; M.D.(L'now), Ph.D.(McG.)

H.H. Zingg; M.D., Ph.D.(McG.)

Associate Professors

D. Bernard; Ph.D.(Johns H.)

B. Esplin; M.D.(Warsaw)

T. Hébert; Ph.D.(Tor.)

A. McKinney; Ph.D.(Ulster)

S. Nattel; M.D., C.M.(McG.)
 A. L. Padjen; M.D., Ph.D.(Zagreb)
 H. Saragovi; Ph.D.(Miami)
 B.I. Sasyniuk; Ph.D.(Man.)
 E. Zorychta; Ph.D.(McG.)

Assistant Professors

D. Bowie; B.Sc., Ph.D.(Lond.)
 G. Miller; Ph.D.(W. Ont)

Associate Members

M. Alaoui-Jamali; Ph.D.(Sorbonne)
 G. Batist; M.D., C.M.(McG.)
 G. Di Battista; B.Sc., Ph.D.(Montr.)
 P. Fiset; M.D.(Laval), F.R.C.P.S.(C)
 S. Gauthier; M.D.(Montr.)
 B.J. Jean-Claude; Ph.D.(McG.)
 S. Kimmins; Ph.D.(Dal.)
 S. Laporte; Ph.D.(Sher.)
 V. Pappadopoulos; Ph.D.(Univ. Pierre & Marie Curie)
 R. Prichard; Ph.D.(N.S.W.)
 R. Quirion; Ph.D.(Sher.)
 Y. Shir; M.D.(Israel), Ph.D.(Johns H.)
 L. Stone; Ph.D.(Minn.)
 X.J. Yang; Ph.D.(Shanghai)

Adjunct Professors

B. Allen, S. Chemtob, L. Fellows, Y. de Koninck, L. Garofalo,
 J.M.A. Laird, J. Mancini, D. Slipetz

61.2 Programs Offered

The Department of Pharmacology and Therapeutics offers training leading to M.Sc. (Thesis) and Ph.D. degrees.

The Department also offers the Chemical Biology Interdisciplinary Graduate Option, together with the Departments of Biochemistry and Chemistry. Students interested in training in this option must first be accepted for graduate studies by one of the participating departments. Information on this option can be found at the following Web address:
www.mcgill.ca/biochemistry/chemicalbiology.

Pharmacology is a multi-disciplinary science which deals with all aspects of drugs and their interactions with living organisms. Thus, pharmacologists study the physical and chemical properties of drugs, their biochemical and physiological effects, mechanisms of action, pharmacokinetics and therapeutic and other uses. The Department offers broad exposure and training in both basic and clinical research in areas of specialty ranging from neuropharmacology, reproductive, endocrine, receptor, cardiovascular, cancer, developmental, autonomic, clinical and biochemical pharmacology, molecular biology, to toxicology.

The present 48 full and affiliate members of the Department have research laboratories located in the McIntyre Medical Sciences Building and in a variety of hospitals, institutes and industry including the Douglas Hospital Research Center, Allan Memorial Institute, Montreal Children's Hospital, Montreal General Hospital, Royal Victoria Hospital, Montreal Heart Institute, Lady Davis Research Institute, Pfizer Canada and Merck Frosst Canada Inc. The participation of researchers from both industry and government ensures the relevance of the Department's applications oriented training programs.

61.3 Admission Requirements

Candidates are required to hold a B.Sc. degree in a discipline relevant to the proposed field of study; those with the M.D., D.D.S. or D.V.M. degrees are also eligible to apply. A background in the health sciences is recommended, but programs in biology, chemistry, mathematics, and physical sciences may be acceptable.

Admission is based on a student's academic record, letters of assessment, and, whenever possible, interviews with staff members. Students are required to take the Graduate Record Examination Aptitude Test (GRE) and the Test of English as a Foreign

Language (TOEFL) or the equivalent, except as follows, in accordance with McGill policy, only those whose mother tongue is English, who graduated from a recognized Canadian institution (anglophone or francophone), or who completed an undergraduate or graduate degree at a recognized foreign institution where English is the language of instruction are exempt from providing proof of competency in English.

Inquiries relating to all aspects of graduate study should be directed to the Graduate Coordinator, Department of Pharmacology and Therapeutics as early as possible in each academic year.

Admissions Requirements - Chemical Biology Option

As for the regular graduate programs of the participating departments, acceptance into the Chemical Biology Option consists of two steps:

1. Preliminary approval by the Department's Graduate Committee based on the student's transcript, references and other documents submitted with the application. The criteria for assessment at this level are the same as for the regular graduate programs of the participating departments.
2. Acceptance by an individual research director. For students wishing to participate in the Chemical Biology Option, the director must propose a research project for the student that provides training in the methods and philosophy of chemical biology. Project proposals are assessed by the Chemical Biology Program Committee.

61.4 Application Procedures

Applications will be considered upon receipt of:

1. Completed official McGill University application form; available via Internet at www.mcgill.ca/applying/graduate.
2. Curriculum vitae including a statement of research interests.
3. Two copies of official transcripts sent directly from all universities attended.
4. Two confidential letters of recommendation from professors or research-related employers (at least one should be from an academic known to the international scientific community). There is no "Standard Form". The letter must be printed on letterhead.
5. Application fee (\$80 Canadian or U.S. Funds) payable by credit card for online applications; by money order, certified personal cheque, or bank draft enclosed with the official paper application form.
6. Official GRE www.gre.org and TOEFL www.toefl.org scores (not required of applicants from Canada).

Applications and all documents should be submitted directly to the Graduate Program Co-ordinator, Ms. Tina Tremblay, in the Department of Pharmacology.

Deadlines

September Admission:

- Canadian/Permanent Resident applicants – June 1 (including interviews with graduate committee members).
- International applicants – March 1st.

January Admission:

- Canadian/Permanent Resident applicants – October 15 (including interviews with graduate committee members).
- International applicants – September 1.

61.5 Program Requirements

The objective of the M.Sc. (Thesis) and Ph.D. degree training programs is to provide in-depth independent research experience in a specific area of pharmacology.

M.Sc. in Pharmacology (Thesis) (45 credits)

Required Courses (9 credits)

PHAR 601	(6)	Comprehensive Examination
PHAR 712	(3)	Statistics for Pharmacologists

Complementary Courses (12 credits)

6 credits, either the following two courses:

PHAR 562 (3) General Pharmacology 1
and PHAR 563(3) General Pharmacology 2

or, for students who have taken PHAR 562 and PHAR 563 as part of their undergraduate degree:

PHAR 697 (6) Thesis Preparation 1

6 credits, two 700-level PHAR courses.

Thesis Component – Required (24 credits)

PHAR 696 (3) Thesis Preparation

PHAR 698 (9) Thesis Preparation 2

PHAR 699 (12) Thesis Preparation 3

M.Sc. in Pharmacology (Thesis) – Chemical Biology Option/Concentration (47 credits)**Required Course** (9 credits)

PHAR 601 (6) Comprehensive Examination

PHAR 712 (3) Statistics for Pharmacologists

Complementary Courses (14 credits)

2 credits, two of the following courses:

BIOC 610 (1) Seminars in Chemical Biology 1

BIOC 611 (1) Seminars in Chemical Biology 3

CHEM 689 (1) Seminars in Chemical Biology 2

CHEM 690 (1) Seminars in Chemical Biology 4

6 credits, either the following two courses:

PHAR 562 (3) General Pharmacology 1

and PHAR 563(3) General Pharmacology 2

or, students who have taken PHAR 562 and PHAR 563 as part of their undergraduate degree replace them with two courses from:

BIOC 603 (3) Genomics and Gene Expression

BIOC 604 (3) Macromolecular Structure

CHEM 504 (3) Drug Design and Development 2

CHEM 591 (3) Bioinorganic Chemistry

CHEM 621 (5) Recent Advances in Organic Chemistry

CHEM 623 (5) Stereochemistry

CHEM 629 (5) Organic Synthesis

CHEM 655 (4) Advanced NMR Spectroscopy

PHAR 504 (3) Drug Design and Development 2

PHAR 707 (3) Topics in Pharmacology 6

3 credits, one of the following courses:

PHAR 702 (3) Topics in Pharmacology 1

PHAR 703 (3) Topics in Pharmacology 2

PHAR 704 (3) Topics in Pharmacology 3

PHAR 705 (3) Topics in Pharmacology 4

PHAR 706 (3) Topics in Pharmacology 5

PHAR 707 (3) Topics in Pharmacology 6

3 credits, one of the following courses:

CHEM 502 (3) Advanced Bio-Organic Chemistry

PHAR 503 (3) Drug Design and Development 1

Thesis Component – Required (24 credits)

PHAR 696 (3) Thesis Preparation

PHAR 698 (9) Thesis Preparation 2

PHAR 699 (12) Thesis Preparation 3

DOCTORAL PROGRAMS**Ph.D. in Pharmacology**

Students must successfully complete, or be exempted from, the same courses as for the equivalent M.Sc. in Pharmacology, plus one additional 700-level graduate course (for total of three), in addition to a Ph.D. thesis.

Ph.D. in Pharmacology – Chemical Biology Option/Concentration**Required Courses** (7 credits)

BIOC 610 (1) Seminars in Chemical Biology 1

BIOC 611 (1) Seminars in Chemical Biology 3

CHEM 689 (1) Seminars in Chemical Biology 2

CHEM 690 (1) Seminars in Chemical Biology 4

PHAR 712 (3) Statistics for Pharmacologists

Complementary Courses (14 credits)

6 credits, either the following two courses:

PHAR 562 (3) General Pharmacology 1

and PHAR 563(3) General Pharmacology 2

or, students who have taken PHAR 562 and PHAR 563 as part of their undergraduate degree replace them with two courses from:

BIOC 603 (3) Genomics and Gene Expression

BIOC 604 (3) Macromolecular Structure

CHEM 504 (3) Drug Design and Development 2

CHEM 591 (3) Bioinorganic Chemistry

CHEM 621 (5) Recent Advances in Organic Chemistry

CHEM 623 (5) Stereochemistry

CHEM 629 (5) Organic Synthesis

CHEM 655 (4) Advanced NMR Spectroscopy

PHAR 504 (3) Drug Design and Development 2

PHAR 707 (3) Topics in Pharmacology 6

6 credits, two of the following courses:

PHAR 702 (3) Topics in Pharmacology 1

PHAR 703 (3) Topics in Pharmacology 2

PHAR 704 (3) Topics in Pharmacology 3

PHAR 705 (3) Topics in Pharmacology 4

PHAR 706 (3) Topics in Pharmacology 5

PHAR 707 (3) Topics in Pharmacology 6

3 credits, one of the following courses:

CHEM 502 (3) Advanced Bio-Organic Chemistry

PHAR 503 (3) Drug Design and Development 1

Comprehensive – Required (6 credits)

PHAR 601 (6) Comprehensive Examination

Thesis**61.6 Courses**

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

The course credit weight is given in parentheses after the title.

PHAR 503 DRUG DESIGN AND DEVELOPMENT 1. (3) (Fall) (Prerequisites: CHEM 302, BIOL 200, BIOL 201, BIOC 212, PHAR 300, PHAR 301, PHAR 303 or permission of coordinator) (Restriction: Not open to students who are taking or have taken CHEM 503) (Priority: students registered in the Minor in Pharmacology) Interdisciplinary course in drug design and development covering chemistry, mechanisms of drug action and steps in drug development, principles and problems in drug design.

PHAR 504 DRUG DESIGN AND DEVELOPMENT 2. (3) (Winter) (Prerequisite: PHAR 503/CHEM 503 or permission of the instructor.) (Restriction: U3 and graduate students. Students can register only with permission of coordinators) (Restriction: Not open to students who are taking or have taken CHEM 504) Interdisciplinary course in drug design and development in which teams of 2-4 students select a lead chemical compound, design the analogues, propose the preclinical and clinical studies, present possible untoward effects, and reasons for drug (dis)approval.

PHAR 558 PHARMACOLOGY RESEARCH TOPICS. (3) (Prerequisite: PHAR 562 or permission of the instructor.) (Corequisite: PHAR 563 or permission of the instructor.) Selected drug targets in their

native cellular milieu, in the context of intact tissues, organs and whole animals, highlighting conceptual advances in pharmacological theory.

PHAR 562 GENERAL PHARMACOLOGY 1. (3) (Fall) (Prerequisite: PHAR 301.) (Restrictions: Open to U3 students with permission of instructors, and students registered in the Minor Pharmacology Program) Principles of pharmacology as illustrated by current issues with an emphasis on the nervous system will be discussed. Drugs classified by their molecular target of action, their mechanism of action, and possibly a rationale for therapeutic use will be presented. Students will be required to examine and interpret scientific data, to write a paper and/or participate in small group discussions.

PHAR 563 GENERAL PHARMACOLOGY 2. (3) (Winter) (Prerequisite: PHAR 301.) (Restrictions: Open to U3 students with permission of instructors, and students registered in the Minor in Pharmacology Program) Selected topics of basic interactions between chemicals and biological systems. Actions of drugs at the molecular and cellular levels. Principles of drug development. Chemotherapy of infections and of cancer. Toxicology and pharmacokinetics/dynamics. Drug metabolism.

PHAR 599 RESEARCH PROJECTS IN PHARMACOLOGY. (6) (Minimum of 12 hours per week to be spent in the lab and/or library.) (Pre-/co-requisite PHAR 562 and PHAR 563 or PHAR 300 and PHAR 301) (Restrictions: Open to U3 students with permission of instructors, and students registered in the Minor Pharmacology Program. Students should consult instructors 3 - 4 weeks before registration. Students may not register without prior approval of the course co-ordinator(s)) (Please see regulations concerning Project Courses) This course involves individual research work. Students select a project under the supervision of a staff member. Areas of interest include toxicology, endocrine, developmental, cardiovascular, reproductive and neuropharmacology. This course requires a minimum of 6 hours per week for the full year course (PHAR 599D1/PHAR 599D2), and a minimum of 12 hours per week for the half year (PHAR 599) course to be spent in the laboratory and/or library.

PHAR 599D1 (3), PHAR 599D2 (3) RESEARCH PROJECTS IN PHARMACOLOGY. (Fall) (Minimum of 6 hours per week to be spent in the lab and/or library.) (Students must register for both PHAR 599D1 and PHAR 599D2.) (No credit will be given for this course unless both PHAR 599D1 and PHAR 599D2 are successfully completed in consecutive terms) (PHAR 599D1 and PHAR 599D2 together are equivalent to PHAR 599) This course involves individual research work. Students select a project under the supervision of a staff member. Areas of interest include toxicology, endocrine, developmental, cardiovascular, reproductive and neuropharmacology. This course requires a minimum of 6 hours per week for the full year course (PHAR 599 D1/PHAR 599D2), and a minimum of 12 hours per week for the half year (PHAR 599) course to be spent in the laboratory and/or library.

PHAR 601 COMPREHENSIVE. (6)

PHAR 601D1 (3), PHAR 601D2 (3) COMPREHENSIVE. (Students must register for both PHAR 601D1 and PHAR 601D2) (No credit will be given for this course unless both PHAR 601D1 and PHAR 601D2 are successfully completed in consecutive terms).

PHAR 601N1 COMPREHENSIVE. (3) (Students must also register for PHAR 601N2) (No credit will be given for this course unless both PHAR 601N1 and PHAR 601N2 are successfully completed in a twelve month period) See PHAR 601D1 for course description.

PHAR 601N2 COMPREHENSIVE. (3) (Prerequisite: PHAR 601N1) (No credit will be given for this course unless both PHAR 601N1 and PHAR 601N2 are successfully completed in a twelve month period) See PHAR 601D1 for course description.

PHAR 696 THESIS PREPARATION. (3)

PHAR 697 THESIS PREPARATION 1. (6)

PHAR 698 THESIS PREPARATION 2. (9)

PHAR 699 THESIS PREPARATION 3. (12)

PHAR 702 TOPICS IN PHARMACOLOGY 1. (3) (Prerequisite: Permission of the Instructor.) Topics in pharmacology.

PHAR 703 TOPICS IN PHARMACOLOGY 2. (3) (Prerequisite: Permission of the Instructor.) Topics in pharmacology.

PHAR 704 TOPICS IN PHARMACOLOGY 3. (3) (Prerequisite: Permission of the Instructor.) Topics in pharmacology.

PHAR 705 TOPICS IN PHARMACOLOGY 4. (3) (Prerequisite: Permission of the Instructor.) Topics in pharmacology.

PHAR 706 TOPICS IN PHARMACOLOGY 5. (3) (Prerequisite: Permission of the Instructor.) Topics in pharmacology.

PHAR 707 TOPICS IN PHARMACOLOGY 6. (3) (Prerequisite: Permission of the Instructor.) Topics in pharmacology.

PHAR 712 STATISTICS FOR PHARMACOLOGISTS. (3) (Restriction: This course is restricted to graduate students in Pharmacology and Therapeutics. Others require permission of the course coordinator.) Basic theoretical and practical aspects of statistics for pharmacologists.

62 Philosophy

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Chair — N. Stoljar

62.1 Staff

Emeritus Professors

A.T. McKinnon; M.A.(Tor.), Ph.D.(Edin.), B.D.(McG.), F.R.S.C., R.D., D.H.L.(St. Olaf) (*William C. Macdonald Emeritus Professor of Moral Philosophy*)
D. Norton; M.A.(Claremont), Ph.D.(Calif.), F.R.S.C.
C. Taylor; M.A., D.Phil.(Oxf.), F.R.S.C.

Professors

M.A. Bunge; Ph.D.(LaPlata), F.R.S.C. (*John Frothingham Professor of Logic and Metaphysics*)
G. DiGiovanni; B.A., M.A., S.T.B., Ph.D.(Tor.)
S. McCall; B.A.(McG.), B.Phil., D.Phil.(Oxf.)
C. Normore; B.A.(McG.), M.A., Ph.D.(Tor)

Associate Professors

R.P. Buckley; Ph.D.(Louvain)
E. Carson; M.A.(McG.), Ph.D.(Harv.)
D. Davies; B.A.(Oxf.), M.A.(Man.), Ph.D.(W. Ont.)
M. Deslauriers; B.A.(McG.), M.A., Ph.D.(Tor.)
C. Fraenkel; B.A., M.A., Ph.D.(Free Univ., Berlin) (*joint appt. with Jewish Studies*)
I. Gold; B.A., M.A.(McG.), Ph.D.(Princ.) (*joint appt. with Psychiatry*)
M. Hallett; B.Sc., Ph.D.(Lond.)
A. Laywine; B.A.(Ott.), M.A.(Montr.), Ph.D.(Chic.)
E. Lewis; B.A.(C'nell), Ph.D.(Ill. at Chic.)
J. McGilvray; B.A.(Carleton College), Ph.D.(Yale)
S. Menn; M.A., Ph.D.(Chic.), M.A., Ph.D.(Johns Hop.)
G. Mikkelsen; M.S., Ph.D.(Chic.) (*joint appt. with McGill School of Environment*)
N. Stoljar; B.A., LLB(Syd.), Ph.D.(Princ.) (*joint appt. with Social Studies of Medicine*)
S. Stroud; A.B.(Harv.), Ph.D.(Princ.)

Assistant Professors

A. Al-Saji; M.A.(Louvain), Ph.D.(Emory)
G. Fiasse; B.A., M.A., Ph.D.(Louvain) (*joint appt. with Religious Studies*)

I. Hirose; B.A., M.A.(Waseda), Ph.D.(St. And.) (*joint appt. with McGill School of Environment*)
 A. Reisner; M.A.(Brist.), D.Phil.(Oxf.)
 H. Sharp; M.A.(SUNY), Ph.D.(Penn.)

Associate Professor (part-time)

K. Arvanitakis

Associate Members

B. Gillon (Linguistics)

L. Kaplan (Jewish Studies)

R. Wisnovsky (Islamic Studies)

Adjunct Professors

S. Davis (Car.)

S.-J. Hoffmann (Dawson)

I. Macdonald (Montr.)

62.2 Programs Offered

The Department offers courses of study leading to the Ph.D. in Philosophy. It also offers, in conjunction with the Biomedical Ethics Unit, a course of study leading to the M.A. degree in Bioethics.

62.3 Admission Requirements

Ph.D. Students with an Honours B.A. degree in philosophy, or the equivalent, are normally admitted to the Ph.D. program directly at the Ph.D. I level. The Department considers an Honours B.A. degree to include:

- 1) A general knowledge of the history of Western philosophy: Greek, Medieval, Modern.
- 2) A systematic knowledge of the main philosophical disciplines in their contemporary as well as historical contexts: logic, ethics, epistemology, and metaphysics.
- 3) An ability to present, in written form, clear and substantial reconstructions and analyses of the materials normally studied in the areas mentioned in (1) and (2).

To demonstrate their competence in these areas applicants must submit transcripts of academic work, three letters of recommendation from persons with whom they have studied, and at least one substantial example (approximately 15-20 typewritten pages) of their written philosophical work.

In addition, applicants from North America whose first language is English are strongly encouraged to submit scores of the Graduate Record Examination. Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English (TOEFL score).

Students who hold an M.A. degree from another institution should apply for admission at the Ph.D. II level.

M.A. (Bioethics) Students applying to the Bioethics Specialty program must write an M.A. thesis proposal. All applications to this program must also receive the approval of the Director of the Specialty program. Students who apply for this program should note that they must participate in a practicum which continues beyond the end of their second term of classes.

62.4 Application Procedures

Ph.D.

The Department conducts its admission process once a year. Applications are accepted between October 15 and January 15 for September admission. The application deadline is January 15. Supporting documents must be postmarked no later than January 15.

The online application form is available at www.mcgill.ca/applying/graduate.

Applications will be considered complete upon receipt of:

1. application form;
2. \$80 fee;
3. two (2) official transcripts of all post-secondary studies;
4. three (3) original letters of reference;
5. test results (GRE, TOEFL);
6. writing sample;
7. statement of intent.

All supporting documents are to be submitted to the Department of Philosophy.

M.A. specialization in Bioethics

Applications are made initially through the Department of Philosophy.

Applicants must be accepted first by the Department of Philosophy and then by the Bioethics Graduate Studies Advisory Committee.

For information, please contact the Chair, Master's Specialization in Bioethics, Biomedical Ethics Unit, 3690 Peel Street, Montreal, QC, H3A 1W9. Telephone: (514) 398-6980.

Fax: (514) 398-8349. E-mail: audrey.prosser@mcgill.ca or visit: www.mcgill.ca/biomedicaethicsunit/masters.

62.5 Program Requirements

Ph.D. in Philosophy

Candidacy Paper requirement:

By December 15 of their third year in the program (Ph.D. III) for students admitted at Ph.D.I and August 15 in their second year in the program (Ph.D.III) for students admitted at Ph.D. II, students must submit a research paper (the "candidacy paper" [3 credits]), which may be worked up from a paper written to fulfil the requirements of a graduate course, to a Thesis Advancement Committee consisting of a least two members of the staff of the Department. The membership of this committee will be determined by the Graduate Director in consultation with the student; it is anticipated that members of this committee would, in principle, direct the student's thesis. This committee assigns a grade to the student's paper and reviews her or his graduate performance; on the basis of its assessment and review, it recommends to the Department as a whole either to permit the student to continue with the Ph.D. program and undertake a thesis or to decline to permit the student to continue. Two necessary conditions for a positive recommendation are that the student (a) receive a grade of at least B+ on the candidacy paper, and (b) have at least a 3.5 GPA (on the undergraduate Grade Point scale) in the course work required for the program. The Department as a whole, taking into account the Thesis Advancement Committee's recommendation and the student's overall academic record in the program, decides whether to permit the student to continue. Students who do not receive a positive recommendation but who satisfy Graduate and Postdoctoral Studies Office requirements (no courses below a B- and completion of 45 credits) will be recommended to the Graduate and Postdoctoral Studies Office by the Department to transfer from the Ph.D. program to the M.A. program.

Graduate students are expected to continue to contribute to the intellectual life of the Department after being promoted to candidacy. They can do so by participating in reading and discussion groups and, most of all, by auditing seminars both within and without their areas of specialty.

Required Courses (18 credits)

PHIL 607	(6)	Pro-Seminar 1
PHIL 682	(6)	Pro-Seminar 3
PHIL 685	(3)	Fundamentals of Logic
PHIL 690	(3)	Candidacy Paper

Language Requirement

One research language at the advanced level or two research languages at the intermediate level.

Thesis

Complementary Courses (21-27 credits)

Ph.D. 1 admission – (27 credits)

Ph.D. 2 admission – (21 credits)

The courses must satisfy the following area requirements:

Minimum of 6 credits from the following:

- PHIL 551 (3) Seminar: Ancient Philosophy 2
- PHIL 556 (3) Seminar: Medieval Philosophy
- PHIL 560 (3) Seminar: 17th Century Philosophy
- PHIL 561 (3) Seminar: 18th Century Philosophy
- PHIL 567 (3) Seminar: 19th Century Philosophy
- PHIL 575 (3) Seminar: Contemporary European Philosophy

and/or any other course at the 500 level or higher in the History of Philosophy recommended/accepted by the student's advisory committee. Depending on the topics covered, PHIL 607 and PHIL 682 may count towards the area requirements.

Minimum of 6 credits from the following:

- PHIL 534 (3) Seminar: Ethics
- PHIL 540 (3) Seminar: Philosophy and Social Sciences
- PHIL 543 (3) Seminar: Medical Ethics
- PHIL 544 (3) Political Theory
- PHIL 548 (3) Seminar: Philosophy of Law

and/or any other course at the 500 level or higher in Value Theory recommended/accepted by the student's advisory committee. Depending on the topics covered, PHIL 607 and PHIL 682 may count towards the area requirements.

Minimum of 6 credits from the following:

- PHIL 506 (3) Seminar: Philosophy of Mind
- PHIL 507 (3) Seminar: Cognitive Science
- PHIL 510 (3) Seminar: Advanced Logic 2
- PHIL 511 (3) Seminar: Philosophy of Logic and Mathematics
- PHIL 515 (3) Seminar: Philosophy of Language
- PHIL 519 (3) Seminar: Epistemology
- PHIL 521 (3) Seminar: Metaphysics
- PHIL 570 (3) Seminar: Contemporary Analytic Philosophy

and/or any other course at the 500 level or higher in Metaphysics and Epistemology recommended/accepted by the student's advisory committee. Depending on the topics covered, PHIL 607 and PHIL 682 may count towards the area requirements.

The remaining course(s) must be at the 500 level or higher and are to be chosen in consultation with the student's advisory committee.

Ph.D. in Philosophy; Environment Option/Concentration

The Graduate Option in Environment provides students with an appreciation of the role of science in informing decision-making in the environment sector, and the influence that political, socio-economic and ethical judgments have. The Option also provides a forum whereby graduate students bring their disciplinary perspectives together and enrich each other's learning through structured courses, formal seminars and informal discussions and networking. Students that have been admitted through their home department or Faculty may apply for admission to the Option. Option requirements are consistent across academic units. The Option is coordinated by the MSE, in partnership with participating academic units.

Required Courses (24 credits)

- PHIL 607 (6) Pro-Seminar 1
- PHIL 682 (6) Pro-Seminar 3
- PHIL 685 (3) Fundamentals of Logic
- PHIL 690 (3) Candidacy Paper
- ENVR 610 (3) Foundations of Environmental Policy
- ENVR 650 (1) Environmental Seminar 1
- ENVR 651 (1) Environmental Seminar 2
- ENVR 652 (1) Environmental Seminar 3

Language Requirement

One research language at the advanced level or two research languages at the intermediate level.

Thesis**Complementary Courses (24-30 credits)**

Ph.D. 1 admission – (30 credits)

Ph.D. 2 admission – (24 credits)

The courses must satisfy the following area requirements:

Minimum of 6 credits from the following:

- PHIL 551 (3) Seminar: Ancient Philosophy 2
- PHIL 556 (3) Seminar: Medieval Philosophy
- PHIL 560 (3) Seminar: 17th Century Philosophy
- PHIL 561 (3) Seminar: 18th Century Philosophy
- PHIL 567 (3) Seminar: 19th Century Philosophy
- PHIL 575 (3) Seminar: Contemporary European Philosophy

and/or any other course at the 500 level or higher in the History of Philosophy recommended/accepted by the student's advisory committee. Depending on the topics covered, PHIL 607 and PHIL 682 may count towards the area requirements.

Minimum of 6 credits from the following:

- PHIL 534 (3) Seminar: Ethics
- PHIL 540 (3) Seminar: Philosophy and Social Sciences
- PHIL 543 (3) Seminar: Medical Ethics
- PHIL 544 (3) Political Theory
- PHIL 548 (3) Seminar: Philosophy of Law

and/or any other course at the 500 level or higher in Value Theory recommended/accepted by the student's advisory committee. Depending on the topics covered, PHIL 607 and PHIL 682 may count towards the area requirements.

Minimum of 6 credits from the following:

- PHIL 506 (3) Seminar: Philosophy of Mind
- PHIL 507 (3) Seminar: Cognitive Science
- PHIL 510 (3) Seminar: Advanced Logic 2
- PHIL 511 (3) Seminar: Philosophy of Logic and Mathematics
- PHIL 515 (3) Seminar: Philosophy of Language
- PHIL 519 (3) Seminar: Epistemology
- PHIL 521 (3) Seminar: Metaphysics
- PHIL 570 (3) Seminar: Contemporary Analytic Philosophy

and/or any other course at the 500 level or higher in Metaphysics and Epistemology recommended/accepted by the student's advisory committee. Depending on the topics covered, PHIL 607 and PHIL 682 may count towards the area requirements.

3 credits chosen from:

- ENVR 519 (3) Global Environmental Politics
- ENVR 544 (3) Environmental Measurement and Modelling
- ENVR 580 (3) Topics in Environment 3
- ENVR 611 (3) The Economy of Nature
- ENVR 620 (3) Environment and Health of Species
- ENVR 622 (3) Sustainable Landscapes
- ENVR 630 (3) Civilization and Environment 1
- ENVR 680 (3) Topics in Environment 4

or other course at the 500 level or higher recommended by the advisory committee and approved by the Environment Option Committee

The remaining course(s) must be at the 500 level or higher and are to be chosen in consultation with the student's advisory committee.

Ph.D. in Philosophy; Gender and Women's Studies Option/Concentration

The Graduate option in Gender and Women's Studies is an interdisciplinary program for students who meet the degree requirements in Philosophy who wish to earn 9 additional credits of approved coursework focusing on gender and women's studies, and issues in feminist research and methods. The student's

doctoral thesis must be on a topic centrally relating to issues of gender and/or women's studies.

Required Courses (24 credits)

PHIL 607	(6)	Pro-Seminar 1
PHIL 682	(6)	Pro-Seminar 3
PHIL 685	(3)	Fundamentals of Logic
PHIL 690	(3)	Candidacy Paper
WMST 601	(3)	Feminist Theories and Methods
WMST 602	(3)	Feminist Research Symposium

Language Requirement

One research language at the advanced level or two research languages at the intermediate level.

Thesis

The student's doctoral thesis must be on a topic centrally relating to issues of gender and/or women's studies.

Complementary Courses (24-30 credits)

Ph.D. 1 admission – (30 credits)

Ph.D. 2 admission – (24 credits)

The courses must satisfy the following area requirements:

Minimum of 6 credits from the following:

PHIL 551	(3)	Seminar: Ancient Philosophy 2
PHIL 556	(3)	Seminar: Medieval Philosophy
PHIL 560	(3)	Seminar: 17th Century Philosophy
PHIL 561	(3)	Seminar: 18th Century Philosophy
PHIL 567	(3)	Seminar: 19th Century Philosophy
PHIL 575	(3)	Seminar: Contemporary European Philosophy

and/or any other course at the 500 level or higher in the History of Philosophy recommended/accepted by the student's advisory committee. Depending on the topics covered, PHIL 607 and PHIL 682 may count towards the area requirements.

Minimum of 6 credits from the following:

PHIL 534	(3)	Seminar: Ethics
PHIL 540	(3)	Seminar: Philosophy and Social Sciences
PHIL 543	(3)	Seminar: Medical Ethics
PHIL 544	(3)	Political Theory
PHIL 548	(3)	Seminar: Philosophy of Law

and/or any other course at the 500 level or higher in Value Theory recommended/accepted by the student's advisory committee. Depending on the topics covered, PHIL 607 and PHIL 682 may count towards the area requirements.

Minimum of 6 credits from the following:

PHIL 506	(3)	Seminar: Philosophy of Mind
PHIL 507	(3)	Seminar: Cognitive Science
PHIL 510	(3)	Seminar: Advanced Logic 2
PHIL 511	(3)	Seminar: Philosophy of Logic and Mathematics
PHIL 515	(3)	Seminar: Philosophy of Language
PHIL 519	(3)	Seminar: Epistemology
PHIL 521	(3)	Seminar: Metaphysics
PHIL 570	(3)	Seminar: Contemporary Analytic Philosophy

and/or any other course at the 500 level or higher in Metaphysics and Epistemology recommended/accepted by the student's advisory committee. Depending on the topics covered, PHIL 607 and PHIL 682 may count towards the area requirements.

And one additional 3-credit course selected from the list of Women's Studies graduate course offerings (below), or other graduate option-approved courses from participating departments.

Women's Studies graduate courses:

WMST 501	(3)	Advanced Topics 1
WMST 502	(3)	Advanced Topics 2
WMST 513	(3)	Gender, Race and Science

The remaining course(s) must be at the 500 level or higher and are to be chosen in consultation with the student's advisory committee.

M.A. in Philosophy (Thesis) – Bioethics Option/ Concentration (45 credits)

The curriculum is composed of required courses (for 6 credits) offered in the Biomedical Ethics Unit, bioethics courses (3 credit minimum) offered by Philosophy and any graduate courses required or accepted by Philosophy for the granting of a Master's degree, for a total of 18 to 21 credits. A minimum of 45 credits is required including the thesis. For further information refer to the Bioethics entry.

62.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Note: All undergraduate courses administered by the Faculty of Arts (courses at the 100- to 500-level) have limited enrolment.

Note: : 500-level seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department.

The course credit weight is given in parentheses after the title.

PHIL 506 SEMINAR: PHILOSOPHY OF MIND. (3) (Prerequisite: PHIL 306.) (Restriction: Open only to students as indicated above and to Cognitive Science Minors) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced course devoted to specific topics in the philosophy of mind.

PHIL 507 SEMINAR: COGNITIVE SCIENCE. (3) (Prerequisites: PHIL 306, PHIL 415 or written permission of the instructor) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced discussion of a topic of philosophical interest arising from contemporary empirical work in cognitive science.

PHIL 511 SEMINAR: PHILOSOPHY OF LOGIC AND MATHEMATICS. (3) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department)

PHIL 515 SEMINAR: PHILOSOPHY OF LANGUAGE. (3) (Prerequisite: PHIL 415 or written permission of the instructor) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced course devoted to a topic in the philosophy of language.

PHIL 519 SEMINAR: EPISTEMOLOGY. (3) (Prerequisite: PHIL 420 or written permission of the instructor) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced course devoted to a topic in the theory of knowledge. Subject varies from year to year.

PHIL 521 SEMINAR: METAPHYSICS. (3) (Prerequisite: PHIL 421 or written permission of the instructor) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced course devoted to a topic in metaphysics.

PHIL 534 SEMINAR: ETHICS. (3) (Prerequisite: PHIL 334 or written permission of the instructor) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department)

PHIL 536 SEMINAR: AESTHETICS. (3) (Prerequisite: PHIL 336 or PHIL 436 or permission of the instructor.) (Restriction: Open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the

Department) An advanced course devoted to a specific topic in the area of aesthetics and/or the philosophy of art.

PHIL 540 SEMINAR: PHILOSOPHY AND SOCIAL SCIENCES. (3)

PHIL 541 SEMINAR: PHILOSOPHY OF SCIENCE. (3) (Prerequisite: PHIL 441 or other requirements specified by the instructor) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced course devoted to a topic in the philosophy of science.

PHIL 543 SEMINAR: MEDICAL ETHICS. (3) (Prerequisite: PHIL 343 or written permission of the instructor) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced course devoted to a particular philosophical problem as it arises in the context of medical practice or the application of medical technology.

PHIL 544 POLITICAL THEORY. (3) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department)

PHIL 548 SEMINAR: PHILOSOPHY OF LAW. (3) (Prerequisite: PHIL 348 or written permission of the instructor) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced course devoted to a particular topic in the philosophy of law. Subject varies from year to year.

PHIL 551 SEMINAR: ANCIENT PHILOSOPHY 2. (3) (Prerequisite: at least one course in ancient philosophy and the specific requirements of individual instructors) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced course on a philosopher or philosophical issue articulated in antiquity.

PHIL 556 SEMINAR: MEDIEVAL PHILOSOPHY. (3) (Prerequisite: PHIL 345 or PHIL 357 or written permission of the instructor) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced course devoted to a particular topic in medieval philosophy. Subject varies from year to year.

PHIL 561 SEMINAR: 18TH CENTURY PHILOSOPHY. (3) (Prerequisite: PHIL 361 or written permission of the instructor) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced course on an eighteenth-century philosopher or philosophical issue.

PHIL 567 SEMINAR: 19TH CENTURY PHILOSOPHY. (3) (Prerequisite: PHIL 366 or PHIL 367 or written permission of the instructor) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced course on 19th-century philosophy or philosophical issue.

PHIL 570 SEMINAR: CONTEMPORARY ANALYTIC PHILOSOPHY. (3) (Prerequisite: PHIL 370 or PHIL 415 or written permission of the instructor) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced course on some major analytic philosopher, or some issue of central importance in the analytic tradition. Subject varies from year to year.

PHIL 575 SEMINAR: CONTEMPORARY EUROPEAN PHILOSOPHY. (3) (Prerequisite: PHIL 475 or written permission of the instructor) (Restriction: Seminars are open only to graduate students and

final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced course on contemporary European philosophy or some important issue in the Continental tradition.

PHIL 580 SEMINAR: PROBLEMS OF PHILOSOPHY 1. (3) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department)

PHIL 581 SEMINAR: PROBLEMS OF PHILOSOPHY. (3) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department)

PHIL 590 SEMINAR: SPECIAL TOPICS IN PHILOSOPHY. (3) (Prerequisites: one course in philosophy) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) Psychoanalysis: a critical examination. Depending on the interests of the class, areas covered would include: psychoanalytic epistemology, psychoanalysis and the pre-socratics, psychoanalysis and tragedy, reasons versus causes in psychoanalysis, hermeneutics, psychoanalytic truth, self-deception, irrationality, paradox, creativity, internal object world and its relation to external objects.

PHIL 607 PRO-SEMINAR 1. (6) A series of seminars on selected topics designed for professional training to graduate students. Topics will be selected from the general area of Value Theory.

PHIL 682 PRO-SEMINAR 3. (6) A series of seminars on selected topics designed to provide professional training to graduate students. Topics will be selected from the general area of Metaphysics/Epistemology.

PHIL 685 FUNDAMENTALS OF LOGIC. (3) A course in intermediate logic for graduate students in Philosophy, covering such topics as axiomatic systems, formal semantics, consistency, completeness, the limitative results, intuitionistic logic, formal theories of truth, aspects of the development of logic.

PHIL 690 CANDIDACY PAPER. (3)

PHIL 705 GUIDED RESEARCH IN ETHICS 1. (3)

PHIL 706 GUIDED RESEARCH IN ETHICS 2. (3)

PHIL 710 GUIDED RESEARCH IN LOGIC 1. (3)

PHIL 711 GUIDED RESEARCH IN LOGIC 2. (3)

PHIL 720 GUIDED RESEARCH: PHILOSOPHY OF SCIENCE 1. (3)

PHIL 721 GUIDED RESEARCH: PHILOSOPHY OF SCIENCE 2. (3)

PHIL 730 GUIDED RESEARCH: PHILOSOPHY OF RELIGION 1. (3)

PHIL 731 GUIDED RESEARCH: PHILOSOPHY OF RELIGION 2. (3)

PHIL 740 GUIDED RESEARCH: ANCIENT PHILOSOPHY 1. (3)

PHIL 741 GUIDED RESEARCH: ANCIENT PHILOSOPHY 2. (3)

PHIL 750 GUIDED RESEARCH: MEDIEVAL PHILOSOPHY 1. (3)

PHIL 751 GUIDED RESEARCH: MEDIEVAL PHILOSOPHY 2. (3)

PHIL 760 GUIDED RESEARCH: HISTORY OF PHILOSOPHY 1. (3)

PHIL 761 GUIDED RESEARCH: HISTORY OF PHILOSOPHY 2. (3)

PHIL 770 GUIDED RESEARCH: PHILOSOPHY OF POLITICS 1. (3)

PHIL 771 GUIDED RESEARCH: PHILOSOPHY OF POLITICS 2. (3)

PHIL 780 GUIDED RESEARCH: EPISTEMOLOGY/METAPHYSICS 1. (3)

PHIL 781 GUIDED RESEARCH: EPISTEMOLOGY/METAPHYSICS 2. (3)

63 Physical and Occupational Therapy

School of Physical and Occupational Therapy
3654 Promenade Sir-William-Osler
Montréal, QC H3G 1Y5
Canada

Telephone: (514) 398-2271

Fax: (514) 398-6360

E-mail: see below

Website: www.medicine.mcgill.ca/spot

Director — Maureen J. Simmonds, Ph.D.

Interim Academic Director, Physical Therapy — Adriana Venturini; B.Sc.(P.T.), M.Sc.(McG.)

E-mail: Profmasters.pot@mcgill.ca

Academic Director, Occupational Therapy — Sandra Everitt, M.A.

E-mail: Profmasters.pot@mcgill.ca

Academic Director, Graduate Program — Susan J. Bartlett, Ph.D.

E-mail: graduate.rehabilitation@mcgill.ca

63.1 Staff

Professors

Hugues Barbeau; B.Sc.(P.T.), M.Sc., Ph.D.(Laval)
Robert Dykes; B.A.(Calif.-LA), Ph.D.(Johns H.)
Erika Gisel; B.A.(Zur.), B.S.O.T., M.S., Ph.D.(Temple)
Annette Majnemer; B.Sc.(O.T.), M.Sc., Ph.D.(McG.)
Maureen J. Simmonds; Dip. P.T.(Wolverhampton), B.Sc.(P.T.), M.Sc.(P.T.), Ph.D.(Alta.)
Sharon Wood-Dauphinee; B.Sc.(P.T.), Dip.Ed., M.Sc.A., Ph.D.(McG.)

Associate Professors

Susan J. Bartlett; B.Sc.(C'dia), M.Ed.(McG.), Ph.D.(Syr.)
Joyce Fung; B.Sc.(P.T.)(Hong Kong Polytech. U), Ph.D.(McG.)
Isabelle Gélinas; B.Sc.(O.T.)(Montr.), M.Sc.(Virginia), Ph.D.(Rehab.Sc.)(McG.)
Eva Kehayia; B.A., M.A., Ph.D.(McG.)
Nicol Korner-Bitensky; B.Sc.(O.T.), M.Sc., Ph.D.(McG.)
Mindy Levin; B.Sc.(P.T.), M.Sc., Ph.D.(McG.)
Nancy Mayo; B.Sc.(P.T.)(Qu.), M.Sc., Ph.D.(McG.)
Patricia McKinley; B.A., M.A., Ph.D.(Calif.-LA)
Laurie Snider; B.Sc.(O.T.)(McG.), M.A.(Br.Col.), Ph.D.(Tor.)
Diane St. Pierre; B.Sc.(P.T.)(McG.), M.Sc., Ph.D.(Montr.)

Assistant Professors

Sara Ahmed; B.Sc.(P.T.), M.Sc., Ph.D.(McG.)
Philippe Archambault; B.Sc.(O.T.)(McG.), M.Sc.A., Ph.D.(Montr.)
Sophie De Serres; B.Eng., M.Eng.(École Polytech., Montr.), Ph.D.(Alta.)
Sandra Everitt; B.Sc.(O.T.), M.A.(McG.)
Isabelle Gagnon; B.Sc.(P.T.)(McG.), M.Sc., Ph.D.(Montr.)
Anouk Lamontagne; B.Sc., M.Sc., Ph.D.(Laval)
Catherine Limperopoulos; B.Sc.(O.T.), M.Sc., Ph.D.(McG.)
Barbara Mazer; B.Sc.(O.T.)(Qu.), M.Sc., Ph.D.(McG.)
Bernadette Nedelec; B.Sc.(O.T.), Ph.D.(Alta.)
Jadranka Spahija; B.Sc.(P.T.), Ph.D.(McG.)

Faculty Lecturers

Liliane Asseraf-Pasin; B.Sc.(P.T.)(McG.)
Isabel Audette; B.Sc.(P.T.)(McG.)
Mary-Ann Dalzell; B.Sc.(P.T.), M.Sc.A.(McG.)
Julie Fattal; B.Sc.(O.T.)(McG.)
Amelia Gaglietta; B.Sc.(P.T.)(McG.)
Marie-Claire Gaudet; B.Sc.(P.T.), M.Sc.(Montr.)
Heather Lambert; B.Sc.(O.T.), M.Sc., Ph.D.(McG.)
Susanne Mak; B.Sc.(O.T.)(McG.)
Cynthia Perlman; B.Sc.(O.T.), M.Sc.(McG.)
Suzanne Rouleau; B.Sc.(O.T.)(Laval), M.Sc.(Montr.)
Caroline Storr; B.Sc.(O.T.), M.B.A.(C'dia)

Beverlea Tallant; Dip. P.&O.T.(Tor.), B.Sc.(O.T.)(McG.), M.A., Ph.D.(C'dia)

Aliki Thomas; B.Sc.(O.T.), M.Ed.(McG.)

Adriana Venturini; B.Sc.(P.T.), M.Sc.(McG.)

Professional Associates

Samuel Benamron; B.Sc.(O.T.)(McG.)

Claude Bougie; B.Sc.(O.T.)(Montr.)

Mireille Boulos; B.Sc.(O.T.)(McG.)

Clara I. Carpintero; B.A.(O.T.), B.Sc.(O.T.)(Bogota), M.Ed.(McG.)

Geneviève Côté-Leblanc; B.Sc.(O.T.)(McG.), M.Sc.(Rehab.Sc.)(McG.)

Lynne F. Dawson; B.Sc.(P.T.)(McG.)

Caroline Lacroix; B.Sc.(O.T.)(McG.)

Jessica K. Lam; B.Sc.(O.T.)(McG.)

Kim Loo; B.Sc.(O.T.)(Ott.)

Masoud Mehrzad; B.Sc.(O.T.)(Tehran), MHA(Montr.)

Rochelle W. Rein; B.Sc.(P.T.)(McG.)

Carole St. Pierre; B.Sc.(O.T.)(McG.)

Maria Stathatos; B.Sc.(P.T.)(McG.)

Henry H. Tsang; B.Sc.(P.T.), M.Sc.(McG.)

Peter Vavougiou; B.Sc.(P.T.)(McG.)

Jo Veneziano; B.Sc.(P.T.)(McG.)

Associate Members

D. Da Costa; B.A., M.A., Ph.D.(C'dia)

S.G. Gauthier; B.A., M.D.(Montr.), F.R.C.P.(C), *Director, Centre for Studies in Aging, Dept. of Neurology and Neurosurgery, Dept. of Psychiatry, Dept. of Medicine*

J.A. Hanley; B.Sc., M.Sc.(NUI), Ph.D.(Wat.)

D. Pearsall; B.A., B.PHE., M.S., Ph.D.(Qu.)

H. Perrault; B.Sc.(C'dia), M.Sc., Ph.D.(Montr.)

M. Shevall; B.Sc., M.D., C.M.(McG.)

M. Sullivan; B.A., M.A., Ph.D.(C'dia)

D. Watt; B.Sc., M.Sc., M.D., C.M.(McG.)

Members

André Ibgby; B.Arch.(Br. Col.), B.A.(McG.)

Ghislaine Prata; B.Sc.(O.T.), M.Sc.(Montr.)

Adjunct Professors

M. Bélanger; B.Sc., M.Sc.(Wat.), Ph.D.(Montr.)

C. Lau; B.A.(Calif., Berk.), Ph.D.(Ill.- Medical Center)

A. Leroux; B.Sc., M.Sc.(UQAM), Ph.D.(McG.)

P. Weiss; B.Sc.(O.T.)(W. Ont.), M.Sc.(Wat.), Ph.D.(McG.)

63.2 Programs Offered

Graduate Certificate in Assessing Driving Capabilities

The 15-credit post-graduate certificate program aims to train Occupational Therapists to assess the driving abilities and performance of at-risk populations, re-train drivers, recommend adaptive vehicles and adapt technical aids that will allow physically disabled individuals to return to driving and preserve their independence and quality of life. The program comprises five courses, the first two of which are offered online; the other three are a combination of online and intensive workshops.

Master of Science, Applied (Physical Therapy)

The Professional Master of Science in Physical Therapy is a 58-credit degree program including one thousand hours of fieldwork education over 5 semesters. The educational approach is consistent with adult learning, self-directed learning and reflective clinical practice and inter-professionalism. Strong links between academic and clinical fieldwork education are emphasized. Courses emphasize client-centered and evidence-based practice across the lifespan spanning from prevention of disability to rehabilitation. In addition to fieldwork, the program requirements include courses in advanced clinical practice, research methodology, health management and education and a master's project in one of three streams: research, management/health care delivery or clinical education.

Master of Science, Applied (Occupational Therapy)

The Professional Master of Science in Occupational Therapy is a 58-credit degree program that includes one thousand hours of fieldwork education over 5 semesters. The educational approach is consistent with adult learning and reflective clinical practice. The curriculum uses a case-based, problem-solving, self-directed approach across the lifespan. Strong links between academic and clinical fieldwork education are emphasized throughout the educational process. Course work will focus on client-centered and evidence-based practice, clinical reasoning, ethics and professionalism as essential components for the development of a humanistic, ethical, knowledgeable, competent, critical thinking and problem-solving Occupational Therapist. The master's project is designed to develop research and scholarly skills.

Master of Science in Rehabilitation Science

The full curriculum consists of approximately two years of study for graduates who hold a B.Sc. degree in one of the medical rehabilitation disciplines or a related field. The program consists of required and elective course work, a research proposal and a research thesis.

Master of Science in Rehabilitation Science (Non-Thesis)

The program requires three terms of full-time residence study and can usually be completed within three to four terms. It is designed for graduates who hold a B.Sc. (or equivalent) in Physical or Occupational Therapy or related health professions. Two years of clinical experience is recommended. The program trains health professionals to become consumers of research in order to promote evidence-based practice in rehabilitation science. The curriculum is made up of both required and elective courses and may also include a research project.

Ph.D. in Rehabilitation Science

This program consists of three to four years of study, on average, for graduates with Master's level training in one of the medical rehabilitation disciplines or a related field. The program consists of required and elective course work, a comprehensive written examination, a research proposal, a doctoral thesis and an oral defence.

63.3 Admission Requirements**Graduate Certificate in Assessing Driving Capabilities**

- 1) A B.Sc. degree or equivalent in Occupational Therapy or a related field from a university of recognized reputation
- 2) Evidence of high academic achievement equivalent to a B standing or a McGill CGPA of 3.0 (70-74%)
- 3) See points 3, 4 and 5 under M.Sc. in Rehabilitation Science for more information on prerequisites, TOEFL and GRE

M.Sc.A. (Physical Therapy)

1. An undergraduate degree or equivalent from a university of recognized reputation.
2. Same as M.Sc. in Rehabilitation Science
3. No prerequisites.
- 4., 5. same as M.Sc. in Rehabilitation Science

M.Sc.A. (Occupational Therapy)

1. to 5 as above.

M.Sc. in Rehabilitation Science (Thesis)

1. A B.Sc. degree or equivalent in Physical or Occupational Therapy or a related field from a university of recognized reputation.
2. Evidence of a high academic achievement equivalent to a B standing, or a McGill CGPA of 3.0 (70-74%).
3. Prerequisite courses may be required in statistics, anatomy, physiology, psychology, sociology, neurophysiology or other areas, depending on the student's anticipated specialization.
4. Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where

English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English, by appropriate exams, e.g., TOEFL (Test of English as a Foreign Language) with a minimum score of 250 on the computer-based test or 100 on the Internet-based test with each component score not less than 20 (School requirement), or the International English Language Testing System (IELTS) with a minimum overall band score of 7.0.

5. The GRE Test is recommended for the following applicants: those who do not have a B.Sc. or equivalent from a Canadian university; those who have been out of university for 5 years or more. Only the General Test is mandatory. For consideration, students must obtain a minimum score of 550 in verbal and quantitative categories and a score of 3.5 to 4 in analytical writing.

For enquiries about Graduate Records Examination, please contact GRE Educational Testing Service, Princeton, NJ 08540, Telephone: (609) 683-2002, Website: www.gre.org.

Applicants are responsible for ensuring that their scores are sent to the School of Physical and Occupational Therapy, at the following address: 3654 Promenade Sir-William-Osler, Montreal, QC H3G 1Y5

M.Sc. in Rehabilitation Science (Non-Thesis)

1. to 5. as above, plus
6. Two years of clinical experience is recommended.

Ph.D. in Rehabilitation Science

1. A M.Sc. degree in a rehabilitation-related discipline from a university of recognized reputation.
2. Evidence of a high academic achievement equivalent to a B+ standing, or a McGill CGPA of 3.3 (75-79%) is required.
3. Proof of proficiency in English. Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English, by appropriate exams, e.g., TOEFL (Test of English as a Foreign Language) with a minimum score of 250 on the computer-based test or 100 on the Internet-based test with each component score not less than 20.
4. GRE Test with a minimum score of 600 in verbal and quantitative categories and a score of 4.5 to 5 in analytical writing. The test is recommended for the following applicants: those who do not have a B.Sc., M.Sc. or equivalent from a Canadian university; those who have been out of university for 5 years or more.

If a graduate student accepted into the M.Sc. program demonstrates superior performance in the first year, the Graduate Committee, in consultation with the thesis supervisor, may recommend waiving the M.Sc. thesis requirement, and allow the student to proceed directly to the Ph.D. program.

63.4 Application Procedures

It is recommended to apply for admission online at the following address: www.mcgill.ca/applying/graduate. For those applicants unable to apply online, an application form may be requested directly from the School.

Applications will be considered upon receipt of:

1. the completed application form,
2. \$80 application fee,
3. a complete curriculum vitae,
4. a statement of purpose,
5. two copies of official transcripts,
6. two letters of reference on official letterhead,
7. test results (GRE, TOEFL), if required.

M.Sc.A. Physical Therapy/Occupational Therapy

September admission deadlines (no Winter admission):

Canadian/permanent resident applicants - June 1

International applicants - March 1

M.Sc. (T & NT) and Ph.D. in Rehabilitation Science

September admission deadlines:

Canadian/permanent resident applicants – June 1

International applicants – March 1

(No Winter admission offered)

Graduate Certificate in Assessing Driving Capabilities

For Fall admission: May 31

For Winter admission: October 1

Documents are to be mailed directly.

M.Sc.A. Physical Therapy/Occupational Therapy

Professional Masters Student Affairs Coordinator

School of Physical and Occupational Therapy

Davis House, Room 5

3654 Promenade Sir William Osler (Upper Drummond Street)

Montreal, Quebec H3G 1Y5

Tel.: 514-398-2784

Fax: 514-398-6360

Masters and Ph.D. Programs:

Graduate Rehabilitation Student Affairs Coordinator

School of Physical and Occupational Therapy

Davis House, Room 5

3654 Promenade Sir William Osler (Upper Drummond Street)

Montreal, Quebec H3G 1Y5

Tel.: 514-398-2271

Fax: 514-398-6360

Driving Certificate Program

Driving Certificate Coordinator

School of Physical and Occupational Therapy

Davis House, Room 5

3654 Promenade Sir William Osler (Upper Drummond Street)

Montreal, Quebec H3G 1Y5

Tel.: 514-398-2271

Fax: 514-398-6360

63.5 Program Requirements**Graduate Certificate in Assessing Driving Capabilities**

(15 credits)

This post-graduate certificate program for Occupational Therapists is comprised of the following five courses.

Required Courses (15 credits)

POTH 673 (3) Screening for at Risk Drivers

POTH 674 (3) Assessing Driving Ability 1

POTH 675 (3) Driving Assessment Practicum

POTH 676 (3) Adaptive Equipment and Driving

POTH 677 (3) Retraining Driving Skills

POTH 673 and 674 are offered on-line, whereas POTH 675, POTH 676 and POTH 677 have both on-line components and intensive workshops.

Master of Science, Applied (Physical Therapy) (58 credits)

The professional Master of Science, Applied (Physical Therapy) is a 58 credit degree program which includes 1000 hours of fieldwork education over 5 terms and leads to professional licensure to practice.

Students admitted to the M.Sc.A. who have undergraduate degrees other than the B.Sc.(Phys.Ther.) (non-practicing) from McGill University will be required to complete a qualifying year of study, prior to beginning the Master's Program. For further information about the required courses in the qualifying year, please see (appropriate section of the *Undergraduate Programs Calendar*).

Qualifying year courses by term, Fall: PHTH 550 PT Orthopedic Management; PHTH 551 PT Neurological Rehabilitation; PHTH

570 Strategies in PT Professional Practice / Winter: PHTH 552 Cardiorespiratory Rehab; PHTH 560 Integrated Ortho Management; PHTH 561 Integrated Neuro Rehab.

Required Courses (40 credits)

PHTH 571 (7) PT Clinical Practicum 1

PHTH 572 (7) PT Clinical Practicum 2

PHTH 573 (6) PT Clinical Practicum 3

PHTH 620 (8) PT Clinical Practicum 4

PHTH 622 (3) Integrated Pain Management

PHTH 623 (3) Differential Dx and Management

POTH 602 (3) Educational Methodology

POTH 610 (3) Research Methodology

Complementary Courses (12 credits)

9 credits chosen from the following courses offered by the School.

With permission from the Academic Director, students may take courses offered at the 500 or 600 levels by other departments at McGill.

PHTH 661 (3) Sport Physiotherapy

PHTH 662 (3) Advanced Manual Therapy

POTH 508 (3) Plasticity in Rehabilitation

POTH 604 (3) Current Topics in Pediatrics

POTH 614 (3) Selected Topics in Rehabilitation Science

POTH 618 (3) Topics in Rehabilitation

POTH 620 (3) Measurement: Rehabilitation 1

POTH 622 (3) Pathokinesiology

POTH 630 (3) Measurement: Rehabilitation 2

POTH 637 (3) Cancer Rehabilitation

3 credits from the Desautels Faculty of Management MBA/MD program

Project – Required (6 credits)

POTH 624 (6) Master's Project

Master of Science, Applied (Occupational Therapy)

(58 credits)

The professional Master of Science, Applied (Occupational Therapy) is a 58 credit degree program which includes 1000 hours of fieldwork education over 5 terms and leads to professional licensure to practice.

Students admitted to the M.Sc.A. who have undergraduate degrees other than the B.Sc.(Occ.Ther.) (non-practicing) from McGill University will be required to complete a qualifying year of study, prior to beginning the Master's Program. For further information about the required courses in the qualifying year, please see (appropriate section of undergraduate calendar).

Qualifying year courses by term, Fall: OCC1-545 Therapeutic Strategies in OT1; OCC1-550 Enabling Human Occupation; OCC1-546 Strategies in OT Professional Practice / Winter: OCC1-551 Psychosocial Practice in OT; OCC1-547 Occupational Solutions 1; OCC1-548 Holistic Approaches in OT; OCC1-549 Therapeutic Strategies in OT2.

Required Courses (49 credits)

OCC1 501 (7) Clinical Practicum 1

OCC1 502 (7) Clinical Practicum 2

OCC1 503 (7) Clinical Practicum 3

OCC1 602 (7) Clinical Practicum 4

OCC1 617 (6) Occupational Solutions 2

OCC1 618 (5) Applied OT: Psychosocial Theory

OCC1 620 (2) Work/Ergonomics

OCC1 622 (3) Community-Based OT

OCC1 623 (2) Assistive Technology

POTH 610 (3) Research Methodology

Complementary Courses (3 credits)

3 credits chosen from the following courses offered by the school.

With permission from the Academic Director, students may take courses offered at the 500 or 600 levels by other departments at McGill.

OCC1 625 (3) Functional Environments

OCC1 626 (3) Mental Health: Child and Youth

- POTH 632 (3) Research Elective
 POTH 633 (3) Function/Activity in Arthritis
 POTH 634 (3) Childhood Performance Issues
 POTH 637 (3) Cancer Rehabilitation
 POTH 638 (3) Promoting Wellness of Seniors
 POTH 640 (3) Role-Emerging Management

Project – Required (6 credits)

- POTH 624 (6) Master's Project

Master of Science in Rehabilitation Science (Thesis)

(45 credits)

(Program revisions pending final University approval)

The program requires a minimum of three terms of full-time residence study. It is not uncommon for a student to take two or more years to complete the degree.

Required Courses (10 credits)

- POTH 610 (4) Research Methodology
 POTH 614 (2) Selected Topics in Rehabilitation Science
 POTH 616 (1) Seminars in Rehabilitation Science
 POTH 617 (0) Rehabilitation Seminars 1
 EPIB 507 (3) Biostatistics for Health Professionals

A research proposal is to be submitted in written form and defended in front of a supervisory committee. Research proposals should be completed by the beginning of the second full-time year.

Complementary Courses (6 credits)

To be chosen from among graduate level departmental course offerings at the 500 or 600 level which pertain to the student's area of specialization.

Thesis Component – Required (29 credits)

- POTH 696 (2) Thesis Research
 POTH 697 (6) Thesis Research 1
 POTH 698 (9) Thesis Research 2
 POTH 699 (12) Thesis Research 3

All four of these courses must be registered for within the first three terms of full-time study. The course POTH 699 is carried as IP "in progress" until completion of thesis.

The student carries out a research study in an approved subject area under the guidance of an internal supervisor (from within the School) or an external supervisor (from outside the School). In the case of an external supervisor, an internal co-supervisor must be appointed.

Master of Science in Rehabilitation Science (Non-Thesis)

(45 credits)

(Program revisions pending final University approval)

This program has two options. In the first option, students complete 30 credits of required and complementary courses plus a 15-credit research project in their area of interest. In the second option, students complete 45 credits of required and complementary course work. The program normally takes 3 to 4 terms when done on a full-time basis.

Required Courses (10 credits)

- POTH 610 (4) Research Methodology
 POTH 617 (0) Rehabilitation Seminars 1
 POTH 619 (0) Rehabilitation Seminars 2
 EDPH 689 (3) Teaching and Learning in Higher Education
 EPIB 507 (3) Biostatistics for Health Professionals

Complementary Courses (35 credits)*Group A, 20 credits:*

Chosen from the following courses offered by the School or other campus courses at the 500 and 600 levels with permission of the Graduate Program Director.

- POTH 508 (3) Plasticity in Rehabilitation
 POTH 603 * (3) Directed Practicum
 POTH 604 (3) Current Topics in Pediatrics
 POTH 614 (2) Selected Topics in Rehabilitation Science
 POTH 618 * (3) Topics in Rehabilitation

- POTH 620 (3) Measurement: Rehabilitation 1
 POTH 622 (3) Pathokinesiology
 POTH 630 (3) Measurement: Rehabilitation 2
 POTH 631 (3) Research Proposal
 POTH 673 (3) Screening for at Risk Drivers
 POTH 674 (3) Assessing Driving Ability 1
 POTH 675 (3) Driving Assessment Practicum
 POTH 676 (3) Adaptive Equipment and Driving
 POTH 677 (3) Retraining Driving Skills
 POTH 682 (3) Promoting Healthy Activity

Group B, 15 credits, one of the following options:

Option 1, Directed Project:

- POTH 661 (7) Research Project 1
 POTH 662 * (8) Research Project 2
 or

Option 2:

no directed project, 15 credits of graduate-level courses

* Registration for these courses requires pre-approval by the Graduate Program Director

Ph.D. in Rehabilitation Science

(Program revisions pending final University approval)

Doctoral students are required to pursue at least three years of full-time residence study.

The curriculum is divided as follows:

Required Courses (15 credits)

- POTH 610 * (4) Research Methodology
 POTH 614 * (2) Selected Topics in Rehabilitation Science
 POTH 631 (3) Research Proposal
 EDPH 689 (3) Teaching and Learning in Higher Education
 EPIB 507 * (3) Biostatistics for Health Professionals

Note: required if not already completed in a prior degree.

* Of the required courses, at least three will already have been completed by students with a M.Sc. in Rehabilitation Science from McGill.

Comprehensive Examination

- POTH 701 (0) Ph.D. Comprehensive

The student must successfully pass a written comprehensive examination (POTH 701) by the end of the first academic year. The format consists of several questions answered in essay style and submitted by deadlines set by the School.

Complementary Courses (3 credits)

one of:

- POTH 620 (3) Measurement in Rehabilitation 1
 POTH 630 (3) Measurement in Rehabilitation 2

Elective Courses (3-6 credits)

Courses which pertain to the student's area of specialization; to be chosen from among graduate level departmental course offerings or other courses at the 500-, 600-, or 700- level with permission of the Graduate Program Director.

Research Proposal

A research proposal is to be submitted in written form and defended in front of a supervisory committee. Research proposals should be completed during the second full-time year, following the comprehensive examination.

Thesis Component - Required

The student carries out a research study in an approved subject area under the guidance of an internal supervisor (from within the School) or an external supervisor (from outside the School). In the case of an external supervisor, an internal co-supervisor must be appointed.

63.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

The course credit weight is given in parentheses after the title.

* Please note that courses are subject to change without prior notice.

POTH 508 PLASTICITY IN REHABILITATION. (3) (Winter) (Prerequisite: POTH 455 or equivalent) A seminar course designed to provide students with a review of current research on plasticity in the central and peripheral nervous systems. Particular emphasis is placed on the mechanisms involved in the recovery of function after injury.

POTH 603 DIRECTED PRACTICUM. (3) (Restriction: on-campus students only) A tutorial with directed practical experience in a clinical setting related to the student's clinical specialization, including curriculum development, and emphasizing current thought in rehabilitation.

POTH 604 CURRENT TOPICS IN PEDIATRICS. (3) (Prerequisite: POTH 260, or permission of instructors) This course will provide an overview of current research in pediatrics. May be offered in alternate years.

POTH 610 RESEARCH METHODOLOGY. (3) (Fall) (Corequisite: PSYC 305 or EPIB 607, or EDPE 675 and EDPE 676) An advanced lecture and seminar course. The philosophy of scientific inquiry, principles of research design, and application of statistical techniques are discussed with special consideration given to research studies in health care and rehabilitation.

POTH 614 SELECTED TOPICS IN REHABILITATION SCIENCE. (3) (Fall) (Restriction: on-campus students only) A weekly lecture and seminar course taught by staff, designed to provide an overview of current research issues in rehabilitation.

POTH 616 SEMINARS IN REHABILITATION SCIENCE. (1) A weekly seminar course given by staff and invited speakers in different areas of research related to rehabilitation science. Students are expected to participate by reading pertinent literature prior to seminars and asking questions at each seminar. Attendance is compulsory, and the course is graded pass/fail based on participation.

POTH 617 REHABILITATION SEMINARS 1. (0) A weekly seminar course given by staff and invited speakers in different areas of research related to rehabilitation science. Students are expected to participate by reading pertinent literature prior to seminars and asking questions at each seminar. Attendance is compulsory, and the course is graded pass/fail based on participation.

POTH 618 TOPICS IN REHABILITATION. (3) This is a directed reading course on a topic in rehabilitation science. The student will acquire extensive knowledge in the topic of interest and understand the strengths and limitations of the current body of work in the area.

POTH 619 REHABILITATION SEMINARS 2. (0) (Restriction: During one academic year, students may not register for POTH 619 in the same term as POTH 616 or POTH 617) Seminar course given by staff and invited speakers covering different areas of research related to rehabilitation science.

POTH 620 MEASUREMENT: REHABILITATION 1. (3) (Winter) (Prerequisite: POTH 222 and permission of instructor) Theoretical and practical basis for utilization of electronic equipment for quantitative measurement in rehabilitation research. Ambulatory assistive devices, electronic plates and instrumentation to assess normal and pathological human movement will be used to demonstrate the application of theory and techniques for quantitative analysis of human performance. Recording, reduction and analysis of electromyographic, kinetic and kinematic data included.

POTH 624 MASTER'S PROJECT. (6) (Restriction: OT and PT students only) Project is related to rehabilitation.

POTH 630 MEASUREMENT: REHABILITATION 2. (3) (Winter) (Prerequisite: EPIB 607 or PSYC 305 or equivalent) Theoretical and practical basis for measurement in rehabilitation research. Introduction to measurement theory, scale development and related statistics, approaches and instruments used to assess outcomes in patients with musculoskeletal, neurological, cardiovascular, respiratory, psychiatric or psychologic conditions.

POTH 631 RESEARCH PROPOSAL. (3) (Winter) The course covers issues involved in the development of a research protocol. The presentation of a written thesis proposal is required by the end of the course. This document will serve as the basis for an oral presentation to the student's Supervisory Committee who will also review the written proposal.

POTH 632 RESEARCH ELECTIVE. (3) (Prerequisites: M1 OT or PT courses) (Restriction: M2 OT & PT students only) Practical research experience.

POTH 633 FUNCTION/ACTIVITY IN ARTHRITIS. (3) (Prerequisites: OCC1 545, OCC1 549, OCC1 548) (Restrictions: OT & PT students only) Multidisciplinary approach to the assessment and treatment of clients with complex rheumatic diseases.

POTH 634 CHILDHOOD PERFORMANCE ISSUES. (3) (Prerequisites: M1 and Fall M2 courses) (Restrictions: M2 OT students only. Not open to students who have taken POTH 403) Specialized interventions of the occupational therapist in developmental paediatrics.

POTH 637 CANCER REHABILITATION. (3) (Prerequisites: PHTH 550, PHTH 551, PHTH 552, PHTH 561, PHTH 520, PHTH 623) Cancer pathology, risk stratification, the treatment process and rehabilitation needs throughout the disease trajectory.

POTH 638 PROMOTING WELLNESS OF SENIORS. (3) (Prerequisites: M1 and M2 Fall OT and PT courses) (Restrictions: OT and PT students only) The complexity of rehabilitation interviews with the geriatric client, the various causes of occupational performance dysfunction, and the structure and organization of geriatric health care delivery are addressed.

POTH 640 ROLE-EMERGING MANAGEMENT. (3) (Restriction: OT students only) Career opportunities in private practice and/or new domains for Occupational Therapists, including small business management, legal and liability considerations, managing organizational growth and service marketing.

POTH 661 RESEARCH PROJECT 1. (7) (Restriction: Campus students only)

POTH 662 RESEARCH PROJECT 2. (8)

POTH 673 SCREENING FOR AT RISK DRIVERS. (3) (Prerequisite: Undergraduate or graduate degree in a health-related field) Principles for screening at-risk disabled drivers.

POTH 674 ASSESSING DRIVING ABILITY 1. (3) (Prerequisite: POTH 673) (Restrictions: Primarily designed for Occupational Therapists. Individuals from other disciplines may be considered on a case by case basis) Principles of assessment of driving performance in several at-risk populations.

POTH 675 DRIVING ASSESSMENT PRACTICUM. (3) (Prerequisite: POTH 674) (Restriction: This course is restricted to Occupational Therapists who have successfully completed POTH 674. It is available in both French and English and includes a 5-day intensive workshop) Directed practical experience in a clinical setting that focuses on driving evaluations.

POTH 676 ADAPTIVE EQUIPMENT AND DRIVING. (3) (Prerequisite: POTH 675 or permission of instructor) (Restriction: The course is restricted to Occupational Therapists who have successfully completed POTH 675, or permission of instructor. It is available in both French and English and includes a 4-day intensive workshop) Prescription of complex adaptive equipment for driving and the procedures of full van modifications. Safety considerations, vehicle choice and the importance of driver retraining (specifically with adaptive equipment) are addressed.

POTH 677 RETRAINING DRIVING SKILLS. (3) (Prerequisite: POTH 675 or permission of instructor) (Restriction: This course is restricted to Occupational Therapists who have successfully completed POTH 675 Driving Assessment Practicum, or permission of instructor. It is available in both French and English and includes a 2-day intensive workshop) Principles of retraining driving skills in various clienteles through the use of different modalities. Several retraining methods will be analyzed, including driving simulators, visual training, on-road training, and compensatory techniques.

POTH 682 PROMOTING HEALTHY ACTIVITY. (3) Individual and situational determinants of health behaviours will be examined across the lifespan and in clinical populations. Application of behaviour change theories for the design, implementation and evaluation of health behaviour interventions will be discussed. Strategies to facilitate behaviour change and adherence across the lifespan will be emphasized.

POTH 685 PERCEPTION AND ACTION. (3) (Prerequisite(s): POTH 455 or PHGY201 or equivalent) New research concepts related to perception and action, with a special emphasis on the understanding of motor behaviour in patient populations and the exploration of potential applications in rehabilitation.

POTH 696 THESIS RESEARCH. (2)

POTH 697 THESIS RESEARCH 1. (6)

POTH 697D1 (3), POTH 697D2 (3) THESIS RESEARCH 1. (Students must register for both POTH 697D1 and POTH 697D2) (No credit will be given for this course unless both POTH 697D1 and POTH 697D2 are successfully completed in consecutive terms) (POTH 697D1 and POTH 697D2 together are equivalent to POTH 697)

POTH 698 THESIS RESEARCH 2. (9)

POTH 698D1 (4.5), POTH 698D2 (4.5) THESIS RESEARCH 2. (Students must register for both POTH 698D1 and POTH 698D2) (No credit will be given for this course unless both POTH 698D1 and POTH 698D2 are successfully completed in consecutive terms) (POTH 698D1 and POTH 698D2 together are equivalent to POTH 698)

POTH 699 THESIS RESEARCH 3. (12)

POTH 699D1 (6), POTH 699D2 (6) THESIS RESEARCH 3. (Students must register for both POTH 699D1 and POTH 699D2) (No credit will be given for this course unless both POTH 699D1 and POTH 699D2 are successfully completed in consecutive terms) (POTH 699D1 and POTH 699D2 together are equivalent to POTH 699)

POTH 701 Ph.D. COMPREHENSIVE. (0)

PHTH 571 PT CLINICAL PRACTICUM 1. (7) (Prerequisite: PHTH 550, PHTH 551, PHTH 552, PHTH 560, PHTH 561.) A first clinical practicum course.

PHTH 572 PT CLINICAL PRACTICUM 2. (7) (Prerequisite: PHTH 571.) A second clinical practicum including advanced skills in assessment and treatment management in a core area of practice.

PHTH 573 PT CLINICAL PRACTICUM 3. (6) (Prerequisite: PHTH 571, PHTH 572.) Assessing and treating patients in an area of practice not previously covered in previous practica.

PHTH 620 PT CLINICAL PRACTICUM 4. (8) (Prerequisite: PHTH 571, PHTH 572, PHTH 573.) Final clinical practicum in an area not previously covered in previous practica.

PHTH 622 INTEGRATED PAIN MANAGEMENT. (3) (Prerequisites: Clinical Affiliation 1 & 2 or permission of instructor. PHTH 552, PHTH 561.) Assessment and treatment of chronic pain syndromes.

PHTH 623 DIFFERENTIAL DIAGNOSIS AND MANAGEMENT. (3) (Prerequisites: PHTH 550, PHTH 560.) Building on previously learned orthopaedic knowledge, screening for medical conditions and establishing functional differential diagnosis.

PHTH 661 SPORT PHYSIOTHERAPY. (3) (Prerequisites: PHTH 550, PHTH 560.) Injury prevention for recreational and elite athletes and rehabilitation of injured athletes.

PHTH 662 ADVANCED MANUAL THERAPY. (3) (Prerequisites: PHTH 551, PHTH 552, PHTH 623.) Use of manual therapy in the assessment and treatment of patients with musculoskeletal disorders.

64 Physics

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Telephone: (514) 398-6485 (Graduate Information)

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E-mail: graduate.physics@mcgill.ca

Website: www.physics.mcgill.ca

Chair — C. Gale

Director of Graduate Studies — D. Hanna

64.1 Staff

Emeritus Professors

S. Das Gupta; B.Sc., M.Sc.(Calc.), Ph.D.(McM.) (*Macdonald Emeritus Professor of Physics*)

M.P. Langleben; B.Sc., M.Sc., Ph.D.(McG.), F.R.S.C.

C.S. Lam; B.Sc.(McG.), Ph.D.(MIT)

S.K. Mark; B.Sc., M.Sc., Ph.D.(McG.) (*Macdonald Emeritus Professor of Physics*)

D.G. Stairs; B.Sc., M.Sc.(Qu.), Ph.D.(Harv.) (*Macdonald Emeritus Professor of Physics*)

J.O. Strom-Olsen; B.A., M.S., Ph.D.(Camb.)

M.J. Zuckermann; M.A., D.Phil.(Oxf.), F.R.S.C.

Post-Retirement

J.E. Crawford; B.A., M.A.(Tor.), Ph.D.(McG.)

N.B. DeTakacsy; B.Sc., M.Sc.(Montr.), Ph.D.(McG.)

J.K.P. Lee; B.Eng., M.Sc., Ph.D.(McG.)

R.B. Moore; B.Eng., M.Sc., Ph.D.(McG.)

P.M. Patel; B.Sc., M.Sc.(Manc.), Ph.D.(Harv.)

Professors

J. Barrette; M.Sc., Ph.D.(Montr.)

J. Brandenberger; Dip.(ETH), A.M., Ph.D.(Harv.) (*Canada Research Chair*)

J. Cline; B.S.(Harvey Mudd), M.Sc., Ph.D.(Cal. Tech.)

F. Coriveau; B.Sc.(Laval), M.Sc.(Br. Col.), Ph.D.(ETH)

C. Gale; B.Sc.(Ott.), M.Sc., Ph.D.(McG.) (*James McGill Professor*)

M. Grant; B.Sc.(PEI), M.Sc., Ph.D.(Tor.), F.R.S.C. (*James McGill Professor*)

P. Grutter; Dip., Ph.D.(Basel), F.R.S.C. (*James McGill Professor*)

H. Guo; B.Sc.(Sichuan), M.Sc., Ph.D.(Pitt.), F.R.S.C. (*James McGill Professor*)

D. Hanna; B.Sc.(McG.), A.M., Ph.D.(Harv.) (*Macdonald Professor of Physics*)

R. Harris; B.A.(Oxf.), Ph.D.(Sus.)

V. Kaspi; B.Sc.(McG.), M.A., Ph.D.(Prin.) (*Canada Research Chair*) (*Lorne Trottier Chair in Astrophysics and Cosmology*)

S. Lovejoy; B.Sc.(Camb.), Ph.D.(McG.)

K. Ragan; B.Sc.(Alta.), Ph.D.(Geneva) (*Macdonald Professor of Physics*)

D.H. Ryan; B.A., Ph.D.(Dub.)

M. Sutton; B.Sc., M.Sc., Ph.D.(Tor.) (*Rutherford Chair in Physics*)

J. Vinals; B.Sc., M.Sc., Ph.D.(Barcelona) (*Canada Research Chair*)

Associate Professors

M. Hilke; B.Sc., M.Sc., Ph.D.(Geneva)

S. Jeon; B.Sc.(Seoul National), M.Sc., Ph.D.(Wash.)

S. Robertson; B.Sc.(Calg.), M.Sc., Ph.D.(Vic. (BC))

P. Wiseman; B.Sc.(St. FX), Ph.D.(W. Ont.) (*joint appt. with Chemistry*)

*Assistant Professors*A. Clerk; B.Sc.(Tor.), Ph.D.(C'nell) (*Canada Research Chair*)

A. Cumming; B.A.(Camb.), Ph.D.(Calif., Berk.)

K. Dasgupta; M.Sc., Ph.D.(TIFR)

M. Dobbs; B.Sc.(McG.), Ph.D.(Vic. (BC)) (*Canada Research Chair*)

G. Gervais; B.Sc.(Sher.), M.Sc.(McM.), Ph.D.(N'western)

G. Holder; M.Sc.(Qu.), Ph.D.(Chic.) (*Canada Research Chair*)

M. Kilfoil; B.Sc.(New Br.), M.Sc., Ph.D.(Nfld.)

A. Maloney; B.S.(Stan.), A.M., Ph.D.(Harv.) (*William Dawson Scholar*)

G. Moore; B.S.(Harvey Mudd), Ph.D.(Prin.)

R. Rutledge; B.Sc.(S. Calif.), Ph.D.(MIT)

B. Siwick; B.Sc., M.Sc., Ph.D.(Tor.) (*Canada Research Chair*)
(joint appt. with Chemistry)B. Vachon; B.Sc.(McG.), Ph.D.(Vic. (BC)) (*Canada Research Chair*)

A. Warburton; B.Sc.(Vic. (BC)), Ph.D.(Tor.)

T. Webb; B.Sc.(Tor.), M.Sc.(McM.), Ph.D.(Tor.)

Lecturers

Z. Altounian, F. Buchinger

Associate Members

M. Chacron (Physiology), B.C. Eu (Chemistry), K. Gehring (Biochemistry), P. Hayden (Computer Science), M. Mackey (Physiology), Z. Mi (Electrical and Computer Engineering), J. Nadeau (Biomedical Engineering), E. Podgorsak (Medical Physics), D. Rassier (Kinesiology), D. Ronis (Chemistry), J. Seuntjens (Medical Physics), P. Swain (Physiology), T. Szkopek (Electrical and Computer Engineering), F. Verhaegen (Medical Physics)

Adjunct Professors

G. Austing, J. Cadogan, F. Drolet, M. Dubé, M. Grisaru, L. Piché, N. Provatás, A. Sachrajda

64.2 Programs Offered

M.Sc. and Ph.D.

FIELDS OF RESEARCH**High Energy Physics**

Theoretical: The McGill high energy theorists have interests in a wide range of areas within quantum field theory, string theory, quantum gravity and cosmology. Research areas of the high energy theory faculty include applications of quantum field theory techniques to relativistic heavy ion collisions, baryogenesis, superstring cosmology, theory of cosmological perturbations, black hole physics, supergravity, three dimensional gravity, and various topics related to the physics and mathematics of superstring theory. The high energy theorists have close connections to the nuclear theory group, the astrophysics group, the high energy experimentalists, and to members of the Mathematics department.

Experimental: The experimental high energy physics group is engaged in a number of experiments at the research frontiers of the field, both in subatomic physics and in high energy astrophysics. These include:

- Electron-positron collisions: Groups work on the BaBar experiment at SLAC, with specific interest in CKM matrix elements and physics beyond the Standard Model through studies of rare decays, and on R&D for a future International Linear Collider, with interest in calorimeter development.
- Electron-proton collisions: A group is studying high-energy lepton-quark interactions using data from the ZEUS experiment at DESY in Hamburg, with interest in deep inelastic scattering and flavour production.
- Hadron-hadron collisions: CDF and Dzero groups employ Fermilab's energy frontier Tevatron proton-antiproton accelerator to study top and bottom quarks and search for the Higgs boson. A group is also involved in major contributions to the next

energy frontier at CERN's LHC, with work on the High Level Trigger for the ATLAS experiment.

- High-energy particle astrophysics: ground-based gamma-ray astronomy using the newly commissioned VERITAS telescope array and development of the next-generation detector.

Students at the M.Sc. and Ph.D. levels are offered a strong program of research in a challenging and rapidly advancing field. Short term Master's projects are based mainly on instrumentation or data analysis conducted on campus, while Ph.D. research may involve an extended stay at one of the world's major research laboratories.

Nuclear Physics

Theoretical: Current research programs include transport equations for heavy ion collisions at intermediate energy; nuclear equation of state from heavy ion collisions; fragmentation at intermediate energy; electromagnetic probes in relativistic heavy ion collisions; effective lagrangians for hadronic systems at finite temperature; Quark-Gluon Plasma, QCD.

Experimental: Current research programs in experimental nuclear physics at McGill are focussed on two main axes:

- The study of heavy-ion reactions at relativistic energies to determine the properties of nuclear matter at high temperatures and density. This program is being performed at the Brookhaven National Laboratory, and at the Large Hadron Collider facility at CERN.
- The study of ground state properties of unstable nuclei using laser spectroscopy techniques and ion traps. This work is being carried out using the Canadian Penning trap facility at the Argonne National Laboratory and at the accelerator ISOLDE (CERN), and the ISAC facility at TRIUMF.

Furthermore, the Nuclear Physics Group has an active inhouse research program that applies the ion trap and laser techniques to the detection of trace quantities of material and contaminants, and to ion spectroscopy.

Condensed Matter Physics

Theoretical: Current research programs involve the nonequilibrium, ab-initio modelling of molecular and nanoelectronic systems and devices; the study of quantum effects in interacting mesoscopic electron systems; nonequilibrium phenomena in extended systems; and applications of statistical mechanics to problems in biophysics.

Experimental: Current research programs involve the study of the time evolution of non-equilibrium systems via x-ray diffraction, fundamental quantum properties of strongly-correlated systems at temperatures very near absolute zero, macromolecular interactions in living cells using single photon and two-photon imaging, molecular electronics and nanoelectronic systems by scanning probe microscopy, dynamics and mechanical properties of soft matter systems and spatial organization and dynamics in living cells, mechanical behavior of very small systems by high-resolution force microscopy, electronic properties which emerge at the limits of miniaturization and quantum computing, and nuclear methods to study interactions in magnetic materials that lead to exotic magnetic ordering behaviour.

Astrophysics: Research in the astrophysics group covers a wide range of topics including cosmology, galaxy formation, high energy astrophysics, and extrasolar planets. This involves observations at all wavelengths, from gamma rays and X-rays to sub-mm, infrared and radio, using international observatories in space and on the ground. Experimental groups at McGill are involved in development and operation of ground-based high energy gamma-ray observatories, and cosmic microwave background experiments. Theoretical work includes studies of how astrophysics and observational cosmology can experimentally determine the most important properties of dark matter and dark energy, studies of the diverse physics of neutron stars, and extrasolar planet formation.

Nonlinear Variability in Geophysics: This group studies nonlinear dynamical processes in the atmosphere and other

geophysical systems, especially those associated with turbulent, chaotic and extremely variable behaviour. Emphasis is placed on multifractal analysis and modelling as well as the development of new theories and techniques covering wide ranges of scale in time and space. Data from a variety of in situ and remotely sensed sources are used. This includes satellite data of the earth's atmosphere and surface as well as high quality precipitation data from the McGill Radar Weather Observatory.

64.3 Admission Requirements

M.Sc.

Normal requirement is a B.Sc. in Physics, or equivalent, with high standing.

Ph.D.

Normal requirement is an M.Sc. in Physics or equivalent. Candidates in good standing may have the option of transferring into this program from the M.Sc. program after one year.

64.4 Application Procedures

An application package is available upon request. It includes a brochure with a detailed description of the research activities in the department. Inquiries should be addressed to the Graduate Coordinator (Paula Domingues, Department of Physics). Please also check our Website www.physics.mcgill.ca for information about our graduate program and to apply online.

Applications will be considered upon receipt of:

1. application form
2. 2 official transcripts
3. 2 letters of reference written on institutional letterhead paper
4. \$80 application fee
5. test result (TOEFL), minimum score 550 on the paper-based test, 213 on the computer-based test or 86 on the Internet-based test, with each component score not less than 20, or I.E.L.T.S. (minimum score 6.5)

All information is to be submitted to the Graduate Coordinator.

Applications and supporting documents should be submitted by:

- January 1st – international applicants,
- January 1st – Canadian applicants.

Financial Assistance

Financial assistance will be offered to students in the form of a bursary, teaching and research assistantships. For new students, financial support will be offered at the time of acceptance. Forms are given and filled out on registration day.

64.5 Program Requirements

M.Sc. in Physics (Thesis) (48 credits)

Complementary Courses (15 credits)

15 credits, five 3-credit graduate-level PHYS courses.

Thesis Component – Required (33 credits)

PHYS 691 (3) Thesis Preparation
PHYS 692 (6) Thesis Project
PHYS 690 (24) M.Sc. Thesis

Candidates must also successfully complete all the other normal requirements of the Graduate and Postdoctoral Studies Office.

Ph.D.

Candidates must successfully complete two one-term courses and the preliminary examination (PHYS 700) and submit a Ph.D. thesis, in addition to all the normal requirements of the Graduate and Postdoctoral Studies Office. (Courses taken as part of the M.Sc. program at McGill may be accepted as substitutes for the two required courses.) Normally one of the courses must be a 600- or 700-level course in the candidate's area of specialization.

64.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Term(s) offered (Fall, Winter, Summer) may appear after the credit weight to indicate when a course would normally be taught. Please check Class Schedule to confirm this information.

Note: All undergraduate courses administered by the Faculty of Science (courses at the 100- to 500-level) have limited enrolment.

The course credit weight is given in parentheses after the title.

PHYS 514 GENERAL RELATIVITY. (3) (Winter) (3 hours lectures) (Restriction: Honours students, or permission of the instructor) Transition from special to general relativity. Non-Euclidian geometry. The basic laws of Physics in co-variant form, Einstein's equations. Gravitational waves; neutron stars; black holes; cosmology.

PHYS 521 ASTROPHYSICS. (3) (Fall) (3 hours) A quantitative course in galactic and extragalactic astrophysics. Topics include observational techniques, stars and stellar evolution, compact objects, galaxy structure, kinematics, evolution and cosmology.

PHYS 534 NANOSCIENCE AND NANOTECHNOLOGY. (3) (Fall) Topics include scanning probe microscopy, chemical selfassembly, computer modeling, and microfabrication/micromachining.

PHYS 551 QUANTUM THEORY. (3) (Fall) (3 hours lectures) (Restriction: Honours students, or permission of the instructor) General formulation, scattering theory, WKB approximation, time-dependent perturbation, theory and applications, angular momentum, relativistic wave equations.

PHYS 557 NUCLEAR PHYSICS. (3) (Fall) (3 hours lectures) (Restriction: Honours students, or permission of the instructor) General nuclear properties, nucleon-nucleon interaction and scattering theory, radioactivity, nuclear models, nuclear reactions.

PHYS 558 SOLID STATE PHYSICS. (3) (Fall) (3 hours lectures) (Restriction: Honours students, or permission of the instructor) Properties of crystals; free electron model, band structure; metals, insulators and semi-conductors; phonons; magnetism; selected additional topics in solid-state (e.g. ferroelectrics, elementary transport theory).

PHYS 559 ADVANCED STATISTICAL MECHANICS. (3) (Fall) (3 hours lectures) (Restriction: Honours students, or permission of the instructor) Scattering and structure factors. Review of thermodynamics and statistical mechanics; correlation functions (static); mean field theory; critical phenomena; broken symmetry; fluctuations, roughening.

PHYS 562 ELECTROMAGNETIC THEORY. (3) (Winter) (3 hours lectures) (Restriction: Honours students, or permission of the instructor) (Prerequisites (Graduate): U1 or U2 Honours Physics or permission of instructor.) Electrostatics, dielectrics, magnetostatics, timevarying fields, relativity, radiating systems, fields of moving charges.

PHYS 567 PARTICLE PHYSICS. (3) (Winter) (3 hours lectures) (Restriction: Honours students, or permission of the instructor) Survey of elementary particles; hadrons, leptons and hardrons' constituents (quarks). Invariance principles and conservation laws. Detectors and accelerators. Phenomenology of strong, electromagnetic and weak interactions.

PHYS 580 INTRODUCTION TO STRING THEORY. (3) (Prerequisite: Permission of instructor.) (Restriction: Honours students.) Introduction to bosonic string theory, with application to fundamental theories of particle physics. Gravity and electromagnetism in extra dimensions, dynamics of classical and quantum strings, world-sheet parametrization, conserved currents, light-cone gauge, string thermodynamics and black holes, D-branes.

PHYS 606 SELECTED TOPICS: CONT. PHYSICS 1. (3)

PHYS 607 SELECTED TOPICS: CONT. PHYSICS 2. (3)

PHYS 610 QUANTUM FIELD THEORY 1. (3) (3 hours) Relativistic wave equations for spin-0, spin-1/2, and spin-1 particles. Review of Lagrangian and Hamiltonian formalisms for classical mechanics. Canonical, Feynman path-integral, and Schwinger external-source quantization techniques. Relativistic quantum field theories for free spin-0, spin-1/2, and spin-1 particles. Interactions, perturbation theory, and Feynman diagrams.

PHYS 616 MULTIFRACTALS AND TURBULANCE. (3) (3 hours) This course assumes knowledge of basic probability theory and Fourier analysis. The subjects covered are: scale invariant sets: fractal geometry, scale invariant fields: multifractal fields and processes, aspects of hydrodynamic turbulence, multifractal data analysis techniques, generalized scale invariance, space/time scaling, causality.

PHYS 620 EXPERIMENTAL METHODS OF SUBATOMIC PHYSICS. (3) (3 hours) Basic techniques of experimentation in nuclear and particle physics. Accelerators, beam optics, detection systems, major experiments, Monte-Carlo simulation, data acquisition and data analysis.

PHYS 632 SEMINAR IN ASTROPHYSICS 1. (3) (Restrictions: Enrolled in M.Sc. or Ph.D. degree program or permission of instructor. Not open to students who have taken PHYS 614.) Seminar on special topics in astrophysics.

PHYS 633 SEMINAR IN ASTROPHYSICS 2. (3) (Restrictions: Enrolled in M.Sc. or Ph.D. degree program or permission of instructor. Not open to students who have taken PHYS 615.) Seminar on special topics in astrophysics.

PHYS 634 SEMINAR IN ADVANCED MATERIALS. (3) (3 hours) A series of research-level seminars about topics of current interest in advanced materials. Topics include molecular and nanoelectronics, computational approaches to materials design and property predictions, new techniques in molecular and atomic imaging, advances in materials preparation, quantum device and quantum computing.

PHYS 641 OBSERVATIONAL TECHNIQUES OF MODERN ASTROPHYSICS. (3) (Restriction: Enrollment in M.Sc. or Ph.D. program, or permission of the instructor.) Mechanical, electrical, optical, and analytic techniques used in modern astrophysics research. Electromagnetic, gravitational and particle-based observing. Relevant and topical observational problems, contact with forefront of observational research.

PHYS 642 RADIATIVE PROCESSES IN ASTROPHYSICS. (3) (Restriction: Enrollment in M.Sc./Ph.D. program, or permission of the instructor.) Why astrophysical sources look the way they do, and how to understand why we see what we see in astronomy. Fundamental physical processes that produce and modify radiation from astrophysical sources, and how they apply to different astronomical examples.

PHYS 643 ASTROPHYSICAL FLUIDS. (3) (Restriction: Enrollment in M.Sc./Ph.D. program, or permission of the instructor.) Physics of astrophysical fluids; how it determines the behavior, formation, evolution, dissipation and death of astrophysical systems, including objects in hydrostatic balance, such as stars, or with inflows and outflows, such as disks and jets.

PHYS 644 GALAXIES AND COSMOLOGY. (3) (Restriction: Enrollment in M.Sc./Ph.D. program, or permission of the instructor.) (Note: General relativity not a prerequisite.) Our current understanding of the universe, and tools that are used in developing this understanding. Large scale properties of galaxies in a cosmological context; the most important features of the expanding universe.

PHYS 645 HIGH ENERGY ASTROPHYSICS. (3) (Restrictions: Enrolled in M.Sc. or Ph.D. degree program or permission of instructor. Not open to students who have taken PHYS 621.) Physical bases for phenomena associated with strong gravity and high-energy processes in astrophysical contexts. X-rays, gamma-rays, nuclear processes, strong gravity and magnetic fields. Shocks, acceleration, and jets.

PHYS 657 CLASSICAL CONDENSED MATTER. (3) Coarse grained dynamic models in condensed matter. Spontaneously broken symmetry and slow dynamics. Nonlinear phenomenology (Ginzburg-Landau), perturbation theory, mode coupling, and dynamic renormalization group. Strong nonlinearity: solitons, unstable interfaces, topological defects. Nonlinear dynamics: secular perturbation theory, stability, center manifold reduction, amplitude and phase equations. Stochastic differential equations and stochastic bifurcation.

PHYS 659 EXPERIMENTAL CONDENSED MATTER. (3) (3 hours) To obtain an active understanding of the principles, the possibilities and the limitations of various experimental techniques. Possible topics include vacuum and low-temperature techniques; transport, thermal, magnetization and de Haas van Alphen measurements; scattering techniques; Mossbauer spectroscopy, NMR, scanning probe microscopy, electron microscopy; surface science methods.

PHYS 660 QUANTUM CONDENSED MATTER. (3) Second quantization and quantum mean-field theory. Hartree-Fock theory, Fermi liquids. Broken-symmetry quantum phases: magnetism, charge density waves, Wigner crystals, superfluids, superconductivity. Introduction to mesoscopic physics and quantum transport. Introduction to renormalization techniques within the context of Kondo physics.

PHYS 673 QUANTUM FIELD THEORY 2. (3) (3 hours) (Prerequisite: PHYS 610 or permission of instructor.) Loop diagrams, renormalization, Abelian and nonabelian gauge theory, QCD, introduction to the Standard Model.

PHYS 690 M.Sc. THESIS. (24)

PHYS 690D1 (12), PHYS 690D2 (12) M.Sc. THESIS. (Students must register for both PHYS 690D1 and PHYS 690D2) (No credit will be given for this course unless both PHYS 690D1 and PHYS 690D2 are successfully completed in consecutive terms) (PHYS 690D1 and PHYS 690D2 together are equivalent to PHYS 690)

PHYS 691 THESIS PREPARATION. (3) Directed study of research papers and experimental or theoretical techniques in the student's designated area of research under the supervision of the graduate studies committee of the Department.

PHYS 692 THESIS PROJECT. (6) Independent work under the direction of the student's supervisor on a research problem in the student's designated area of research leading to a project report or seminar.

PHYS 692D1 (3), PHYS 692D2 (3) THESIS PROJECT. (Students must register for both PHYS 692D1 and PHYS 692D2) (No credit will be given for this course unless both PHYS 692D1 and PHYS 692D2 are successfully completed in consecutive terms) (PHYS 692D1 and PHYS 692D2 together are equivalent to PHYS 692) Independent work under the direction of the student's supervisor on a research problem in the student's designated area of research leading to a project report or seminar.

PHYS 700 PRELIMINARY Ph.D. EXAMINATION. (0)

PHYS 717 MANY-BODY PHYSICS. (3) Real-time and imaginary-time Green functions; Diagrammatic perturbation theory; Quantum linear response and Kubo formulae; Path-integral techniques; Fermi gas; Impurity averaging; Interacting electron gas; Magnetism; Phonons & electron-phonon interaction; Superconductivity; Luttinger liquids

PHYS 718 SPECIAL TOPICS: SOLID STATE PHYSICS 1. (3) (3 hours) Specialized discussion of some current problems in solid state physics.

PHYS 719 SPECIAL TOPICS: SOLID STATE PHYSICS 2. (3) (3 hours) Specialized discussion of some current problems in solid state physics.

PHYS 729 SPECIAL TOPICS IN NUCLEAR PHYSICS. (3) Specialized discussion of some current problems in nuclear physics.

PHYS 730 SPECIAL TOPICS: HIGH ENERGY PHYSICS 1. (3) (3 hours) Specialized discussion of some current problems in theoretical particle physics.

PHYS 731 SPECIAL TOPICS: HIGH ENERGY PHYSICS 2. (3) (3 hours) Specialized discussion of some current problems in theoretical particle physics.

PHYS 732 TOPICS IN ASTROPHYSICS 1. (3) (Prerequisites: PHYS 521 or permission of instructor.) Current astrophysical topics.

PHYS 733 TOPICS IN ASTROPHYSICS 2. (3) (Prerequisites: PHYS 521 or permission of instructor.) Current astrophysical topics.

PHYS 741 SUPERSTRING THEORY. (3) (Prerequisite: PHYS 610.) Introduction to the main concepts and tools of modern string theory. Overview of the perturbative worldsheet description of bosonic and supersymmetric string theories. Various concepts in two dimensional conformal field theory. Introduction to the non-perturbative physics of string theory, including D-branes, compactifications and duality.

PHYS 742 INTRODUCTION TO THE STANDARD MODEL. (3) (Prerequisite: PHYS 610.) Introduction to the Standard Model of Particle Physics. Review of field theory preliminaries. Phenomenology such as decay of Z and W bosons, heavy lepton decay, scattering and the Z resonance, with development of computational methods as needed. Effective field theories, bound states in QCD, QCD interactions and possible extension of the standard model.

PHYS 743 VERY EARLY UNIVERSE. (3) (Prerequisite: PHYS 514, General Relativity.) (Corequisite: PHYS 610, Quantum Field Theory 1.) Introduction to key tools used in current research in theoretical cosmology, including (i) Review of Standard Big Bang Cosmology, (ii) Inflationary Universe Models, (iii) Theory of Cosmological Perturbations, (iv) Quantum Field Theory Methods of Cosmology, (v) Topological Defects in Cosmology, (vi) Superstring Cosmology.

PHYS 744 FINITE TEMPERATURE FIELD THEORY. (3) (Prerequisite: PHYS 610.) Tools of finite temperature (relativistic) field theory. Thermodynamics, introducing bosonic and fermionic Euclidean path integrals. Pressure in a free theory, the perturbative expansion, thermal masses, and symmetry restoration. Schwinger-Keldysh contour path integral and its perturbative expansion. Collective phenomena such as dispersion corrections, plasma oscillations, Debye screening and Landau damping.

PHYS 745 SUPERSYMMETRY AND SUPERGRAVITY. (3) (Prerequisite: PHYS 610.) Introduction to supersymmetry and supergravity, including the Minimal Supersymmetric Standard Model (MSSM). Basic formalism of supersymmetry (SUSY) transformations and the superfield formalism, simple SUSY models, the MSSM and its phenomenology, mechanisms for breaking supersymmetry, introduction to 4-D supergravity.

65 Physiology

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Website: www.medicine.mcgill.ca/physio

Chair — John Orlowski

Graduate Program Director — Kathleen Cullen

65.1 Staff

Emeritus Professors

Kresimir Krnjevic; O.C., B.Sc., Ph.D., M.B., Ch.B.(Edin.), F.R.S.C.
Geoffrey Melvill Jones; B.A., M.A., M.B., B.Ch., M.D.(Cant.)
Thomas M.S. Chang; B.Sc., M.D., C.M., Ph.D.(McG.), F.R.C.P.(C)

Professors

Munroe W. Cohen; B.Sc., Ph.D.(McG.)

Ellis J. Cooper; B.Eng.(Sir G. Wms.), M.Sc.(Surr.), Ph.D.(McM.)

Kathleen Cullen; B.Sc.(Brown), Ph.D.(Chic.) (*William Dawson Scholar*)

Leon Glass; B.S.(Brooklyn), Ph.D.(Chic.) (*Isadore Rosenfield Professor of Cardiology*)

Phil Gold; M.Sc., Ph.D., M.D., C.M.(McG.), F.R.C.P.(C.) (*joint appt. with Medicine*)

David Goltzman; B.Sc., M.D., C.M.(McG.), F.R.C.P.(C) (*Antoine G. Massabki Professor of Medicine*) (*joint appt. with Medicine*)

John Hanrahan; Ph.D.(Br. Col.)

Mortimer Levy; B.Sc., M.D., C.M.(McG.), F.R.C.P.(C) (*joint appt. with Medicine*)

Gergely Lukacs; M.D., Ph.D.(Budapest)

Michael Mackey; B.A., Ph.D.(Wash.) (*Joseph Morley Drake Professor of Physiology*)

Jacapo P. Mortola; M.D.(Milan)

John Orlowski; B.Sc.(McG.), M.Sc., Ph.D.(Qu.) (*James McGill Professor*)

Premysl Ponka; M.D., Ph.D.(Prague)

Alvin Shrier; B.Sc.(C' dia), Ph.D.(Dal.) (*Hosmer Professor of Physiology*)

Douglas G.D. Watt; M.D., Ph.D.(McG.)

John White; B.Sc., M.Sc.(Car.), Ph.D.(Harv.)

Associate Professors

Riaz Farookhi; B.Sc., M.Sc.(MIT), Ph.D.(Tufts)

Mladen Glavinovic; B.Sc.(Zagreb), M.Sc.(Tor.), Ph.D.(McG.)

Michael Guevara; Ph.D.(McG.)

Sheldon Magder; M.D.(Tor.) (*joint appt. with Medicine*)

Ursula Stochaj; Ph.D.(Cologne)

Teresa Trippenbach; M.D., Ph.D.(Warsaw)

Ann Wechsler; B.A.(Tor.), M.Sc., Ph.D.(McG.)

Associate Professor - Part Time

Nicole Bernard; B.Sc.(McG.), Ph.D.(Duke)

Assistant Professors

Erik Cook; Ph.D.(Baylor College, Tx)

Maurice Chacron; Ph.D.(Ott.)

Pejmun Haghighi; Ph.D.(McG.)

Julios Martinez-Trujillo; Ph.D.(Tübingen)

Peter Swain; Ph.D.(Lond.)

Associate Members

Anaesthesia: Steven Backman, Fernando Cervero

Biochemistry: Imed Gallouzi

Biomedical Engineering: Robert Kearney, Satya Prakash

Electrical and Computer Engineering: Sam Musallam

Kinesiology and Physical Education: Dilson Rassier

Medicine: Albert Aguauo, Volker Blank, Mark Blostein, Andrey

Cybalsky, Abraham Fuks, Claude Gagnon, Raymond Gagnon,

Imed Gallouzi, Harry L. Goldsmith, Geoffrey Hendy, Louise

Larose, Anne-Marie Lauzon, James Martin, Shree Mulay, Mariana

Newkirk, Barry Posner, Shafaat Rabbani, Mary Stevenson, Simon

Wing, Hans Zingg

Nephrology: Serge Lemay, Tomoko Takano

Neurology: David Ragsdale

Neurology and Neurosurgery: Jack Antel, Massimo Avoli, Charles

Bourque, Sal Carbonetto, Daniel Guitton, Christopher Pack

Ophthalmology: Curtis Baker

Otolaryngology: Bernard Segal

Pediatrics: Charles Rohlicek

Pharmacology: Terence Hebert

Psychiatry: Nicolas Cermakian, Bernardo Dubrovsky, Christina

Gianoulakis

Adjunct Professors

Roy Caplan, Pierre Drapeau, John Milton, Serge Rossignol,

Malmur Sairam

65.2 Programs Offered

The Physiology Department offers training leading to M.Sc. and Ph.D. degrees. The scope of the ongoing research, and close connections with the McGill teaching hospitals, offer excellent opportunities for collaborations with hospital based scientists.

All graduate students in Physiology receive financial support. Any faculty member who agrees to supervise a student who does not hold a fellowship, is obliged to provide financial support.

65.3 Admission Requirements

Admission to the Graduate Program is based on an evaluation by the Graduate Student Admissions and Advisory Committee (GSAAC), and on being accepted by a research supervisor. Final acceptance is contingent upon approval of the recommendation of the applicant by the Graduate and Postdoctoral Studies Office, from whom official notification will be received.

Candidates for the M.Sc. degree must hold a B.Sc. degree or its equivalent. Candidates who have completed an M.Sc. may be admitted directly to the Ph.D. program. M.Sc. students interested in a Ph.D., may transfer to the Ph.D. program after 12-18 months, if all of the transfer requirements have been fulfilled. The M.Sc. thesis requirement is then waived. Candidates with exceptional academic records may be considered to proceed directly to the Ph.D. degree from the B.Sc. degree.

The GRE General Test is required for anyone who does not have a degree from a North American University. TOEFL: only those whose mother tongue is English, who graduated from a Canadian institution (anglophone or francophone) or who completed an undergraduate or graduate degree at a foreign institution where English is the language of instruction are exempt from providing proof of competency in English. A minimum CGPA of 3.2 or a GPA of 3.4 in the last two years is required for an application to be considered.

65.4 Application Procedures

The GSAAC will only consider applications upon receipt of all of the following documentation:

1. application form;
2. personal statement;
3. CV;
4. two letters of reference, not more than six months old, from two professors printed on official letterhead;
5. two official copies of all university transcripts;
6. \$60 application fee;
7. results of the GRE (Graduate Record Exam) General Test, for applicants whose undergraduate degree is not from a North American university.
8. results of the Test of English as a Foreign Language (TOEFL), minimum score of 600 on paper-based test (or 250 on computer-based test, or 100 on the Internet-based test with each component score not less than 20), only those whose mother tongue is English, who graduated from a Canadian institution (Anglophone or francophone), or who completed an undergraduate or graduate degree at a foreign institution where English is the language of instruction will be exempt from providing proof of competency in English.

Applications should be submitted to the Graduate Student Affairs Coordinator as early as possible in order to facilitate processing. However, no applications will be considered after the following deadlines:

September (Fall term):

- March 1 (International students)
- May 15 (Canadian and Permanent Residents)

January (Winter term):

- July 1 (International students)
- October 1 (Canadian and Permanent Residents)
- China: February 1

Interested candidates should refer to the Department's Website.

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

65.5 Program Requirements

M.Sc. in Physiology (Thesis) (49 credits)

Each student will have a supervisory committee which will monitor the progress of the studies.

In addition to those specified below, students may be requested to fulfil other course requirements.

The required thesis is usually equivalent to one first author paper.

Required Courses (13 credits)

PHGY 601	(1)	M.Sc. Proposal Seminar
PHGY 602	(3)	Literature Search and Research Proposal
PHGY 607	(3)	Laboratory Research 1
PHGY 608	(3)	Laboratory Research 2
PHGY 620	(3)	Progress in Research

Thesis Component – Required (30 credits)

PHGY 621	(12)	Thesis 1
PHGY 622	(15)	Thesis 2
PHGY 623	(3)	M.Sc. Seminar

Elective Courses (6 credits)

In addition to the above, students must select 6 approved credits in Physiology or Science at the 500 level and higher.

Transfer to the Ph.D Program

Between 12 - 18 months students may transfer to the Ph.D. program if all of the transfer requirements have been fulfilled. This includes completion of the Ph.D. Preliminary Exam and the successful completion of a transfer seminar. The M.Sc. thesis requirement is then waived.

M.Sc. in Physiology – Bioinformatics Option/Concentration (49 credits)

Required Courses (16 credits)

COMP 616	(3)	Bioinformatics Seminar
PHGY 601	(1)	M.Sc. Proposal Seminar
PHGY 602	(3)	Literature Search and Research Proposal
PHGY 603	(3)	Systems Biology and Biophysics
PHGY 607	(3)	Laboratory Research 1
PHGY 608	(3)	Laboratory Research 2

Thesis Component - Required (30 credits)

PHGY 621	(12)	Thesis 1
PHGY 622	(15)	Thesis 2
PHGY 623	(3)	M.Sc. Seminar

Complementary Courses (3 credits)

3 credits to be chosen from the following courses:

BINF 621	(3)	Bioinformatics: Molecular Biology
BMDE 652	(3)	Bioinformatics: Proteomics
BTEC 555	(3)	Structural Bioinformatics
COMP 618	(3)	Bioinformatics: Functional Genomics

Ph.D. in Physiology

Each student will have a supervisory committee which will monitor the progress of the studies.

All students must submit a Ph.D. thesis and defend it orally.

Required Courses (9 credits)

PHGY 702*	(1)	Ph.D. Proposal
PHGY 703	(1)	Ph.D. Progress Seminar 1
PHGY 704	(1)	Ph.D. Progress Seminar 2
PHGY 720	(1)	Ph.D. Seminar Course 1
PHGY 721	(1)	Ph.D. Seminar Course 2
PHGY 722	(1)	Ph.D. Seminar Course 3
PHGY 723	(1)	Ph.D. Seminar Course 4
PHGY 724	(1)	Ph.D. Seminar Course 5
PHGY 725	(1)	Ph.D. Seminar Course 6

* Students must present the Ph.D. Proposal Seminar three months after starting the program.

Comprehensive

PHGY 701 (0) Ph.D. Comprehensive Examination
Students must complete the Comprehensive Examination within 6-12 months of admission to the program.

Elective Courses (9 credits)

In addition to the above, students are required to take an additional 9 credits of Physiology or Science at the 500 level or above, in consultation with the GSAAC and the candidate's supervisor.

Ph.D. in Physiology – Bioinformatics Option/Concentration**Required Courses** (15 credits)

COMP 616 (3) Bioinformatics Seminar
PHGY 603 (3) Systems Biology and Biophysics
PHGY 702 (1) Ph.D. Proposal
PHGY 703 (1) Ph.D. Progress Seminar 1
PHGY 704 (1) Ph.D. Progress Seminar 2
PHGY 720 (1) Ph.D. Seminar Course 1
PHGY 721 (1) Ph.D. Seminar Course 2
PHGY 722 (1) Ph.D. Seminar Course 3
PHGY 723 (1) Ph.D. Seminar Course 4
PHGY 724 (1) Ph.D. Seminar Course 5
PHGY 725 (1) Ph.D. Seminar Course 6

Comprehensive

PHGY 701 (0) Ph.D. Comprehensive Examination

Thesis - Required**Complementary Courses** (3 credits)

3 credits to be chosen from the following courses:

BINF 621 (3) Bioinformatics: Molecular Biology
BMDE 652 (3) Bioinformatics: Proteomics
BTEC 555 (3) Structural Bioinformatics
COMP 618 (3) Bioinformatics: Functional Genomics

65.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Term(s) offered (Fall, Winter, Summer) may appear after the credit weight to indicate when a course would normally be taught. Please check Class Schedule to confirm this information.

Note: All undergraduate courses administered by the Faculty of Science (courses at the 100- to 500-level) have limited enrolment.

The course credit weight is given in parentheses after the title.

PHGY 502 EXERCISE PHYSIOLOGY. (3) (Winter) (Prerequisites: PHGY 311, PHGY 312, and PHGY 313) Behaviour of physiological processes in response to physical effort, in areas such as structural basis of muscle contraction, thermoregulation during exercise, mechanics and energetics of muscle contraction, fuel utilization, fatigue, physiological adjustments during exercise and influence of training.

PHGY 508 ADVANCED RENAL PHYSIOLOGY. (3) (Fall) (Prerequisite (Undergraduate): PHGY 312 or the equivalent) (Restriction: Open to advanced undergraduate and graduate students) Offered in conjunction with the Department of Medicine. Lectures and seminars will cover advanced concepts in selected areas of kidney physiology (glomerular and tubular function) as well as membrane and epithelial transport. Students will be expected to critically discuss selected experimental papers.

PHGY 513 CELLULAR IMMUNOLOGY. (3) (Winter) (3 hours lectures plus term paper) (Prerequisite: MIMM 314, or permission of the instructor) This course deals with cellular interactions, regulation and effector mechanisms of the normal immune response in relation to diseases and pathogenic processes. It is taught at an advanced level.

PHGY 515 PHYSIOLOGY OF BLOOD 1. (3) (Fall) (2 hours lecture plus 1 hour seminar weekly) (Prerequisite: PHGY 313 or PHGY 312 or permission of the instructor) Study of the cell and molecular physiology of hemostasis and its pathophysiology (bleeding and thrombosis). Emphases on molecular mechanisms regulating clot formation, fibrinolysis, and cell adhesion/aggregation. Experimental approaches and specific clinical disorders will be analyzed. Weekly discussions, and a major term paper.

PHGY 516 PHYSIOLOGY OF BLOOD 2. (3) (Winter) (2 hours lecture plus 1 hour seminar weekly) Bone marrow hematopoiesis, with emphasis on regulation of stem cell proliferation and differentiation along hematopoietic pathways. Formation and differentiation of red and white blood cells and some of the diseases associated with hematopoiesis will be covered. Emphasis will be given to the molecular mechanisms involved in the normal and pathological conditions.

PHGY 517 ARTIFICIAL INTERNAL ORGANS. (3) (Winter) (Prerequisite: permission of instructors.) Physiological, bioengineering, chemical and clinical aspects of artificial organs including basic principles and physiopathology of organ failure. Examples: oxygenator, cardiac support, vascular substitutes, cardiac pacemaker, biomaterials and tissue engineering, biocompatibility.

PHGY 518 ARTIFICIAL CELLS. (3) (Fall) (Prerequisite (Undergraduate): permission of instructors.) Physiology, biotechnology, chemistry and biomedical application of artificial cells, blood substitutes, immobilized enzymes, microorganisms and cells, hemoperfusion, artificial kidneys, and drug delivery systems. PHGY 517 and PHGY 518 when taken together, will give a complete picture of this field. However, the student can select one of these.

PHGY 531 TOPICS IN APPLIED IMMUNOLOGY. (3) (Winter) (Restriction: Permission of the instructor. U3 InterDept. Honours Immunology students and graduate students with strong immunology background i.e. PHGY 513 and BIOC 503) Seminar format course in which experts in immunologic mechanisms of resistance against a variety of infectious diseases, including AIDS, malaria, and tuberculosis oversee student moderators in their presentation of recent scientific literature in the field.

PHGY 550 MOLECULAR PHYSIOLOGY OF BONE. (3) (Fall) (1 hour of lecture, 2 hours of seminar per week) (Prerequisites: PHGY 311, and BIOL 202 or equivalent) (Restriction: U3 Physiology students, and graduate students in biomedical departments; others by permission of the instructor) Students will develop a working knowledge of cartilage and bone. Discussion topics will include: molecular and cellular environment of bone; heritable and acquired skeletal defects; research models used to study metabolic bone disease.

PHGY 552 CELLULAR AND MOLECULAR PHYSIOLOGY. (3) (Winter) (1 hour lecture, 2 hours seminar weekly) (Prerequisite: PHGY 311) (Preference will be given to Physiology Honours and Graduate students) Discussions of recent significant advances in our understanding of the gene products involved in diverse cellular signalling pathways. Topics will include cell-surface hormone receptors, nuclear steroid hormone receptors, and ion channels and transporters. Students will present and critically evaluate experimental approaches, results and interpretations of selected research publications.

PHGY 556 TOPICS IN SYSTEMS NEUROSCIENCE. (3) (Winter) (Restriction: Permission of the instructor required.) (Restriction: Not open to students who have taken PHGY 456) Topics of current interest in systems neurophysiology and behavioural neuroscience including: the neural representation of sensory information and motor behaviours, models of sensory motor integration, and the computational analysis of problems in motor control and perception. Students will be expected to present and critically discuss journal articles in class.

PHGY 601 M.Sc. PROPOSAL SEMINAR. (1)

PHGY 602 LITERATURE SEARCH AND RESEARCH PROPOSAL. (3)

PHGY 603 SYSTEMS BIOLOGY AND BIOPHYSICS. (3) (Prerequisite: Knowledge of differential equations at the MATH 315 level or

equivalent.) (Notes: Enrolment is limited to 20 students per semester. The course is 1.5 hours of lecture and 1.5 hours of seminar per week. Readings will focus on classic and current journal articles.) Introduction to classical and current topics in biophysics and systems biology in order to model the control of gene expression and intracellular signal transduction, as well as gene spread in populations.

PHGY 607 LABORATORY RESEARCH 1. (3)

PHGY 608 LABORATORY RESEARCH 2. (3)

PHGY 610 BIOPHYSICS. (3) (Prerequisite: permission of the instructor.) A series of seminars in selected topics in theoretical biology and biomathematics.

PHGY 620 PROGRESS IN RESEARCH. (3)

PHGY 621 THESIS 1. (12)

PHGY 622 THESIS 2. (15)

PHGY 623 M.Sc. SEMINAR. (3)

PHGY 701 Ph.D. COMPREHENSIVE EXAMINATION. (0)

PHGY 702 Ph.D. PROPOSAL. (1)

PHGY 703 Ph.D. PROGRESS SEMINAR 1. (1)

PHGY 704 Ph.D. PROGRESS SEMINAR 2. (1)

PHGY 720 Ph.D. SEMINAR COURSE 1. (1) Required for Ph.D. students. Coordinated in conjunction with the weekly Departmental seminar series, students will meet for one hour before each seminar to critically discuss papers on the subject of the weekly seminar. Students will take turns introducing the papers and leading discussions on an overview of the research topic, some of the methodologies, results and conclusions.

PHGY 721 Ph.D. SEMINAR COURSE 2. (1) Required for Ph.D. students. Coordinated in conjunction with the weekly Departmental seminar series, students will meet for one hour before each seminar to critically discuss papers on the subject of the weekly seminar. Students will take turns introducing the papers and leading discussions on an overview of the research topic, some of the methodologies, results and conclusions.

PHGY 722 Ph.D. SEMINAR COURSE 3. (1) Required for Ph.D. students. Coordinated in conjunction with the weekly Departmental seminar series, students will meet for one hour before each seminar to critically discuss papers on the subject of the weekly seminar. Students will take turns introducing the papers and leading discussions on an overview of the research topic, some of the methodologies, results and conclusions.

PHGY 723 Ph.D. SEMINAR COURSE 4. (1) Required for Ph.D. students. Coordinated in conjunction with the weekly Departmental seminar series, students will meet for one hour before each seminar to critically discuss papers on the subject of the weekly seminar. Students will take turns introducing the papers and leading discussions on an overview of the research topic, some of the methodologies, results and conclusions.

PHGY 724 Ph.D. SEMINAR COURSE 5. (1) Required for Ph.D. students. Coordinated in conjunction with the weekly Departmental seminar series, students will meet for one hour before each seminar to critically discuss papers on the subject of the weekly seminar. Students will take turns introducing the papers and leading discussions on an overview of the research topic, some of the methodologies, results and conclusions.

PHGY 725 Ph.D. SEMINAR COURSE 6. (1) Required for Ph.D. students. Coordinated in conjunction with the weekly Departmental seminar series, students will meet for one hour before each seminar to critically discuss papers on the subject of the weekly seminar. Students will take turns introducing the papers and leading discussions on an overview of the research topic, some of the methodologies, results and conclusions.

COURSES OFFERED BY OTHER UNITS

Department of Medicine, Division of Experimental Medicine:

EXMD 502 ADVANCED ENDOCRINOLOGY 01. (3) (Fall) (Prerequisite (Undergraduate): EXMD 301 or an equivalent course) This course

is designed for U3 students who are in a major or honours program in anatomy, biology, biochemistry or physiology and for graduate students. A multidisciplinary approach will be used to teach biosynthesis and processing of hormones, their regulation, function and mechanism of action. The material will cover hypothalamic, pituitary, thyroid, atrial and adrenal hormones as well as prostaglandins and related substances.

EXMD 503 ADVANCED ENDOCRINOLOGY 02. (3) (Winter) Study of the parathyroids, gut and pancreatic hormones and growth factors. In addition, the role of hormones and growth factors in reproduction and fetal maturation will be discussed.

EXMD 504 BIOLOGY OF CANCER. (3) (Fall) (Prerequisite (Undergraduate): A good knowledge of biology at the cellular and molecular level. Open to U3 and graduate students only) An introduction to the biology of malignancy. A multidisciplinary approach dealing with the etiology of cancer, the biological properties of malignant cells, the host response to tumour cell growth and the principles of cancer therapy.

EXMD 506 ADVANCED APPLIED CARDIOVASCULAR PHYSIOLOGY. (3) (Fall) (Prerequisite (Undergraduate): PHGY 313 or by permission of Instructors) Offered in conjunction with the Department of Physiology. Current topics, methods and techniques for studying the cardiovascular system. Basic and applied cardiac electrophysiology, mechanisms of pacemaker activity, arrhythmias, the effects of drugs on cardiac functions, fetal circulation, coronary circulation, mechanics of blood flow, cardiovascular diseases, renal and neural control of the circulation, and cardiac assist devices.

EXMD 507 ADVANCED APPLIED RESPIRATORY PHYSIOLOGY. (3) (Fall) (Prerequisite: PHGY 313) Offered in conjunction with the Department of Physiology. In depth coverage of respiratory biology including: functional anatomy of the respiratory system, pulmonary statics and dynamics, chest wall and respiratory muscles, ventilation and perfusion, control of breathing, and defense mechanisms. This course is aimed at providing a solid grounding in pulmonary biology and its research applications.

EXMD 508 ADVANCED TOPICS IN RESPIRATION. (3) (Winter) (Prerequisite: EXMD 507) Offered in conjunction with the Department of Physiology. In depth coverage of developmental physiology, pulmonary vascular physiology, biology of airway smooth muscle, respiratory epithelium and molecular biology of respiratory muscles. Dyspnea, mechanical ventilation and respiratory failure will also be covered. This course emphasizes application of respiratory biology to basic and applied research and touches on pulmonary pathophysiology.

EXMD 509 GASTROINTESTINAL PHYSIOLOGY AND PATHOLOGY. (3) (Fall and Winter) (Prerequisite: Graduate students, U3 undergraduates) Course deals with various aspects of gastrointestinal and hepatic function in health and altered physiological states. The principal focus is on the recent literature pertaining to cell and molecular mechanisms underlying the motility secretory process, absorption and secretion. The molecular biology of the hepatic viruses and various aspects of colonic neoplasia will also be considered.

EXMD 615 MEMBRANE CARBOHYDRATES. (3) (Winter) The structure, function and biosynthesis of glycoproteins, glycolipids and glycoaminoglycans, and the biological role of complex carbohydrates at the cell surface.

Biomedical Engineering

BMDE 519 BIOMEDICAL SIGNALS AND SYSTEMS. (3) (3-0-6) (Prerequisites: Satisfactory standing in U3 Honours Physiology; or U3 Major in Physics-Physiology; or U3 Major Physiology-Mathematics; or permission of instructor.) An introduction to the theoretical framework, experimental techniques and analysis procedures available for the quantitative analysis of physiological systems and signals. Lectures plus laboratory work using the Biomedical Engineering computer system. Topics include: amplitude and frequency structure of signals, filtering, sampling, correlation functions, time and frequency-domain descriptions of systems.

66 Plant Science

Department of Plant Science
Macdonald Campus
21,111 Lakeshore Road
Sainte Anne-de-Bellevue, QC H9X 3V9
Canada

Telephone: (514) 398-7851
Fax: (514) 398-7897
E-mail: plant.science@mcgill.ca
Website: www.mcgill.ca/plant

Chair — D.L. Smith

66.1 Staff

Emeritus Professors

R.H. Estey; B.Ed.(New Br.), M.S.(Maine), D.I.C.(Imp. Coll.),
B.Sc.(Agr.), Ph.D.(McG.), F.L.S.
W.F. Grant; B.A., M.A.(McM.), Ph.D.(Virg.), F.L.S.

Professors

P. Dutilleul; L.Sc., D.Sc.(Louvain)
D.L. Smith; B.Sc., M.Sc.(Acad.), Ph.D.(Guelph)
A.K. Watson; B.Sc.(Agr.), M.Sc.(Br. Col.), Ph.D.(Sask.)

Associate Professors

S. deBlois; B.Sc.(Agr.)(McG.), M.Sc., Ph.D.(Montr.)
D.J. Donnelly; B.Sc.(Agr.)(McG.), M.Sc.(Br. Col.), Ph.D.(S. Fraser)
S. Jabaji; B.Sc.(Beirut), M.Sc.(Guelph), Ph.D.(Wat.)
A.C. Kushalappa; B.Sc., M.Sc.(B'Loire), Ph.D.(Flor.)
P. Seguin; B.Sc.(Agr.), M.Sc.(McG.), Ph.D.(Minn.)
K.A. Stewart; B.Sc.(Agr.)(Br. Col.), Ph.D.(R'dg)
M. Waterway; B.A.(Grand Rapids), M.S.(Wisc.), Ph.D.(C'nell)

Assistant Professors

J. Bede; B.Sc.(Calg.), M.Sc., Ph.D.(Tor.)
J. Singh; B.Sc.(Agr.), M.Sc.(Punjab), Ph.D.(Syd.)
M. Stromvik; B.A., M.Sc.(Stockholm), Ph.D.(Ill.)

Faculty Lecturers

C. Begg; B.Sc.(Agr.)(McG.), M.Sc.(Sask.), Ph.D.(McG.)
S. Lussier; B.Sc.(Agr.)(McG.)
K. McClintock; B.A.(Welles.), B.Sc.(Agr.), M.Sc.(McG.)
D. Wees; B.Sc.(Agr.), M.Sc.(McG.)

Associate Member

G. Brown (*Department of Biology*)
T.A. Johns (*Dietetics and Human Nutrition*)

Adjunct Professors

T.L. Capson, S. Jenni, J.F. Laliberté

66.2 Programs Offered

The Department offers a M.Sc. and Ph.D. in Plant Science with options in Bioinformatics, Environment or Neotropical Environment and provides for study in all fields of the plant sciences. Research facilities – both field and laboratory – are available for investigations in plant breeding, crop physiology, crop management, plant ecology, the epidemiology and biology of plant diseases, the physiology of diseased plants, cytogenetics, biosystematics, recombinant DNA technology, mycology, weed biology, tissue culture, plant biochemistry and bioinformatics.

An advisory committee is named for each student, having the responsibility for developing the program of study appropriate to the student's background and area of specialization.

66.3 Admission Requirements

General

The minimum cumulative grade point average (CGPA) is 3.0/4.0 (second-class upper division) or a GPA of 3.2/4.0 during the last two years of full-time university study. High grades are expected

in courses considered by the academic unit to be preparatory to the graduate program.

Ph.D.

Ph.D. candidates are required to have a M.Sc. degree in an area related to the chosen field of specialization for the Ph.D. program. Outstanding M.Sc. students may be permitted to transfer to the second year of the Ph.D. program following one year of study.

66.4 Application Procedures

Applicants for graduate studies must forward supporting documents to:

Department of Plant Science
Macdonald Campus of McGill University
21,111 Lakeshore
Sainte-Anne-de-Bellevue, QC H9X 3V9
Canada

Telephone: (514) 398-7851
Fax: (514) 398-7897
E-mail: carolyn.bowes@mcgill.ca

Applications will be considered upon receipt of a signed and completed application form, \$80 application fee, and the following supporting documents:

DOCUMENTS SUBMITTED WILL NOT BE RETURNED.

Transcripts - Two official copies of all university level transcripts with proof of degree(s) granted. Transcripts written in a language other than English or French must be accompanied by a certified translation. An explanation of the grading system used by the applicant's university is essential. It is the applicant's responsibility to arrange for transcripts to be sent.

It is desirable to submit a list of the titles of courses taken in the major subject, since transcripts often give code numbers only. Applicants must be graduates of a university of recognized reputation and hold a Bachelor's degree equivalent to a McGill Honours degree in a subject closely related to the one selected for graduate work. This implies that about one-third of all undergraduate courses should have been devoted to the subject itself and another third to cognate subjects.

Letters of Recommendation - Two letters of recommendation on letterhead (official paper) of originating institution or bearing the university seal and with original signatures from two instructors familiar with the applicant's work, preferably in the applicant's area of specialization. It is the applicant's responsibility to arrange for these letters to be sent.

Competency in English - Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English, by appropriate exams, e.g., TOEFL (minimum score 550 on the paper-based test, 213 on the computer-based test, 86 on the Internet-based test, with a minimum score of 20 on each), or IELTS (minimum overall band 6.5). The MCHE is not considered equivalent. Results must be submitted as part of the application. The University code is 0935 (McGill University, Montreal); please use Department code 31(Graduate Schools), Biological Sciences - Agriculture, to ensure that your TOEFL reaches this office without delay.

Graduate Record Exam (GRE) - The GRE is not required, but it is highly recommended.

Application Fee (non-refundable) - A fee of \$80 Canadian must accompany each application (including McGill students), otherwise it cannot be considered. This sum must be remitted using one of the following methods:

1. Credit card (by completing the appropriate section of the application form). NB: online applications must be paid for by credit card.
2. Certified cheque in Cdn.\$ drawn on a Canadian bank.
3. Certified cheque in U.S.\$ drawn on a U.S. bank.
4. Canadian Money order in Cdn.\$.
5. U.S. Money Order in U.S.\$.
6. An international draft in Canadian funds drawn on a Canadian bank requested from the applicant's bank in his/her own country.

Deadlines – Applications, including all supporting documents must reach the Department no later than May 15 (March 1 for International) for the *Fall Term (September)*; October 15 (July 1 for International) for the *Winter Term (January)*; February 15 (November 1 for International) for the *Summer Term (May)*. It may be necessary to delay review of the applicant's file until the following admittance period if application materials including supporting documents are received after these dates. International applicants are advised to apply well in advance of the deadline because immigration procedures may be lengthy. Applicants are encouraged to make use of the online application form available on the Web at www.mcgill.ca/applying/graduate.

Financial aid is very limited and highly competitive. It is suggested that students give serious consideration to their financial planning before submitting an application.

Acceptance to all programs depends on a staff member agreeing to serve as the student's supervisor and the student obtaining financial support. Normally, a student will not be accepted unless adequate financial support can be provided by the student and/or the student's supervisor. Academic units cannot guarantee financial support via teaching assistantships or other funds.

Qualifying Students – Some applicants whose academic degrees and standing entitle them to serious consideration for admission to graduate studies, but who are considered inadequately prepared in the subject selected may be admitted to a *Qualifying Program* if they have met the Graduate and Postdoctoral Studies Office minimum CGPA of 3.0/4.0. The course(s) to be taken in a *Qualifying Program* will be prescribed by the academic unit concerned. *Qualifying students* are registered in graduate studies, **but not as candidates for a degree**. Only one qualifying year is permitted. **Successful completion of a qualifying program does not guarantee admission to a degree program.**

66.5 Program Requirements

M.Sc. in Plant Science (Thesis) (45 credits)

Plant Science M.Sc. research programs normally require two years for completion.

Candidates must complete a 45-credit course and research program established by their advisory committee. They must also attend all Thesis progress reports (PLNT 665, PLNT 666) and the invitational seminar (PLNT 690).

Additional courses may be required at the discretion of the candidate's supervisory committee.

Required Invitational Seminar (0 credit)

PLNT 690 (0) Research Horizons in Plant Science

Complementary Courses (6 credits)

6 credits, two graduate-level courses.

Thesis Component – Required (39 credits)

PLNT 664 (12) M.Sc. Thesis 1
 PLNT 665 (12) M.Sc. Thesis 2
 PLNT 666 (15) M.Sc. Thesis 3

M.Sc. in Plant Science (Thesis) – Bioinformatics Option/Concentration (48 credits)

Plant Science M.Sc. research programs normally require two years for completion.

Attendance at Thesis progress reports (PLNT 665, PLNT 666) and the invitational seminar (PLNT 690) is required.

Additional courses may be required at the discretion of the candidate's supervisory committee.

Required Courses (3 credits)

COMP 616 (3) Bioinformatics Seminar
 PLNT 690 (0) Research Horizons in Plant Science
 PLNT 691 (0) Research Horizons in Plant Science

Complementary Courses (6 credits)

6 credits to be chosen from the following courses:

BINF 621 (3) Bioinformatics: Molecular Biology
 BMDE 652 (3) Bioinformatics: Proteomics
 BTEC 555 (3) Structural Bioinformatics
 COMP 618 (3) Bioinformatics: Functional Genomics
 PHGY 603 (3) Systems Biology and Biophysics

Additional courses at the 500 or 600 level may be required at the discretion of the candidate's advisory committee.

Thesis Component - Required (39 credits)

PLNT 664 (12) M.Sc. Thesis 1
 PLNT 665 (12) M.Sc. Thesis 2
 PLNT 666 (15) M.Sc. Thesis 3

M.Sc. in Plant Science (Thesis) – Environment Option/Concentration (48 credits)

Plant Science M.Sc. research programs normally require two years for completion.

Attendance at Thesis progress reports (PLNT 665, PLNT 666) and the invitational seminar (PLNT 690) is required.

Additional courses may be required at the discretion of the candidate's supervisory committee.

Required Courses (6 credits)

ENVR 610 (3) Foundations of Environmental Policy
 ENVR 650 (1) Environmental Seminar 1
 ENVR 651 (1) Environmental Seminar 2
 ENVR 652 (1) Environmental Seminar 3
 PLNT 690 (0) Research Horizons in Plant Science

Complementary Courses (3 credits)

3 credits, one of the following courses:

ENVR 519 (3) Global Environmental Politics
 ENVR 544 (3) Environmental Measurement and Modelling
 ENVR 580 (3) Topics in Environment 3
 ENVR 611 (3) The Economy of Nature
 ENVR 620 (3) Environment and Health of Species
 ENVR 622 (3) Sustainable Landscapes
 ENVR 630 (3) Civilization and Environment 1
 ENVR 680 (3) Topics in Environment 4

or other graduate course recommended by the advisory committee and approved by the Environment Option Committee

Thesis Component – Required (39 credits)

PLNT 664 (12) M.Sc. Thesis 1
 PLNT 665 (12) M.Sc. Thesis 2
 PLNT 666 (15) M.Sc. Thesis 3

M.Sc. in Plant Science (Thesis) – Neotropical Environment Option/Concentration (48 credits)

Plant Science M.Sc. research programs normally require two years for completion.

Candidates must complete a 48-credit course and research program established by their advisory committee. Additional courses may be required at the discretion of the candidate's supervisory committee.

When in residence in Montreal attendance at all Thesis progress reports (PLNT 665, PLNT 666) and the invitational seminar (PLNT 690) is required.

Candidates must also participate in the STRI seminar series when in residence in Panama, and in the MSE-Panama Symposium Presentation in Montreal.

Required Courses (6 credits)

BIOL 640 (3) Tropical Biology and Conservation
ENVR 610 (3) Foundations of Environmental Policy
PLNT 690 (0) Research Horizons in Plant Science

Complementary Courses (3 credits)

3 credits, one of the following courses:

AGRI 550 (3) Sustained Tropical Agriculture
BIOL 553 (3) Neotropical Environments
BIOL 641 (3) Issues in Tropical Biology
ENVR 611 (3) The Economy of Nature
ENVR 612 (3) Tropical Environmental Issues
ENVR 680 (3) Topics in Environment 4
POLI 644 (3) Tropical Environmental Politics
SOCI 565 (3) Social Change in Panama

Thesis Component – Required (39 credits)

PLNT 664 (12) M.Sc. Thesis 1
PLNT 665 (12) M.Sc. Thesis 2
PLNT 666 (15) M.Sc. Thesis 3

M.Sc.A. in Plant Science (Non-Thesis) (45 credits)

N.B. this program is under revision. Please contact Ms. Carolyn Bowes for information.

Ph.D. in Plant Science

Students who have taken their M.Sc. degree at McGill University will be required to spend one term in study at another research institution.

Candidates must complete the program of study established by their advisory committee and attend the invitational seminar (PLNT 690).

Required Courses (0 credits)

PLNT 690 (0) Research Horizons in Plant Science

Complementary Courses

Any courses at the 500 or 600 level deemed necessary for the chosen area of specialization.

Comprehensive – Required

PLNT 701* (0) Doctoral Comprehensive Exam

* Must be taken within one year of registering.

Thesis - Required

Ph.D. in Plant Science – Bioinformatics Option/Concentration

Students who have taken their M.Sc. degree at McGill University will be required to spend one term in study at another research institution.

Candidates must complete the program of study established by their advisory committee and attend the invitational seminar (PLNT 690).

Required Courses (3 credits)

COMP 616 (3) Bioinformatics Seminar
PLNT 690 (0) Research Horizons in Plant Science

Complementary Courses (6 credits)

Two courses to be chosen from the following:

BINF 621 (3) Bioinformatics: Molecular Biology
BMDE 652 (3) Bioinformatics: Proteomics
BTEC 555 (3) Structural Bioinformatics
COMP 618 (3) Bioinformatics: Functional Genomics
PHGY 603 (3) Systems Biology and Biophysics

Additional courses at the 500 or 600 level may be required at the discretion of the candidate's advisory committee.

Comprehensive – Required

PLNT 701* Doctoral Comprehensive Exam

* Must be taken within one year of registering.

Thesis - Required

Ph.D. in Plant Science – Environment Option/Concentration

Required Courses (6 credits)

ENVR 610 (3) Foundations of Environmental Policy
ENVR 650 (1) Environmental Seminar 1
ENVR 651 (1) Environmental Seminar 2
ENVR 652 (1) Environmental Seminar 3
PLNT 690 (0) Research Horizons in Plant Science

Coursework

Course requirements are specified by the staff in the discipline but are flexible and depend largely on the student's background, immediate interests, and ultimate objectives.

Complementary Courses

One course chosen from:

ENVR 519 (3) Global Environmental Politics
ENVR 544 (3) Environmental Measurement and Modelling
ENVR 580 (3) Topics in Environment 3
ENVR 611 (3) The Economy of Nature
ENVR 620 (3) Environment and Health of Species
ENVR 622 (3) Sustainable Landscapes
ENVR 630 (3) Civilization and Environment 1
ENVR 680 (3) Topics in Environment 4

or other graduate course recommended by the advisory committee and approved by the Environment Option Committee

Ph.D. Comprehensive - Required

PLNT 701* (0) Doctoral Comprehensive Exam

* Must be taken within one year of registering.

Thesis - Required

Ph.D. in Plant Science – Neotropical Environment Option/Concentration

Students who have taken their M.Sc. degree at McGill University will be required to spend one term in study at another research institution.

Candidates must complete the program of study established by their advisory committee as outlined below. Additional courses may be required at the discretion of the candidate's supervisory committee.

When in residence in Montreal attendance at the invitational seminar (PLNT 690) is required.

Candidates must also participate in the STRI seminar series when in residence in Panama, and in the MSE-Panama Symposium Presentation in Montreal.

Required Courses (6 credits)

BIOL 640 (3) Tropical Biology and Conservation
ENVR 610 (3) Foundations of Environmental Policy
PLNT 690 (0) Research Horizons in Plant Science

Complementary Courses (3 credits)

3 credits, one of the following courses:

AGRI 550 (3) Sustained Tropical Agriculture
BIOL 553 (3) Neotropical Environments
BIOL 641 (3) Issues in Tropical Biology
ENVR 611 (3) The Economy of Nature
ENVR 612 (3) Tropical Environmental Issues
ENVR 680 (3) Topics in Environment 4
POLI 644 (3) Tropical Environmental Politics
SOCI 565 (3) Social Change in Panama

Comprehensive – Required

PLNT 701* (0) Doctoral Comprehensive Exam

* Must be taken within one year of registering.

Thesis – Required

66.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

The course credit weight is given in parentheses after the title.

★ Denotes courses taught only in alternate years.

AEMA 610 STATISTICAL METHODS 2. (3) (3 lectures and one 2-hour lab) (Prerequisite: AEMA 310 or equivalent) Principles of linear models, multiple regression equations and classification models. Introduction to Analysis of Variance and common statistical designs used in agricultural and environmental sciences. Emphasis on balanced and unbalanced designs and data structures; their analysis and tests of statistical significance.

AEMA 611 EXPERIMENTAL DESIGNS 1. (3) (3 lectures and 1 conference) (Prerequisite: AEMA 310 or equivalent) (Given in alternate years) General principles of experimental design, split-plot designs, spatial heterogeneity and experimental design, incomplete block designs and unbalanced designs, analysis of repeated measures, multivariate and modified univariate analyses of variance, central composite designs.

AEMA 614 TEMPORAL AND SPATIAL STATISTICS 1. (3) (3 hours lectures) (Prerequisite: AEMA 310 or equivalent) (Given in alternate years) Temporal statistics: analysis in the time domain, Box-Jenkins forecasting methodology, analysis in the frequency domain, periodogram analysis. Spatial statistics: mapping, autocorrelation analysis, geostatistics. Statistical inference with autocorrelated sample data.

AGRI 510 PROFESSIONAL PRACTICE. (3) (Restriction: Course restricted to senior undergraduate and graduate students.) The ethical issues that face a professional in the workplace; professional ethics and deontology, professional responsibilities as related to the laws of labour, health, safety and risks to the environment, risk management and communication.

BINF 511 BIOINFORMATICS FOR GENOMICS. (3) (Prerequisite: Understanding of cell and molecular biology (equivalent to a cell or molecular biology course) or permission from instructor.) Bioinformatics methods and reasoning in relation to genomics, proteomics and metabolomics strategies with an emphasis on functional genomics data. The course will cover introduction to UNIX, Perl programming, data processing and integration, file parsing, relational database design and implementation, angled towards solutions relevant for genomics.

BINF 621 BIOINFORMATICS: MOLECULAR BIOLOGY. (3) (Restriction: Enrolment by students in the Bioinformatics option or by permission from the course coordinators only. Limited to 30 students.) The main problems related to the analysis of biological sequences (sequence comparison, homology, gene annotation, phylogenetic inference, comparative genomics) and the computational approaches (dynamic programming algorithms, Blast heuristics, hidden Markov models, Bayesian statistics).

★ **CELL 500 TECHNIQUES PLANT MOLECULAR GENETICS.** (3) Plant biotechnology, recombinant DNA techniques, transgenic plant generation (genetically modified plants) as well as gene and gene product analysis.

★ **CELL 501 PLANT MOLECULAR BIOLOGY AND GENETICS.** (3) Photosynthesis, plant development, plant genome mutagenesis and analysis, and plant stress are discussed. Journal articles and reviews on all aspects of plant molecular biology and genetics.

PLNT 525 ADVANCED MICROPROPAGATION. (3) (One 3-hour lecture) A detailed study of the principles and techniques of plant micro propagation. Includes lectures, laboratories, discussion sessions and visits to local laboratories. Evaluation is based on contribution to discussions, laboratory reports and an individualized project.

★ **PLNT 535 PLANT BREEDING.** (3) (Prerequisite (Undergraduate): CELL 204, PLNT 201 or PLNT 211) (Given in alternate years) Principles and practices of plant breeding, including reproduction of crop plants; plant hybridization; sources of genetic variation; selection methods used for self- and cross-pollinated crops and for clonally reproduced crops; breeding for diseases and pest resistance; applications of biotechnology in plant breeding.

PLNT 602 FORAGE CROP EXPERIMENTATION. (3)

PLNT 604 VEGETABLE CROPS. (3) Discussion and reading assignments on the application of plant physiology and other sciences to the production of vegetable crops.

PLNT 619 CROP PHYSIOLOGY. (3) (3 hours conference) Growth and development of crops, with emphasis on canopy structure and arrangement, light interception, temperature, water and salt stress.

PLNT 622 BIOLOGICAL CONTROL OF WEEDS. (3) Directed reading and discussion on the use of plant-feeding organisms and disease to reduce the density of undesirable vegetation in favour of more useful plant species.

PLNT 624 ADVANCED CELLULAR REGULATION. (3) (Restrictions: Not open to students who have taken PLNT 424.) An in depth overview of prokaryotic and eukaryotic cellular regulatory mechanisms, focusing on the regulation of gene expression, enzyme activity and signal transduction. Emphasis will be placed on concepts and problems in signal transduction and metabolic engineering.

PLNT 628 PLANT NITROGEN FIXATION AND MYCORRHIZAE. (3) A detailed examination of the chemistry, biochemistry, anatomy, physiology, ecology and agricultural application of biological nitrogen fixation and mycorrhizal associations in higher plants.

PLNT 636 EPIDEMIOLOGY AND MANAGEMENT OF PLANT DISEASE. (3) Concepts and principles of plant disease epidemiology. Quantification of factors influencing epidemiological processes. Influence of host, pathogen and environmental factors on the rate of disease development. Disease forecasting and timing fungicide application. Management of crop diseases, including chemical and biological control. Immunological and molecular techniques to detect pathogens.

PLNT 650 ADVANCED SYSTEMATIC BOTANY. (3) This course deals with the literature and philosophy of plant classification, processes of speciation in higher plants, sources and interpretation of data, biosystematic methods and plant nomenclature.

PLNT 664 M.Sc. THESIS 1. (12) Written and oral presentation of thesis proposal to the research supervisory committee.

PLNT 665 M.Sc. THESIS 2. (12) Oral presentation of a proposal to the department and progress report on the thesis research project to the supervisory committee.

PLNT 666 M.Sc. THESIS 3. (15) Preparation and submission of an acceptable thesis. Oral presentation of the thesis research to the department.

PLNT 670 SPECIAL TOPICS. (3) (2 hours seminar) This course is designed to develop seminar presentation skills in graduate students. The course consists of instruction on audio-visual preparation, speaking style, and organization of content, plus practice presentations by students.

PLNT 690 RESEARCH HORIZONS IN PLANT SCIENCE 1. (0) A series of seminars presented by invited speakers, staff and senior graduate students. The topics are selected to integrate the many fields of plant science.

PLNT 691 RESEARCH HORIZONS IN PLANT SCIENCE 2. (0) A series of seminars presented by invited speakers, staff and senior graduate students. The topics are selected to integrate the many fields of plant science.

PLNT 701 DOCTORAL COMPREHENSIVE EXAMINATION. (0)

67 Political Science

Department of Political Science
Stephen Leacock Building
855 Sherbrooke Street West
Montreal, QC H3A 2T7
Canada

Telephone: (514) 398-4800

Fax: (514) 398-1770

Website: www.arts.mcgill.ca/politicalscience

Chair — Richard Schultz

Director of Graduate Program — Juliet Johnson

67.1 Staff

Emeritus Professors

Baldev Raj Nayar; B.A., M.A.(Punj.), M.A., Ph.D.(Chic.)
Blema Steinberg; B.A.(McG.), M.A.(C'nell.), Ph.D.(McG.)

Professors

Mark R. Brawley; B.A., M.A., Ph.D.(Calif.-LA)
Michael Brecher; B.A.(McG.), M.A., Ph.D.(Yale), F.R.S.C. (*R.B. Angus Professor of Economics and Political Science*) (on leave 2008-09)
Rex Brynen; B.A.(Vic. (BC)), M.A., Ph.D.(Calg.) (on leave 2008-09)
Elisabeth Gidengil; B.A.(Lond.), M.A.(N.Y.), Ph.D.(McG.)
Jody S. Heymann; B.A.(Yale), M.D., Ph.D.(Harv.) (*Canada Research Chair*)
Christopher Manfredi; B.A., M.A.(Calg.), M.A., Ph.D.(Claremont)
T. V. Paul; B.A., M.A.(Kerala), M.Phil.(J. Nehru U.), M.A., Ph.D.(Calif.-LA) (*James McGill Professor*)
Filippo Sabetti; B.A.(McM.), Ph.D.(Ind.) (on leave 2008-09)
Richard Schultz; B.A.(York), M.A.(Manc.), Ph.D.(York) (*James McGill Professor*)
Harold M. Waller; M.S.(N'western), Ph.D.(G'town)

Associate Professors

Arash Abizadeh; B.A.(Winn.), M.Phil.(Oxf.), Ph.D.(Harv.)
Jerome H. Black; B.A.(Tor.), M.A.(Kent & Roch.), Ph.D.(Roch.)
Juliet Johnson; A.B.(Stan.), M.A., Ph.D.(Princ.)
Jacob Levy; A.B.(Brown.), M.A., Ph.D.(Princ.)
Catherine Lu; B.A., M.A.(Br. Col.), Ph.D.(Tor.)
Antonia Maioni; M.A.(Car.), Ph.D.(N'western) (*William Dawson Scholar*)
Hudson Meadwell; B.A.(Man.), M.A., Ph.D.(Duke)
Philip Oxhorn; B.A.(Redlands), M.A.(Cant.), Ph.D.(Harv.)
Stephen Saideman; B.A.(Oberlin), M.A., Ph.D.(U.C., San Diego) (*Canada Research Chair*)
Stuart Soroka; B.A.(Qu.), M.A.(Car.), Ph.D.(Br. Col.) (*William Dawson Scholar*) (on leave 2008-09)
Dietlind Stolle; M.A.(Claremont), Ph.D.(Princ.)
Narendra Subramanian; B.A.(Princ.), M.A., Ph.D.(MIT)

Assistant Professors

Éric Bélanger; B.A., M.A.(Laval), Ph.D.(Montr.)
Erik Kuhonta; B.A.(Penn.), M.A.(C'nell.), Ph.D.(Stan.)
Mark Manger; M.Sc.(Hamburg), Ph.D.(Br. Col.)
Khalid Medani; B.A.(Brown), M.A.(G'town), M.A., Ph.D.(Calif., Berk.)
Victor Muñoz-Frattacelli; M.A., Ph.D.(Chic.)
Maria Popova; B.A.(Dart.), Ph.D. (Harv.)
Vincent Pouliot; B.Sc.(Montr.), D.E.A.(Bordeaux), Ph.D.(Tor.)
Christa Scholtz; B.A.(Alta.), M.A. (Ott.), Ph.D. (Princ.)
Christina Tarnopolsky; B.A.(Tor.), M.A., Ph.D.(Chic.)

67.2 Programs Offered

The Department offers programs leading to the M.A. (with or without thesis) and Ph.D. degrees. These programs combine depth of specialization in a particular field with breadth of knowledge in

related fields. The staff offers courses and supervises research on most of the important areas of political science. Students may specialize in any of the following: Canadian Government and Politics; Comparative Politics, Political Theory and International Relations.

The Department awards a number of teaching assistantships each year and students who are admitted to the graduate program are automatically considered for such an award. The announcements listing the positions expected to be available will be posted by October 15 for Winter Term courses and March 15 for Fall and Full Year courses.

Because this Calendar is prepared early in the year, changes may take place after it has been printed. Students are advised to contact the Department Office for supplementary information which may be important to their choice of program.

67.3 Admission Requirements

All applicants, including those who have done their undergraduate work at McGill, must submit at least two letters of reference. Transcripts from all universities attended must be sent to the Department.

Master's

Students holding a B.A. degree may be eligible for admission to the M.A. program. Preparation equivalent to a McGill Honours Program in Political Science is desirable. Students who have inadequate preparation in Political Science but are otherwise judged to be qualified are admitted to a qualifying year, in which they undertake advanced undergraduate work.

Ph.D.

Students holding a Master's degree in Political Science may be eligible for admission to the Ph.D. program. In some instances, students may be admitted directly into the Ph.D. program without having completed an M.A. degree. They will be considered Ph.D.1 and some previous political science course work could be applied to the requirements of the program, provided that it did not count towards any other degree.

GRE and TOEFL Exams

GRE results are required for applications to the Doctoral Program; this includes McGill Master's students applying to the Doctoral Program. GRE results are not required for students applying to the Master's Program or Qualifying term or year.

Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit TOEFL scores. A minimum score of 600 on the paper-based test (250 on the computer-based test, or 100 on the Internet-based test, with each component score not less than 20) is required for admission. Files will not be considered unless TOEFL scores are received before the application deadline.

For more information, consult the following Websites: www.gre.org and www.toefl.org.

67.4 Application Procedures

Applications will be considered upon receipt of:

1. application form.
2. original transcripts;
3. two letters of reference;
4. \$80 application fee;
5. test results: TOEFL (if applicable) and GRE (for Ph.D. applicants);
6. personal statement (one page);
7. sample of writing (Ph.D. only).

All applications should be submitted to the Graduate Coordinator in the Department of Political Science.

The deadline for applications for admission to the Department is January 15.

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

67.5 Program Requirements

MASTER'S PROGRAMS

Students may select a program with the Thesis or the Non-Thesis (Research Project) in completing M.A. degree requirements. They may switch from one option to the other while completing their coursework.

M.A. in Political Science (Thesis) (45 credits)

A thesis is required to demonstrate proficiency in research. It is normally about 100 pages long and is subject to evaluation by one examiner internal to the Department and one examiner external to the Department.

Required Course (6 credits)

POLI 691 (6) Bibliographic Methods 1

Complementary Courses (15 credits)

3 - 6 credits, either and, preferably, both of the following 3-credit options:

POLI 612 (3) Empirical Methods
or a suitable more advanced course

or, one of the following courses:

POLI 561 (3) Seminar: Political Theory
POLI 616 (3) Modern Political Analysis
POLI 617 (3) Problems in Political Theory

9 - 12 credits of 500/600 level courses as determined by the student's area of study;

Of the 15 credits of complementary courses, up to 3 credits may be outside the department. Candidates for the M.A. degree follow an individual program approved by the Department.

Thesis Component – Required (24 credits)

POLI 697 (12) M.A. Thesis Proposal
POLI 698 (12) Master's Thesis Submission

M.A. in Political Science (Thesis) – Development Studies Option/Concentration (45 credits)

The Development Studies Option (DSO) is a cross-disciplinary M.A. program offered as an option within existing M.A. programs in the departments of Geography, History, Political Science, Anthropology, Economics, and Sociology. This thesis option is open to master's students specializing in development studies. Students enter through one of the participating departments and must meet the M.A. requirements of that unit. Students will take an interdisciplinary seminar and a variety of graduate level courses on international development issues. The M.A. thesis must be on a topic relating to development studies, approved by the DSO coordinating committee.

Required Courses (9 credits)

INTD 657 (3) Development Studies Seminar
POLI 691 (6) Bibliographic Methods 1

Complementary Courses (12 credits)

3 - 6 credits, either and, preferably, both of the following 3-credit options:

POLI 612 (3) Empirical Methods
or a suitable more advanced 500 or 600 level course

or, one of the following courses:

POLI 561 (3) Seminar: Political Theory
POLI 616 (3) Modern Political Analysis
POLI 617 (3) Problems in Political Theory

6 - 9 credits of 500/600 level credits. Course list available from Department.

Of the 12 credits of complementary courses, up to 3 credits may be taken outside the department.

Candidates for the M.A. degree follow an individual program approved by the Department.

Thesis Component – Required (24 credits)

POLI 697 (12) M.A. Thesis Proposal
POLI 698 (12) Master's Thesis Submission

The M.A. thesis must be on a topic relating to development studies, approved by the Development Studies Option (DSO) coordinating committee.

M.A. in Political Science (Thesis) – European Studies Option/Concentration (45 credits)

The European Studies Option is a cross-disciplinary M.A. program offered as an option within existing M.A. programs in the Departments of History, Political Science, and Sociology as well as the Faculty of Law. This option is open to students whose work is focused on Europe, in particular on issues relating to European integration, broadly understood. Students will take an interdisciplinary capstone seminar and two other courses on European themes and issues as part of their M.A. program. The M.A. thesis must be on a topic relating to European Studies, approved by the European Studies Option (ESO) coordinating committee. Knowledge of French, while not a prerequisite, is an important asset for admission and will be encouraged as part of the program, as well as knowledge of a third European language.

Required Courses (9 credits)

POLI 659 (3) Interdisciplinary Seminar in European Studies
POLI 691 (6) Bibliographic Methods 1

Complementary Courses (12 credits)

3 - 6 credits, either and, preferably, both of the following 3-credit options:

POLI 612 (3) Empirical Methods
or a suitable more advanced 500 or 600 level course

or, one of the following courses:

POLI 561 (3) Seminar: Political Theory
POLI 616 (3) Modern Political Analysis
POLI 617 (3) Problems in Political Theory

3 - 6 credits from the following group of courses on European Politics.

POLI 619 (3) Immigrants / Refugees / Minorities
POLI 625 (3) Comparative Policy Analysis
POLI 628 (3) Comparative Politics
POLI 629 (3) Post-Communist Transformations
POLI 630 (3) Topics in European Politics
POLI 639 (3) Politics of Developed Areas
POLI 651 (3) The EU and Political Integration
POLI 680 (3) Social Change/Advanced Industrialized Democracies

3 - 6 credits at the 500 level or higher in courses in political science. Course list available from Department.

Of the 12 credits of complementary courses, up to 3 credits may be taken outside the department.

Candidates for the M.A. degree follow an individual program approved by the Department.

Thesis Component – Required (24 credits)

POLI 697 (12) M.A. Thesis Proposal
POLI 698 (12) Master's Thesis Submission

The M.A. thesis must be on a topic relating to European Studies, approved by the European Studies Option (ESO) coordinating committee.

M.A. in Political Science (Thesis) – Neotropical Environment Option/Concentration (45 credits)

A thesis is required to demonstrate proficiency in research. It is normally about 100 pages long and is subject to evaluation by one

examiner internal to the Department and one examiner external to the Department.

Required Courses (12 credits)

BIOL 640 (3) Tropical Biology and Conservation
ENVR 610 (3) Foundations of Environmental Policy
POLI 691 (6) Bibliographic Methods 1

Complementary Courses (9 credits)

3 - 6 credits, either or, preferably, both of the following 3-credit options:

POLI 612 (3) Empirical Methods
or a suitable more advanced course

one of the following courses:

POLI 561 (3) Seminar: Political Theory
POLI 616 (3) Modern Political Analysis
POLI 617 (3) Problems in Political Theory

3 - 6 additional credits of graduate-level (500/600) courses; which may include:

POLI 644 (3) Tropical Environmental Politics

Note: Up to two 500/600 level complementary courses outside the department in related disciplines may be allowed if appropriate for the student's program.

Thesis Component – Required (24 credits)

POLI 697 (12) M.A. Thesis Proposal
POLI 698 (12) Master's Thesis Submission

M.A. in Political Science (Non-Thesis) (45 credits)

A research paper is required to demonstrate proficiency in research. It is normally about 50 pages in length and involves revision of a paper written for one of the graduate courses completed in the program. The research paper is evaluated by two faculty members in the Department.

Required Course (6 credits)

POLI 691 (6) Bibliographic Methods 1

Complementary Courses (21 credits)

3 - 6 credits, either or, preferably, both of the following 3-credit options:

POLI 612 (3) Empirical Methods
or a suitable more advanced course

one of the following courses:

POLI 561 (3) Seminar: Political Theory
POLI 616 (3) Modern Political Analysis
POLI 617 (3) Problems in Political Theory

15 - 18 credits of 500/600 level courses; up to 6 credits may be outside the department.

Research Paper Component – Required 18 credits)

POLI 693 (3) M.A. Research Proposal
POLI 694 (3) Research Preparation 1
POLI 695 (3) Research Preparation 2
POLI 696 (3) Research Preparation 3
POLI 699 (6) Master's Research Essay

M.A. in Political Science (Non-Thesis) – Development Studies Option/Concentration (45 credits)

The Development Studies Option (DSO) is a cross-disciplinary M.A. program offered as an option within existing M.A. programs in the departments of Geography, History, Political Science, Anthropology, Economics, and Sociology. This non-thesis option is open to master's students specializing in development studies. Students enter through one of the participating departments and must meet the M.A. requirements of that unit. Students will take an interdisciplinary seminar and a variety of graduate level courses on international development issues. The M.A. essay must be on a topic relating to development studies, approved by the DSO coordinating committee.

Required Courses (9 credits)

INTD 657 (3) Development Studies Seminar
POLI 691 (6) Bibliographic Methods 1

Complementary Courses (18 credits)

3 - 6 credits, either or, preferably, both of the following 3-credit options:

POLI 612 (3) Empirical Methods
or a suitable more advanced 500 or 600 level course

one of the following courses:

POLI 561 (3) Seminar: Political Theory
POLI 616 (3) Modern Political Analysis
POLI 617 (3) Problems in Political Theory

12 - 15 credits additional 500/600 level courses related to international development studies. Course list available from Department.

Of the 18 credits of complementary courses, up to 6 credits may be taken outside the department.

Candidates for the M.A. degree follow an individual program in international development studies approved by the Department.

Research Paper Component – Required 18 credits)

POLI 693 (3) M.A. Research Proposal
POLI 694 (3) Research Preparation 1
POLI 695 (3) Research Preparation 2
POLI 696 (3) Research Preparation 3
POLI 699 (6) Master's Research Essay

M.A. in Political Science (Non-Thesis) – European Studies Option/Concentration (45 credits)

The European Studies Option is a cross-disciplinary M.A. program offered as an option within existing M.A. programs in the Departments of History, Political Science, and Sociology as well as the Faculty of Law. This option is open to students whose work is focused on Europe, in particular on issues relating to European integration, broadly understood. Students will take an interdisciplinary capstone seminar and two other courses on European themes and issues as part of their M.A. program. Knowledge of French, while not a prerequisite, is an important asset for admission and will be encouraged as part of the program, as well as knowledge of a third European language.

Required Courses (9 credits)

POLI 659 (3) Interdisciplinary Seminar in European Studies
POLI 691 (6) Bibliographic Methods 1

Complementary Courses (18 credits)

3 - 6 credits, either and, preferably, both of the following 3-credit options:

POLI 612 (3) Empirical Methods
or a suitable more advanced 500 or 600 level course

or, one of the following courses:

POLI 561 (3) Seminar: Political Theory
POLI 616 (3) Modern Political Analysis
POLI 617 (3) Problems in Political Theory

6 - 9 credits from the following group of courses on European Politics.

POLI 619 (3) Immigrants / Refugees / Minorities
POLI 625 (3) Comparative Policy Analysis
POLI 628 (3) Comparative Politics
POLI 629 (3) Post-Communist Transformations
POLI 630 (3) Topics in European Politics
POLI 639 (3) Politics of Developed Areas
POLI 651 (3) The EU and Political Integration
POLI 680 (3) Social Change/Advanced Industrialized Democracies

3 - 6 credits at the 500 level or higher in courses in political science. Course list available from Department.

Of the 18 credits of complementary courses, up to 6 credits may be taken outside the department.

Candidates for the M.A. degree follow an individual program approved by the Department.

Research Paper Component – Required 18 credits)

- POLI 693 (3) M.A. Research Proposal
- POLI 694 (3) Research Preparation 1
- POLI 695 (3) Research Preparation 2
- POLI 696 (3) Research Preparation 3
- POLI 699 (6) Master's Research Essay

M.A. in Political Science (Non-Thesis) – Gender and Women's Studies Option/Concentration (45 credits)

The Graduate Option in Gender and Women's Studies is an interdisciplinary program for students who meet the degree requirements in Political Science who wish to earn 6 credits of approved coursework focusing on gender and women's studies, and issues in feminist research and methods. The student's research paper must be on a topic centrally focused on gender and/or women's studies.

Required Course (9 credits)

- POLI 691 (6) Bibliographic Methods 1
- WMST 601 (3) Feminist Theories and Methods

Complementary Courses (18 credits)

3 - 6 credits, either and, preferably, both of the following 3-credit options:

- POLI 612 (3) Empirical Methods
or a suitable more advanced course at the graduate level

or, one of the following courses:

- POLI 561 (3) Seminar: Political Theory
- POLI 616 (3) Modern Political Analysis
- POLI 617 (3) Problems in Political Theory

9 - 12 credits at the 500/600 level as determined by the student's area of study.

3 additional credits in gender/women's studies, either:

- WMST 602 (3) Feminist Research Symposium

or other approved course on gender/women's studies

Note: Should the "other" approved gender/women's studies course" be taken in the Department of Political Science, the student is eligible to take a 500/600 level course as determined by the student's area of study outside the department.

Candidates for the M.A. degree follow an individual program approved by the Department.

Research Paper Component – Required 18 credits)

- POLI 693 (3) M.A. Research Proposal
- POLI 694 (3) Research Preparation 1
- POLI 695 (3) Research Preparation 2
- POLI 696 (3) Research Preparation 3
- POLI 699 (6) Master's Research Essay

M.A. in Political Science (Non-Thesis) – Neotropical Environment Option/Concentration (45 credits)

A research paper is required to demonstrate proficiency in research. It is normally about 50 pages in length and involves revision of a paper written for one of the graduate courses completed in the program. The research paper is evaluated by two faculty members in the Department.

Required Courses (12 credits)

- POLI 691 (6) Bibliographic Methods 1
- BIOL 640 (3) Tropical Biology and Conservation
- ENVR 610 (3) Foundations of Environmental Policy

Complementary Courses (15 credits)

3 - 6 credits, either or, preferably, both of the following 3-credit options:

- POLI 612 (3) Empirical Methods
or a suitable more advanced course

one of the following courses:

- POLI 561 (3) Seminar: Political Theory
- POLI 616 (3) Modern Political Analysis
- POLI 617 (3) Problems in Political Theory

9 - 12 credits of graduate-level (500/600) POLI courses; which may include:

- POLI 644 (3) Tropical Environmental Politics

Note: Up to two 500/600 level complementary courses outside the department in related disciplines may be allowed if appropriate for the student's program

Research Paper Component – Required 18 credits)

- POLI 693 (3) M.A. Research Proposal
- POLI 694 (3) Research Preparation 1
- POLI 695 (3) Research Preparation 2
- POLI 696 (3) Research Preparation 3
- POLI 699 (6) Master's Research Essay

M.A. in Political Science (Non-Thesis) – Social Statistics Option/Concentration (45 credits)

This program complements disciplinary training with statistical research. Students will normally complete program course requirements, supplemented by further statistical courses, as advised by the Option advisor, and subject to approval by the Department.

A research paper is required to demonstrate proficiency in research. It is normally about 50 pages in length and involves revision of a paper written for one of the graduate courses completed in the program. The research paper is evaluated by two faculty members in the Department.

Entrance to this option is by application to the Social Statistics Option Committee *subsequent to acceptance into the Department program.*

Required Course (6 credits)

- POLI 691 (6) Bibliographic Methods 1

Complementary Courses (21 credits)

3 credits:

- POLI 688 (3) Seminar on Social Statistics
or ECON 688
or GEOG 688
- or SOCI 688 (3) Social Statistics 1

3 - 6 credits, either or, preferably, both of the following 3-credit options:

- POLI 612 (3) Empirical Methods
or a suitable more advanced course

one of the following courses:

- POLI 561 (3) Seminar: Political Theory
- POLI 616 (3) Modern Political Analysis
- POLI 617 (3) Problems in Political Theory

12 - 15 credits of graduate-level (500/600) POLI courses; up to 6 credits in related disciplines may be allowed if it is appropriate to the program.

Research Paper Component – Required 18 credits)

- POLI 693 (3) M.A. Research Proposal
- POLI 694 (3) Research Preparation 1
- POLI 695 (3) Research Preparation 2
- POLI 696 (3) Research Preparation 3
- POLI 699 (6) Master's Research Essay

Candidates for the M.A. degree follow a program approved on an individual basis by the Department. All students who wish to be considered for the Ph.D. program are evaluated on the basis of their M.A. program. Only a small number of students are permitted to go on for their doctorate and students currently enrolled in the M.A. program must formally apply for admission into the Ph.D. program. A pass for the M.A. degree does not necessarily imply permission to proceed to the doctorate.

Ph.D. in Political Science

Superior applicants, normally understood as students who are at least in the top 10 percent of their graduating class or who have a CPGA of at least 3.5 or its equivalent, will be eligible for admission into the Ph.D. track and receive a Ph.D. degree after successfully completing the requirements of the Ph.D. track.

Required Courses (0 credits)

POLI 701 (0) Ph.D. General Written Examination First Field
 POLI 702 (0) Ph.D. General Written Examination Second Field
 POLI 799 (0) Ph.D. Oral Comprehensive Examination

Complementary Courses (13 courses)

13 (3-credit) courses at the 500 level or higher chosen as follows:

Major Fields: (Eight courses)

4 courses in first major field

4 courses in second major field

Note: one course out of the eight must be a 700-level research seminar in one of the major field.

Political Theory: (1 course)

One course in political theory at the 500, 600, or 700 level

Methods: (1 course)

POLI 612 (3) Empirical Methods
 or another suitable advanced methods course

Additional Courses: (3 courses)

Three additional courses of which at least one must be outside the student's major fields.

Advanced Research Tools

Language Requirement: Students must pass an advanced-level translation test from a language other than English. If the student's research will involve field work in a country where English is not widely spoken, the test will include an oral component. In selecting a language to fulfill this requirement, the student must demonstrate in writing how the chosen language is related to his or her research.

OR

Advanced Statistical Methods: To fulfill this requirement, students must complete a course (at the 500 level or higher) in advanced statistical methods.

- All students in the Ph.D. program are expected to take their written comprehensives and their oral comprehensive in the second term of their second year if admitted to the program at the Ph.D.2 level or their third year if admitted at the Ph.D.1 level to the program. Students are expected to have completed all of their required course work in their major and minor fields, as well as their methodology requirement (up to 39 credits - thirteen 3-credit courses), by no later than the end of the first term of their third year.
- Students are expected to submit dissertation proposals by the end of the second term of their third year.
- The student must write a doctoral dissertation which makes an original contribution to knowledge in the discipline.

Ph.D. in Political Science – Neotropical Environment Option/Concentration**Required Courses** (9 credits)

BIOL 640 (3) Tropical Biology and Conservation
 ENVR 610 (3) Foundations of Environmental Policy
 POLI 612 (3) Empirical Methods
 POLI 701 (0) Ph.D. General Written Examination First Field
 POLI 702 (0) Ph.D. General Written Examination Second Field
 POLI 799 (0) Ph.D. Oral Comprehensive Examination

Complementary Courses (30 credits)

3 credits of graduate level political theory

18 credits of departmental courses

6 credits of 700-level seminars in two fields

AND

3 credits (one course) from the following courses:

AGRI 550 (3) Sustained Tropical Agriculture
 BIOL 553 (3) Neotropical Environments
 BIOL 641 (3) Issues in Tropical Biology
 ENVR 611 (3) The Economy of Nature
 ENVR 612 (3) Tropical Environmental Issues
 ENVR 680 (3) Topics in Environment 4
 POLI 644 (3) Tropical Environmental Politics
 SOCI 565 (3) Social Change in Panama

Advanced Research Tools

Language requirement OR advanced statistical methods

Ph.D. Thesis Proposal**Ph.D. Thesis**

Transfer students and students with Master's degrees from other universities: Transfer students will be treated as M.A. students who change tracks. Previous course work at the graduate level can be applied towards the requirements of the program, provided the Admission Committee is confident that the quality of such work is on par with McGill standards. Students transferring into the M.A.-Ph.D. track must fulfill a minimum residency requirement of two years, including a minimum of 6 courses and at least one 700-level Ph.D. research paper. All students will be required to pass the comprehensive written and oral exams.

67.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

The course credit weight is given in parentheses after the title.

POLI 521 SEMINAR: CANADIAN POLITICS AND GOVERNMENT. (3) (Restriction: Open to graduate students, final year Honours students, and other advanced undergraduates with the permission of the instructor) (Prerequisite: At least one 300 or 400-level course in Canadian Politics) (Note: The field is Canadian Politics.) Topic for 2008-09: Identity and Canadian Democracy. Selected problems of Canadian socio-economic and political structures; political culture; constitutional development, and governmental structure.

POLI 522 SEMINAR: DEVELOPING AREAS. (3) (Prerequisite: At least one upper level course in the politics of developing areas) (Note: The area in the field of Comparative Politics is Developing Areas.) (Restriction: Open to graduate students, final year honours students, and other advanced undergraduates with permission of instructor; (Note: The field is Comparative Politics in Developing Areas.) Topic for 2008-09: Theories of the State. State-society relations in the developing world through historical, comparative, and analytical perspectives, focusing on: (1) theories and concepts of the state; (2) state capacity and incapacity; (3) state formation.

POLI 524 SEMINAR: DEVELOPED AREAS. (3) (Prerequisite: At least one upper-level course in the politics of developed areas) (Restriction: Open to graduate students, final year Honours students, and other advanced undergraduates with the permission of the instructor) (Note: The area in the field of Comparative Politics is Developed Areas.) Topic for 2008-09: Rules of Law, Corruption and Good Governance.

POLI 561 SEMINAR: POLITICAL THEORY. (3) (Prerequisite: At least one upper level course in political philosophy) (Restriction: Open to graduate students, final year Honours students, and other advanced undergraduates with the permission of the instructor) (Note: The field is Political Theory.) Topic for 2008-09: Political Friendship: A topic in political philosophy such as democracy,

liberty, property or nationalism, or a political philosopher, is studied to enable students to research a topic in depth, to present their papers to the seminar, and to engage in and profit from discussion and debate.

POLI 575 SEMINAR: INTERNATIONAL POLITICS. (3) (Fall and Winter) (Restriction: Open to graduate students and final year Honours students only) (Note: The field is International Politics.) Topic for Fall 2008: Culture and Identity in World Politics; Topic for Winter 2009: International Economic Negotiations. A research seminar dealing with topics in the field of international politics.

POLI 599 INTERNSHIP: POLITICAL SCIENCE. (3) (Fall and Winter) (Restriction: Open, with permission, to final year Honours and Joint Honours students, and graduate students. This course does not count as a 500-level seminar under the Honours requirements) The internship shall consist of a minimum of 150 hours of work over a period of 12 weeks, plus a major research project based on the internship. The major project will ordinarily consist of a major research paper, plus a substantial written record of the work conducted during the internship.

POLI 603 HISTORY OF POLITICAL THOUGHT 1. (3) (There will be 2 lectures per week (taken with undergraduates enrolled in POLI 433) and one graduate-student-only tutorial per week.) (Note: The field is Political Theory.) A graduate level introduction to key early-modern and modern political theories.

POLI 604 HISTORY OF POLITICAL THOUGHT 2. (3) (Note: The field is Political Theory.) A graduate level introduction to key modern political theories. Among the theorists to be covered are: Hegel, Marx, Nietzsche, Mill, Tocqueville.

POLI 612 EMPIRICAL METHODS. (3) Fundamental principles of empirical research, in which the emphasis will be placed on acquainting the student with the techniques most commonly used by political scientists. The topics include the design of research projects, procedure in carrying out research, problems of measurement, survey research, scaling, data processing, and data analysis.

POLI 613 SELECTED THEMES: POLITICAL THEORY. (3) (Note: The field is Political Theory.) A seminar on a theme in contemporary political theory or in the history of political theory. Topic for Fall 2008: Hobbes and Rousseau; Topic for Winter 2009: Theory and Politics of Recognition.

POLI 616 MODERN POLITICAL ANALYSIS. (3) (Note: The field is Political Theory.) An introduction to the concepts underlying modern approaches to the study of politics. The scope of the discipline will be delineated and the foundations of empirical research, including the philosophy and methodology of science especially as these apply to social science, will be considered. Various alternatives and critiques will be presented and evaluated.

POLI 617 PROBLEMS IN POLITICAL THEORY. (3) (Note: The field is Political Theory.) An introduction to central normative issues in the study of politics. The seminar consists of lectures, oral presentations, discussion and research papers. Topic for Fall 2008: Global Justice; Topic for Winter 2009: Legal Positivism.

POLI 618 ADVANCED EMPIRICAL METHODS. (3) (Prerequisite: POLI 612 or equivalent.) An introduction to regression techniques common in political science, including applied multiple regression techniques, beginning with basic linear models and ending with models for binary or ordinal dependent variables. Methodological issues are taught using substantive issues and debates in the discipline.

POLI 619 IMMIGRANTS / REFUGEES / MINORITIES. (3) (Note: The field is Comparative Politics in Developed Areas and Canadian Politics.) A consideration of the different dimensions of politics associated with immigration and ethnoracial diversity. The course will emphasize the Canadian case in comparative perspective.

POLI 621 INTERPRETING CANADIAN POLITICAL PROCESS. (3) (Note: The field is Canadian Politics.) Strategies for studying the Canadian political process. Pluralist, Marxian and state autonomist approaches for analysing the relative significance and inter-relationships of basic components of the Canadian political system. Although one purpose of the course is to survey the literature on

individual topics, a broader purpose is to employ individual research strategies to develop conclusions about the nature, distribution, and exercise of power in Canada.

POLI 622 ADVANCED TOPICS CANADIAN POLITICS. (3) (Note: The field is Canadian Politics.) A specific problem area in Canadian Politics.

POLI 628 COMPARATIVE POLITICS. (3) (Note: The field is Comparative Politics in Developed Areas.) An introduction for graduate students to the sub-discipline of comparative politics. The logic of comparative analysis as well as a number of alternative paradigms for analyzing and comparing political systems and processes.

POLI 629 POST-COMMUNIST TRANSFORMATIONS. (3) (Note: The field is Comparative Politics in Developed Areas.) This course will incorporate discussions of concrete political processes and events, but will focus primarily on theories in comparative politics that might help us understand changes currently underway in the former Soviet Union. Students will continuously assess the value of these theories as methods of understanding change in the former Soviet Union.

POLI 630 TOPICS IN EUROPEAN POLITICS. (3) (Note: The field is Comparative Politics in Developed Areas.) Examination of recent trends and current debates in the electoral politics, political economy and political sociology of Europe. The course will focus on developments at two levels: that of national political systems and that of the region as a whole, particularly as embodied in the European Union.

POLI 631 COMPARATIVE FEDERALISM. (3) Theoretical underpinnings and empirical challenges of federal states from a comparative perspective on industrializing countries, with Canadian federalism providing an important example. Issues include federalism and ethnic conflict, fiscal federalism, and federalism and markets.

POLI 632 VOTING BEHAVIOR/PUBLIC OPINION. (3) (Note: The field is Comparative Politics in Developed Areas and Canadian Politics.) A critical examination of major debates within the comparative literature on voting behavior and public opinion. The work discussed will draw primarily on research conducted in the United States, Canada and Western Europe.

POLI 633 SOUTHEAST ASIAN POLITICS. (3) An examination of the literature on Southeast Asian politics. Topics include: state structures, political regimes, political parties, political economy, nationalism, ethnicity, and religion. Emphasis on comparative analysis within the region and on the different analytical perspectives employed to study Southeast Asia.

POLI 635 THEORIES OF U.S. POLITICS. (3) (Note: The field is Comparative Politics in Developed Areas.) A critical examination of some of the major theoretical analyses of U.S. politics. The course will focus on several key issues in the study of American political life, including distribution of power, the policy process, state and society, and bargaining and coalition building.

POLI 636 APPROCHES THEOR: POLITIQUE QUE. (3) (This course will be conducted both in English and French; a reading knowledge and an ability to understand the two languages is recommended) (Note: The field is Canadian Politics.) Critical examination of some major approaches to the study of Quebec politics and society, with particular emphasis on issues of nationalism, social and political movements, ethnicity, language and class conflicts, federal-provincial relations, as well as an analysis of the role of intellectuals and party politics in the deliberation process.

POLI 638 GLOBAL HEALTH & SOCIAL POLICY. (3) (Restriction: Enrolment limit 25; not open to students who are taking or have taken EPIB 638.) Formal methods used in policy analysis, role of politics and conditions under which research on global health and social policy is used by decision makers.

POLI 639 POLITICS OF DEVELOPED AREAS. (3) (Note: The field is Comparative Politics in Developed Areas.) A specific problem area in the Comparative Politics of Developed Areas. Topic for 2008-09: The Europeanization of Eastern Europe.

POLI 640 MIDDLE EAST POLITICS. (3) (Note: The field is Comparative Politics in Developing Areas.) Examination of political and socio-economic development in the Middle East, with particular emphasis on the Arab world. Topics to be addressed include state formation and consolidation; Arab nationalism; civil society and state-society relations; the politics of Islam; petro-politics; the political economy of economic liberalization; and future patterns of political change.

POLI 641 SEMINAR: POLITICAL CHANGE IN SOUTH ASIA. (3) (Note: The field is Comparative Politics in Developing Areas.) This course examines major political and social changes in South Asia. Explores such topics as colonialism and nationalism; trends in mass mobilization and electoral politics; regime changes; economic policies and their impact; and conflicts over authority patterns, policy agendas, and national boundaries.

POLI 643 POLITICS OF IDENTITY. (3) (Note: The field is Comparative Politics in Developing Areas.) Theoretical approaches to the politics of identity with reference to experiences in different world regions. The politics of nationalism, ethnicity, religion, race and gender, and the relationship of such forms of identity politics to democracy, tolerance, pluralism, violence, socio-economic change and equality.

POLI 646 POLITICS OF DEVELOPING AREAS 1. (3) (Note: The field is Comparative Politics in Developing Areas.) A specific problem area in the Comparative Politics of Developing Areas.

POLI 647 DEVELOPMENT POLITICAL ECONOMY. (3) (Note: The field is Comparative Politics in Developing Areas.) Incorporation of subordinate groups into national systems in the developing countries of Africa, Asia, and Latin America. Specific topics include state formation, the emergence of civil society, modernization and dependency theories, alternative development models, democracy, authoritarianism, sustainable development and gender.

POLI 648 LATIN AMERICAN POLITICS. (3) (Note: The field is Comparative Politics in Developing Areas.) This course explores changing patterns of social, economic and political relations in Latin America, especially at the level of civil society. It examines such topics as state formation, institutional development, regime transformation and the insertion of Latin American countries in both the international capitalist economy and the inter-state system.

POLI 649 MASS APPROACH POLITICAL DEVELOPMENT: CHINA. (3) (Note: The field is Comparative Politics in Developing Areas.) The strategy of political and socio-economic development in contemporary China. Topics include: cultural and ideological foundations of socialization. The consequences of the disintegration of the USSR and the socialist countries of Europe, and the balance sheet of the post-1978 reform.

POLI 650 SEMINAR IN PEACEBUILDING. (3) (Note: The field is Comparative Politics in Developing Areas and International Politics.) An examination of transitions from civil war to peace, and the role of external actors (international organizations, bilateral donors, non-governmental organizations) in support of such transitions. Topics will include the dilemmas of humanitarian relief, peace-keeping operations, refugees, the demobilization of ex-combatants, transitional elections, and the politics of socio-economic reconstruction.

POLI 651 THE EU AND POLITICAL INTEGRATION. (3) (Note: The field is Comparative Politics in Developed Areas and International Politics.) Theories from both comparative and international politics will be drawn upon to analyze the development, politics, institutions and policies of the EU. The internal political economy and external relations of the EU will be analyzed.

POLI 652 ETHNIC STRIFE AND WORLD POLITICS. (3) (Note: The field is International Politics.) Interplay between ethnic conflicts within countries and international relations. This course will address among many topics, irredentism, the causes and consequences of intervention, spillover effects and contagion, and the impact of ethnic conflict on relations between states.

POLI 659 INTERDISCIPLINARY SEMINAR IN EUROPEAN STUDIES. (3) (Restriction: Only open to students in European Studies Option.)

Interdisciplinary seminar on a theme relevant to the study of Europe.

POLI 670 ADVANCED TOPICS: INTERNATIONAL RELATIONS. (3) A specific problem area in International Relations. Topic for 2008-09: Civil Wars.

POLI 671 INTERNATIONAL RELATIONS THEORY. (3) (Note: The field is International Politics.) This course is designed to give students a thorough background in the basic theories and models used in International Relations. It emphasizes breadth, in order to ground students in the variety of approaches employed in the field of international politics.

POLI 672 INTERNATIONAL POLITICAL ECONOMY. (3) (Note: The field is International Politics.) For students in international and comparative politics, a course in IPE in two senses: 1) the use of the economic model of purposive behaviour to examine international phenomena; 2) the politics of global economic issues such as production, trade, finance, debt, technology transfer, economic coordination. Connections between domestic political economies and the IPE, alternative strategies of state adjustment to a changing IPE.

POLI 677 INTERNATIONAL CRISIS, CONFLICT, WAR. (3) (Note: The field is International Politics.) This seminar is designed to explore the literature on the concepts of international crisis, conflict and war. Discussions will focus on: research designs and methods; decision-making models; crisis/conflict management; bargaining in crisis; UN and superpower crisis intervention; deterrence and war prevention; theories of war; and polarity, war, crisis and stability.

POLI 678 STATE BEHAVIOUR. (3) (Note: The field is International Politics.) Theoretical and empirical studies of decision-making, the policy-making process, and foreign policy behaviour. The capacity of each approach to explain and evaluate choice and behaviour will be assessed.

POLI 679 INTERNATIONAL SECURITY: CONFLICT AND CO-OPERATION. (3) (Note: The field is International Politics.) Covers theoretical and historical literature on international security, strategy, war, and cooperation. Includes systemic, societal and normative explanations or war, peace, security, and change.

POLI 680 SOCIAL CHANGE/ADVANCED INDUSTRIALIZED DEMOCRACIES. (3) Introduction to the theories, concepts and empirical work on advanced democracies with a focus on issues of social change. Theories of the welfare states, social capital, postmaterialism, political participation, social movements and issues of diversity are studied from a variety of methodological perspectives.

POLI 688 SEMINAR ON SOCIAL STATISTICS. (3) Special topics on social statistics and presentations of ongoing research by students pursuing M.A. Option in Social Statistics in any of the participating disciplines.

POLI 690 READING IN POLITICAL SCIENCE. (3) A graduate student may take a one-term reading course per academic year in a particular field and under the supervision of a member of staff.

POLI 690D1 (1.5), POLI 690D2 (1.5) READING IN POLITICAL SCIENCE. (Students must register for both POLI 690D1 and POLI 690D2) (No credit will be given for this course unless both POLI 690D1 and POLI 690D2 are successfully completed in consecutive terms) (POLI 690D1 and POLI 690D2 together are equivalent to POLI 690) A graduate student may take a one-term reading course per academic year in a particular field and under the supervision of a member of staff.

POLI 691 BIBLIOGRAPHIC METHODS 1. (6) Research-related skills and the production of a research bibliography.

POLI 692 BIBLIOGRAPHIC METHODS 2. (6) Advanced research-related skills and the production of a research bibliography.

POLI 693 M.A. RESEARCH PROPOSAL. (3)

POLI 694 RESEARCH PREPARATION 1. (3)

POLI 695 RESEARCH PREPARATION 2. (3)

POLI 696 RESEARCH PREPARATION 3. (3)

POLI 697 M.A. THESIS PROPOSAL. (12) Preparation of a thesis proposal.

POLI 698 MASTER'S THESIS SUBMISSION. (12) A thesis to demonstrate proficiency in research. The thesis is normally about 100 pages long, and is subject to evaluation by one examiner internal to the Department and one examiner external to the Department.

POLI 698D1 (6), POLI 698D2 (6) MASTER'S THESIS SUBMISSION. (Students must register for both POLI 698D1 and POLI 698D2) (No credit will be given for this course unless both POLI 698D1 and POLI 698D2 are successfully completed in consecutive terms) (POLI 698D1 and POLI 698D2 together are equivalent to POLI 698) A thesis to demonstrate proficiency in research. The thesis is normally about 100 pages long, and is subject to evaluation by one examiner internal to the Department and one examiner external to the Department.

POLI 699 MASTER'S RESEARCH ESSAY. (6) The Master's research paper should explore a clearly defined problem, show familiarity with the most important work previously done in the field, and demonstrate the ability to carry out research, organize results and present them in good literary style. Normally the paper will flow out of a previous graduate seminar and will be approximately 50 pages in length.

POLI 699D1 (3), POLI 699D2 (3) MASTER'S RESEARCH ESSAY. (Students must register for both POLI 699D1 and POLI 699D2) (No credit will be given for this course unless both POLI 699D1 and POLI 699D2 are successfully completed in consecutive terms) (POLI 699D1 and POLI 699D2 together are equivalent to POLI 699) The Master's research paper should explore a clearly defined problem, show familiarity with the most important work previously done in the field, and demonstrate the ability to carry out research, organize results and present them in good literary style. Normally the paper will flow out of a previous graduate seminar and will be approximately 50 pages in length.

POLI 701 PH.D. GENERAL WRITTEN EXAMINATION FIRST FIELD. (0)

POLI 702 PH.D. GENERAL WRITTEN EXAMINATION SECOND FIELD. (0)

POLI 728 RESEARCH SEMINAR IN COMPARATIVE POLITICS. (3) (Suggested prerequisites: POLI 612 and POLI 628) (Note: The field is Comparative Politics in Developed Areas.) A consideration of research on comparative politics in Western Europe and North America. Problems of research design and execution, the application of research methods, and the evaluation of findings. Selections from the literature will be examined critically.

POLI 771 INTERNATIONAL POLICY AND FOREIGN POLICY IN DEVELOPING WORLD. (3) (Prerequisites: A graduate-level course in international relations or comparative politics/developing areas) (Note: The field is Comparative Politics in Developing Areas and International Politics.) A seminar focusing on the multiple security concerns of developing states including developmental (political, economic) and traditional (military, power political) pressures; linkages between internal and external vulnerabilities; the changing security environment of the post Cold War era; alternative external/internal strategies. These issues will be examined in comparative perspective.

POLI 778 RESEARCH SEMINAR - INTERNATIONAL POLITICS. (3) (Note: The field is International Politics.) A workshop intended to help M.A. and Ph.D. students prepare their thesis proposals and chapters. Writing techniques and methodology will be covered. Students critique seminar presentations by leading scholars on their new works.

POLI 780 READING SEMINAR 1. (3) A research seminar on a topic that is not covered in the regular seminars, but which is of interest to a group of students and a faculty member. The exact topic for the research papers will be determined by mutual agreement among students and faculty members involved.

POLI 781 READING SEMINAR 2. (3) A research seminar on a topic that is not covered in the regular seminars, but which is of interest to a group of students and a faculty member. The exact topic for

the research papers will be determined by mutual agreement among students and faculty members involved.

POLI 799 PH.D. ORAL COMPREHENSIVE EXAMINATION. (0)

68 Psychiatry

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Acting Chair — M. Israel

Chair of Graduate Program — M. Leyton

68.1 Staff

Emeritus Professors

B.E. Murphy; M.D.(Tor.), Ph.D.(McG.)

T.L. Sourkes; M.Sc.(McG.), Ph.D.(C'neil)

Professors

F. Abbott; B.Sc.(Trent), M.Sc., Ph.D.(McG.)

L. Annable; B.Sc.(Liv.), Dipl. in Stat.(Edin.)

C. Benkelfat; M.D.(Rabat)

P. Boksa; B.Sc., Ph.D.(Montr.)

F.R. Ervin; B.S.(Texas), M.D.(Tulane)

E. Fombonne; M.D.(Paris)

N. Frasure-Smith; B.A., Ph.D.(Johns H.)

S. Gauthier; B.A., M.D.(Montr.)

C. Gianoulakis; B.Sc.(Sir G. Wms.), Ph.D.(Rutg.)

L.T. Hechtman; B.Sc., M.D., C.M.(McG.)

L.J. Kirmayer; B.Sc., M.D.C.M., Dipl.Psych.(McG.) (*James McGill Professor*)

S. Lal; M.B., B.S.(Lond.), Dipl.Psych.(McG.)

M.J. Meaney; B.A.(Loyola), M.A., Ph.D.(C'dia.) (*James McGill Professor*)

K. Minde; M.D.(Munich), M.A.(Col.)

V.N.P. Nair; M.B., B.S.(Kerala), D.P.M.(Mys.)

R. Palmour; B.A., Ph.D.(Texas)

J. Paris; M.D., C.M.(McG.)

J.C. Perry; M.D.(Duke)

G. Pinard; B.A.(Loyola), M.D., Dipl.Psych.(Montr.)

J. Poirier; Ph.D.(Montr.)

R. Quirion; B.Sc., M.Sc., Ph.D.(Sher.)

H. Steiger; Ph.D.(McG.)

A. Young; B.A., M.A., Ph.D.(Penn.)

S. Young; B.A.(Oxf.), M.Sc., Ph.D.(Lond.)

Associate Professors

S. Beaulieu; M.D./Ph.D.(Laval)

D. Boivin; Ph.D.(Montr.)

E.E. Corin; Ph.D.(Louvain)

B.O. Dubrovsky; M.D.(Buenos Aires)

A. Duffy; B.Sc., M.Sc.(McM.), M.D.(Calg.)

K. Gill; B.Sc.(Br. Col.), M.A., Ph.D.(C'dia)

A. Gratton; Ph.D.(C'dia)

J. Guzder; M.D., C.M.(McG.)

S. King; M.Ed., Ph.D.(Va.)

M. Leyton; Ph.D.(C'dia)

G. Luheshi; Ph.D.(N'cle, U.K.)

D. Pedersen; M.D.(Buenos Aires)

M. Perreault; Ph.D.(Montr.)

A. Raz; M.Sc., Ph.D.(Hebrew)

J. Rochford; M.A.(Qu.), Ph.D.(C'dia)

C. Rousseau; M.D.(Sher.), M.Sc.(McG.)

L.K. Srivastava; B.Sc., M.Sc.(All'd.), Ph.D.(New Delhi)

G. Turecki; M.D.(Brazil), Ph.D.(McG.)

C.-D. Walker; B.Sc., Ph.D.(Geneva)
M. Zoccolillo; B.Sc.(New Orleans), M.D.(Norfolk)

Assistant Professors

J. Armony; Ph.D.(NYU)
L. Beauclair; B.Sc., M.D.(Laval)
P. Beaudry; M.D.(Sher.), Dipl.Psych.(McG.)
D. Bloom; B.Sc.(Regina), M.D.(Qu.)
V. Bohbot; Ph.D.(Ariz.)
A. Brunet; Ph.D.(Montr.)
N. Cermakian; B.Sc.(UQaTR), M.Sc., Ph.D.(Montr.)
D. Charney; M.D., C.M.(McG.)
A. Crocker; Ph.D.(Montr.)
J.B. Debrulle; M.D.(Paris), Ph.D.(U Pierre et Marie Curie)
M.-J. Fleury; M.A., Ph.D.(Montr.)
C. Flores; Ph.D. (C'dia)
G. Galbaud du Fort; M.D., Ph.D.(Paris) (*joint appt. with
Epidemiology and Biostatistics*)
Y. Goto; Ph.D.(Tokyo)
B. Greenfield; M.D.(Wash.)
D. Groleau; B.Sc., M.Sc., Ph.D.(Montr.)
R. Gruber; B.A., M.S., Ph.D.(Tel Aviv)
R. Joobar; M.D.(France), Ph.D.(Tunisia)
E. Latimer; B.A.Sc.(Wat.), M.S., Ph.D.(Carn. Mell)
M. Lepage; Ph.D.(Que.)
K. Looper; B.Sc., M.D.(Ott.), M.Sc.(McG.)
E. Loucks; B.Sc., Ph.D.(Br. Col.)
S. Lupien; Ph.D.(Montr.)
A. Malla; Ph.D.(W. Ont.)
N. Mechawar; B.Sc., M.Sc., Ph.D.(Montr.)
G. Myhr; M.D., C.M., M.Sc.(McG.)
L. Nadeau; M.D.(Montr.)
J. Pruessner; Ph.D.(Univ. Trier)
J. Renaud; M.Sc., M.D.(Montr.)
N. Schmitz; Ph.D.(Univ. Dortmund)
B. Thombs; B.S.(N'western), M.A.(Ariz), Ph.D.(NYU)
S. Williams; Ph.D.(Montr.)
T.P. Wong; B.Sc.(HK), Ph.D.(McG.)
P. Zekowitz; Ph.D.(McG.)

Associate Member

R.O. Pihl (Psychology)

Adjunct Professors

P. Blier, L. Gaston, C. Mercier, S. Welner

68.2 Programs Offered

MASTER OF SCIENCE (M.Sc.)

The M.Sc. program in Psychiatry is designed (1) to provide a mechanism for the training of medical scientists who intend to pursue a research career in psychiatry and (2) to provide a focus for basic science or social science students wishing to obtain advanced training in areas particularly relevant to psychiatric research. Students in this program receive no clinical training in psychiatry.

68.3 Admission Requirements

A B.Sc., B.A., B.N. or M.D. degree.

A strong background in science and/or social science, as demonstrated by academic achievement equivalent to a GPA of 3.3 (on a 4 point scale) or 3.5 in the last two years.

A written agreement from the proposed research supervisor, and student's statement of purpose for seeking an M.Sc.

An outline of the proposed thesis research, to be written by the prospective student in collaboration with an appropriate research supervisor.

Two letters of reference.

Certified proficiency in written English or French.

68.4 Application Procedures

Applications will be considered upon delivery of the following to the Graduate Program Coordinator:

1. A completed application form;
2. Cdn \$80.00 application fee;
3. Two official transcripts of all university studies;
4. A written Confirmation of Supervision form (see department Website) from the proposed research supervisor;
5. A written statement of purpose, describing the specific reasons for seeking a Master of Science degree in Psychiatry;
6. An outline of the proposed thesis research, to be written by the prospective student in collaboration with an appropriate research supervisor;
7. Two letters of reference with Applicant Evaluation checklist forms (see department Website);
8. TOEFL or IELTS certificate of proficiency in English for non-Canadian applicants whose mother tongue and language of education is not English, with a minimum score of 213 on the computerized TOEFL, 550 on the written TOEFL test, or 86 on the Internet-based test, with each component score not less than 20, or 6.5 on the IELTS test.

Deadlines:

January (Winter term): August 1

May (Summer term):

- December 15 for M.Sc. and Ph.D. and for International applicants for part-time summer courses only, PSYT-711 and PSYT-713
- January 15 for Canadian applicants for part-time summer courses

September (Fall term):

- March 8 for Canadians
- March 1 for International applicants

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

68.5 Program Requirements

M.Sc. in Psychiatry (Thesis) (45 credits)

Each student shall complete an original investigation of a scope appropriate to the presentation of a Master's Thesis. This thesis will be reviewed by the Supervisory Committee prior to its submission to the Graduate and Postdoctoral Studies Office, and shall then be reviewed by external referees according to the usual regulations of the Graduate and Postdoctoral Studies Office.

Complementary Courses (9 credits)

9 credits of graduate-level courses approved by the student's Supervisory Committee.

Courses are selected on the basis of the area of research interest and the background of the student, and must include a course in statistical analysis if not presented upon admission.

Thesis Component - Required (36 credits)

PSYT 691 (12) Thesis Research 1
PSYT 692 (12) Thesis Research 2
PSYT 693 (12) Thesis Research 3

Supervisory Committees

The M.Sc. in Psychiatry is administered by the Graduate Training Committee. Each student selects a Supervisory Committee composed of the research supervisor plus 2-4 other faculty who are knowledgeable about the student's research area and who can advise both on appropriate coursework and on the thesis research project. The student will meet with this Supervisory Committee at least once during each year of matriculation for the purpose of evaluating academic and research progress of the student. The Supervisory Committee will also act as a resource body for the student, both with respect to academic and administrative matters.

Residence

Three terms of full-time study. No part-time study allowed.

68.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Term(s) offered (Fall, Winter, Summer) may appear after the credit weight to indicate when a course would normally be taught. Please check Class Schedule to confirm this information.

Note: All undergraduate courses administered by the Faculty of Science (courses at the 100- to 500-level) have limited enrolment.

The course credit weight is given in parentheses after the title.

PSYT 500 ADVANCES: NEUROBIOLOGY OF MENTAL DISORDERS. (3) (Winter) (3 hours) (Prerequisite (Undergraduate): BIOC 212 and BIOC 311, or BIOC 312, or BIOL 200 and BIOL 201, or PHGY 311, or PSYC 308 and an upper-level biological science course with permission of the instructors, or equivalent. Basic knowledge of cellular and molecular biology is required.) (Restriction: Open to U3 and graduate students only.) (Restriction: Graduate Studies: strongly recommended for M.Sc. students in Psychiatry.) Current theories on the neurobiological basis of most well known mental disorders (e.g. schizophrenia, depression, anxiety, dementia). Methods and strategies in research on genetic, physiological and biochemical factors in mental illness will be discussed. Discussion will also focus on the rationale for present treatment approaches and on promising new approaches.

PSYT 502 BRAIN EVOLUTION AND PSYCHIATRY. (3) (Fall) (Prerequisites: BIOL 115 or equivalent as authorized by instructor) The course will focus on the transcendental importance of evolution of nervous systems for normal and pathological behavior. Studies of allometric brain growth and recent evolutionary theories of brain organization as they relate to normal and abnormal behavior will be emphasized.

PSYT 503 MENTAL HEALTH SERVICES AND POLICY. (3) (Note: Enrolment is limited to 14 students. The course is given in English, but papers can be handed in French.) Analysis of the mental health system and its best practices.

PSYT 504 ISSUES IN FORENSIC MENTAL HEALTH. (3) (Prerequisite: Special permission of instructor.) (Note: Enrolment limited to 30 students. The course will be taught in English, papers can be submitted in English or French.) The course will review current forensic mental health issues at the various stages the criminal justice process, clinical and behavioural specificities and vulnerabilities of special populations of offenders. It will also review risk factors for aggressive behaviour and criminality, assessment methods as well as current debates in the field of forensic mental health.

PSYT 610 DIPLOMA EVALUATION: WRITTEN. (0)

PSYT 611 DIPLOMA EVALUATION: ORAL. (0)

PSYT 615 ADVANCED STUDIES IN ADDICTION. (3) (Prerequisite: PSYT 301 or permission from one of the instructors.) (Restriction: Registered in either a Psychiatry, Psychology, or Neuroscience graduate program.) Critical assessment of research tools, reported data, and theoretical perspectives on drug addiction, with an emphasis on multi-factorial and inter-disciplinary approaches.

PSYT 620 TRENDS IN CLINICAL PSYCHIATRY. (3) (Prerequisite: A course in research methods. Or special permission by the course instructor.) (Restriction: Not open to students who have taken PSYC 630 or equivalent.) A review of the major psychopathologies, the theories that underlie them and their treatment.

PSYT 625 QUALITATIVE RESEARCH IN HEALTH CARE. (3) (Restriction: Open to students with Bachelor's degrees in Health or Social Science.) (Note: Course will be given in English. Course work may be submitted in English or French.) Discussion and practice of qualitative methodologies for conducting rigorous and reflective

qualitative research projects in health care sector including ethnographic fieldwork and community interviews.

PSYT 630 STATISTICS FOR NEUROSCIENCES. (3) Statistics needed for analysing the types of data generated in a laboratory setting, with emphasis on the neurosciences, will be covered. Hypothesis testing, parametric and non-parametric statistics will be studied with a practical approach, using data generated by the students. Computer analysis will be introduced.

PSYT 691 THESIS RESEARCH 1. (12)

PSYT 692 THESIS RESEARCH 2. (12)

PSYT 693 THESIS RESEARCH 3. (12)

PSYT 696 SPECIAL TOPICS IN PSYCHIATRY. (3) Supervised reading and discussion of selected issues and topics in contemporary psychiatry. Students will be responsible for assigned readings and for preparation of a graded paper.

PSYT 711 CULTURAL PSYCHIATRY. (3) (Prerequisites: Knowledge of psychiatry and anthropology.) Topics covered: cross-national epidemiological and ethnographic research of major and minor psychiatric disorders; culture-bound syndromes and idioms of distress; culture, emotion and social interaction; psychological and symbolic healing; mental health of immigrants and refugees; psychiatric theory and practice as cultural constructions; methods of cross-cultural research.

PSYT 713 PSYCHIATRIC EPIDEMIOLOGY. (3) (Prerequisites: EPIB 606 or equivalent or permission of instructor.) An overview of the applications of epidemiology in psychiatry, including instruments and methods used in community studies; major recent population surveys of psychiatric disorders; study of treatment-seeking, pathways to care and use of services; interaction between psychological distress and physical health; methods used in specific populations; evaluation of treatment.

69 Psychology

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Chair — K.B.J. Franklin

69.1 Staff*Emeritus Professors*

A.S. Bregman; M.A.(Tor.), Ph.D.(Yale)

V. Douglas; B.A.(Qu.), M.A., M.S.W., Ph.D.(Mich.)

W.E. Lambert; M.A.(Colgate), Ph.D.(N. Carolina), F.R.S.C.

A.A.J. Marley; B.Sc.(Birm.), Ph.D.(Penn.)

R. Melzack; B.Sc., M.Sc., Ph.D.(McG.) (*E.P. Taylor Emeritus Professor of Psychology*)

P. Milner; B.Sc.(Leeds), M.Sc., Ph.D.(McG.)

Professors

F.E. Aboud; B.A.(Tor.), M.A., Ph.D.(McG.)

M. Baldwin; B.A.(Tor.), M.A., Ph.D.(Wat.)

I.M. Binik; B.A.(NYU), M.A., Ph.D.(Penn.)

A. Chaudhuri; B.Sc., M.Sc.(Tor.), Ph.D.(Calif., Berk.) (*James McGill Professor*)

B. Ditto; B.S.(Iowa), Ph.D.(Ind.)

K.B.J. Franklin; B.A., M.A.(Auck.), Ph.D.(Lond.)

F.H. Genesee; B.A.(W. Ont.), M.A., Ph.D.(McG.)

R. Koestner; B.A., Ph.D.(Roch.)

J. Mogil; B.Sc.(Tor.), Ph.D.(Calif.-LA) (*E.P. Taylor Professor of Psychology*)

D.S. Moskowitz; B.S.(Kirkland), M.A., Ph.D.(Conn.)
 Y. Oshima-Takane; B.A.(Tokyo Women's Christian U.),
 M.A.(Tokyo), Ph.D.(McG.)
 D.J. Ostry; B.A.Sc., M.A.Sc., Ph.D.(Tor.)
 C. Palmer; B.Sc.(Mich.), M.Sc.(Rutg.), Ph.D.(C'nell)
 M. Petrides; B.Sc., M.Sc.(Lond.), Ph.D.(Cant.)
 R.O. Pihl; B.A.(Lawrence), Ph.D.(Ariz.)
 J.O. Ramsay; B.Ed.(Alta.), Ph.D.(Princ.)
 B. Sherwin; B.A., M.A., Ph.D.(C'dia) (*James McGill Professor*)
 T.R. Shultz; B.A.(Minn.), Ph.D.(Yale)
 M. Sullivan; B.A.(McG), M.A., Ph.D.(C'dia)
 Y. Takane; B.L., M.A.(Tokyo), Ph.D.(N. Carolina)
 D.M. Taylor; M.A., Ph.D.(W. Ont.)
 N. White; B.A.(McG.), M.A., Ph.D.(Pitt.)
 D.C. Zuroff; B.A.(Harv.), M.A., Ph.D.(Conn.)

Associate Professors

J. Abela; B.A.(Brown), M.A., Ph.D.(Penn.)
 A.G. Baker; B.A.(Br. Col.), M.A., Ph.D.(Dal.)
 E.S. Balaban; B.A. (Mich. St.), Ph.D.(Rockefeller)
 D. Donderi; B.A., B.Sc.(Chic.), Ph.D.(C'nell.)
 B. Knauper; Dr.Phil.(Germany)
 D.J. Levitin; A.B.(Stan.), M.S., Ph.D.(Ore.) (*Bell Professor of
 Psychology and E-Commerce*)
 J. Lydon; B.A.(Notre Dame), M.A., Ph.D.(Wat.)
 J. MacDougall; B.A.(Carl.), M.A., Ph.D.(McG.) (*Part-time*)
 M.J. Mendelson; B.Sc.(McG.), A.M., Ph.D.(Harv.)
 K. Nader; B.Sc., Ph.D.(Tor.)
 G. O'Driscoll; B.A.(Welles.), Ph.D.(Harv.) (*William Dawson
 Scholar*)
 Z. Rosberger; B.Sc.(McG.), M.A., Ph.D.(C'dia) (*Part-time*)
 D. Titone; B.A.(N.Y.), M.A., Ph.D.(SUNY, Binghamton)

Assistant Professors

I. Bradley; B.Sc., M.Sc.(Tor.), Ph.D.(Wat.) (*Part-time*)
 Y. Chudasama; B.Sc., Ph.D.(Cardiff)
 H. Hwang; B.A.(Chung-Ang), Ph.D.(McG)
 K. Onishi; B.A.(Brown), M.A., Ph.D.(Ill.)
 A. Vouloumanos; B.Sc.(McG.), Ph.D.(Br. Col.)

Lecturers

R. Amsel; J. Bernstein

Associate Members

F. Abbott (*School of Nursing, Psychiatry*)
 C. Baker, F.A.A. Kingdom, K. Mullen, R. Hess (*McGill Vision
 Research Centre*)
 U. Bockenholt (*Desautels Faculty of Management*)
 T. Coderre, D. Gutton (*Anesthesia*)
 L.K. Fellows, D. Guitton, M. Jones-Gotman, B. Milner, E. Ruthazer,
 W. Sossin, V. Sziklas, R. Zatorre (*Montreal Neurological
 Institute*)
 M. Leyton (*Psychiatry*)
 S. MacAdams (*Music*)
 H. Steiger (*Douglas Hospital Research Centre*)

Adjunct Professors

M. Bruck, S. Burstein, P. Delisle, P. Gregoire, R. Ho, B. Little,
 A. Routtenberg, D. Sookman, M. Spevack, A. Surkis, P. Zelazo

Part-Time Appointments

V. Bohbut, P. DiDio, J. LeGallais, M. Leyton, S. Lupien, S. Nasir,
 Z. Pleszweski, M. Rabiau, M. Rajah, S. Ronen, C. Stich, S.
 Stotland, V. Taler, S. Zangenehpour

69.2 Programs Offered

M.A. and M.Sc. degrees may be awarded in Experimental Psychology, but only as a stage - (undergo formal evaluation) in the Ph.D. in Experimental Psychology program.

Ph.D. in Clinical Psychology (there is no M.A. or M.Sc. program).

The aim of the Experimental program is to provide students with an environment in which they are free to develop skills and expertise that will serve during a professional career of teaching and research as a psychologist. Course work and other requirements are at a minimum. Success in the program depends on the

student's ability to organize unscheduled time for self education. Continuous involvement in research planning and execution is considered a very important component of the student's activities. Students are normally expected to do both Master's and Doctoral study.

The Clinical program adheres to the scientist practitioner model and as such is designed to train students for careers in university teaching or clinical research, and for service careers – working with children or adults in a hospital, clinical, or educational setting. Most of our clinical graduates combine service and research roles. While there are necessarily many more course requirements than in the experimental program, the emphasis is again on research training. There is no Master's program in Clinical Psychology; students are expected to complete the full program leading to a doctoral degree.

Research interests of members of the Psychology Department include animal learning, behavioural neuroscience, clinical, child development, cognitive science, health psychology, psychology of language, perception, quantitative psychology, social psychology, and personality psychology.

A cross-disciplinary option in psychosocial oncology is offered within the existing Ph.D. program in Psychology.

Facilities for advanced research in a variety of fields are available within the Department itself. In addition, arrangements exist with the Departments of Psychology at the Montreal Neurological Institute, Allan Memorial Institute, Douglas Hospital, Jewish General Hospital, Montreal Children's Hospital and the Montreal General Hospital, to permit graduate students to undertake research in a hospital setting.

For full information about all programs and financial aid, and for application forms, contact the Graduate Program Co-ordinator, Department of Psychology.

Ph.D. Option in Language Acquisition (LAP)

Information about this option is available from the Department and on the Web at: www.psych.mcgill.ca/lap.html

Ph.D. Option in Psychosocial Oncology (PSO)

Information about this option is available from the Department and on the Web at: [www.medicine.mcgill.ca/oncology/
 edu_graduate_psychosocial.htm](http://www.medicine.mcgill.ca/oncology/edu_graduate_psychosocial.htm).

69.3 Admission Requirements

Admission to the graduate program depends on an evaluation of students' research interests and their aptitude for original contributions to knowledge and, if applicable, for professional contributions in the applied field.

The usual requirement for admission is an Honours or Majors degree (B.A. or B.Sc.) in Psychology. This usually includes an introductory course plus twelve courses in psychology (each equivalent to three term hours). Courses in experimental psychology, the theoretical development of modern ideas in psychology, and statistical methods as applied to psychological problems (equivalent to an introductory course) are essential. Applicants' knowledge of relevant biological, physical, and social sciences is considered.

Applicants who hold a Bachelor's degree but who have not met these usual requirements should consult the Graduate Program Director to determine which (if any) courses must be completed before an application can be considered. Students with insufficient preparation for graduate work may register as special students in the Faculty of Arts or the Faculty of Science, and follow an appropriate course of study. Such registration requires the permission of the Department but carries no advantage with respect to a student's eventual admission to graduate studies.

69.4 Application Procedures

Please take note that we no longer distribute paper applications. The following items must be submitted to apply to our program:

1. **Web application** (online).
2. Application fee of \$80.00 CDN, by credit card only.
3. A completed application **summary sheet**.
4. Transcripts – Two official copies (sent directly from your university).
5. Letters of recommendation – Three letters of recommendation on institution letterhead with original signatures must be provided. There are no forms for these letters. Please remind your recommenders to include your FULL NAME on all letters.
6. GRE (Graduate Record Examination) – Official reports and a photocopy of scores on the General and Subject Graduate Record Examination (GRE). Applicants with little or no background in psychology are not required to submit scores on the subject component of the GRE. All applicants must take the GRE if they have studied in an English-speaking university. Canadians who have not studied in an English institution are not required to submit GRE. Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone) must submit a TOEFL score (www.ets.org/toefl).
7. A personal statement (sent separately or completed on the online application form, “applicant statement”). Describe in as much detail as possible your interests in psychology and your career goals. Also indicate the area of psychology that you want to study (e.g., developmental, social, etc.) and the name of one or more staff members with whom you would like to work.

The online application deadline is December 1. Supporting documents are submitted directly to the Department of Psychology.

Graduate Admissions
Department of Psychology
McGill University
1205 Dr. Penfield Avenue
Montreal, Quebec H3A 1B1

Applicants should note that the deadline for many scholarships and fellowships is about four months earlier than the application deadline and that applications for scholarships and fellowships should be submitted through their home university.

69.5 Program Requirements

Master’s (M.A. and M.Sc. Degrees – 45 credits each)

There is no M.A. or M.Sc. program in Clinical psychology. M.A. and M.Sc. degrees may be awarded in Experimental Psychology, but only as a stage - (undergo formal evaluation) in the Ph.D. program.

Candidates must demonstrate a sound knowledge of modern psychological theory, of its historical development, and of the logic of statistical methods as used in psychological research. Candidates will be expected to have an understanding of the main lines of current work in areas other than their own field of specialization. The primary concern of the candidate is research. Final standing for the degree is based mainly on the student’s research progress and on the results of course work and other required assignments. All first year students, Experimental and Clinical must submit a General Comprehensive paper on a topic related to their research interests.

Ph.D.

All candidates for the Ph.D. degree must demonstrate broad scholarship, mastery of current theoretical issues in psychology and their historical development, and a detailed knowledge of their special field. Great emphasis is placed on the development

of research skills, and the dissertation forms the major part of the evaluation at the Ph.D. level.

All Ph.D. 2 and 3 students must register for at least one graduate seminar each term (see course numbers PSYC 710 to PSYC 758); the seminars are conducted by different staff members each year and their content changes accordingly.

A special (doctoral) comprehensive examination is written in one of the following areas of psychology: clinical, behavioural neuroscience, learning and motivation, personality and social psychology, development and language, perception and cognition, quantitative and individual differences, or any other appropriate area.

Ph.D. students in clinical psychology must fulfill similar requirements to Ph.D. students in the experimental program and must also take a variety of specialized courses which include practicum and internship experiences.

The Department of Psychology does not ordinarily require an examination in a foreign language. It should be noted, however, that all students planning to practice in clinical psychology in the province of Quebec will be examined on their proficiency in French before being admitted to the professional association.

Ph.D. in Psychology – Language Acquisition Option/Concentration

Students must satisfy all program requirements for the Ph.D. in Psychology. The Ph.D. thesis must be on a topic relating to language acquisition, approved by the LAP committee.

Required Courses for the Language Acquisition Option (8 credits)

EDSL 711	(2)	Language Acquisition Issues 3
LING 710	(2)	Language Acquisition Issues 2
PSYC 709	(2)	Language Acquisition Issues 1
SCSD 712	(2)	Language Acquisition Issues 4

Complementary Courses (9 credits)

3 credits of graduate-level statistics from courses such as: EDPE 676, EDPE 682, PSYC 650, PSYC 651; students who have taken an equivalent course in statistics, or are currently taking an equivalent course as part of their Ph.D. program requirements, will be deemed to have satisfied this requirement for the Language Acquisition Option.

At least 6 credits, two courses, selected from the following list, at least one course must be outside the Department of Psychology:

EDSL 620	(3)	Critical Issues in Second Language Education
EDSL 623	(3)	Second Language Learning
EDSL 624	(3)	Educational Sociolinguistics
EDSL 627	(3)	Classroom-Centred Second Language Research
EDSL 629	(3)	Second Language Assessment
EDSL 632	(3)	Second Language Literacy Development
EDSL 664	(3)	Second Language Research Methods
LING 555	(3)	Language Acquisition 2
LING 590	(3)	Language Acquisition and Breakdown
LING 651	(3)	Topics in Acquisition of Phonology
LING 655	(3)	Theory of L2 Acquisition
LING 755	(3)	Advanced Seminar: Language Acquisition
PSYC 561	(3)	Methods: Developmental Psycholinguistics
PSYC 734	(3)	Developmental Psychology and Language
PSYC 735	(3)	Developmental Psychology and Language
PSYC 736	(3)	Developmental Psychology and Language
PSYC 737	(3)	Developmental Psychology and Language
SCSD 619	(3)	Phonological Development
SCSD 632	(3)	Phonological Disorders: Children
SCSD 633	(3)	Language Development
SCSD 637	(3)	Developmental Language Disorders 1
SCSD 643	(3)	Developmental Language Disorders 2
SCSD 652	(3)	Advanced Research Seminar 1
SCSD 653	(3)	Advanced Research Seminar 2

Ph.D. in Psychology - Psychosocial Oncology Option/Concentration (PSO)

Ph.D. students registered in the Psychosocial Oncology Option complete the requirements for the Ph.D. in Psychology and the course work specific to this option provided in the table below. The Ph.D. thesis topic must be germane to psychosocial oncology and approved by the PSO coordinating committee.

Required Courses (6 credits)

NUR2 783 (3) Psychosocial Oncology Research
NUR2 705 (3) Palliative Care in Cancer

Complementary Course (3 credits)

One of the following courses:

PSYC 505 (3) The Psychology of Pain
PSYC 507 (3) Emotions, Stress, and Illness
PSYC 753 (3) Health Psychology Seminar 1
SWRK 609 (3) Understanding Social Care
SWRK 668 (3) Life-Threatening Illness and Bereavement

69.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Courses with numbers ending D1 and D2 are taught in two consecutive terms (most commonly Fall and Winter). Students must register for both the D1 and D2 components. No credit will be given unless both components (D1 and D2) are successfully completed in consecutive terms.

Note: All undergraduate courses administered by the Faculty of Science (courses at the 100- to 500-level) have limited enrolment. The course credit weight is given in parentheses after the title.

PSYC 505 THE PSYCHOLOGY OF PAIN. (3) (Fall) (2 lectures; 1 conference) (Prerequisites: any two of the following: PSYC 308, PSYC 311, PSYC 318, PSYC 522, ANAT 321, BIOL 306, PHGY 314 or permission of instructor.) An introduction to pain research and theory, with emphasis on the interactions of psychological, cultural and physiological factors in pain perception. The role of these factors in clinical pain and its management by pharmacological and non-pharmacological means will be discussed.

PSYC 533 INTERNATIONAL HEALTH PSYCHOLOGY. (3) (Fall) (Prerequisite: PSYC 305 and PSYC 215 or PSYC 429 or PSYC 304 or ANTH 227.) (Restriction: Departmental permission required.) The focus will be on health and illness in developing countries, in particular, on health problems (malnutrition, alcohol abuse, mental illness, family planning, and HIV) where psychosocial factors play a large role in the problem and the solution. Attempted solutions based on community participation, health education, non-governmental and international agencies will be discussed.

PSYC 601 MASTER'S COMPREHENSIVE. (6) Reference number for comprehensive examination written by all first-year graduate students.

PSYC 615D1 (1.5), PSYC 615D2 (1.5) DIAGNOSTIC METHODS (CHILDREN). (Students must register for both PSYC 615D1 and PSYC 615D2) (No credit will be given for this course unless both PSYC 615D1 and PSYC 615D2 are successfully completed in consecutive terms)

PSYC 616D1 (1.5), PSYC 616D2 (1.5) PRACTICUM - CHILD DIAGNOSTICS. (Students must register for both PSYC 616D1 and PSYC 616D2) (No credit will be given for this course unless both PSYC 616D1 and PSYC 616D2 are successfully completed in consecutive terms)

PSYC 617D1 (1.5), PSYC 617D2 (1.5) DIAGNOSTIC METHODS (ADULTS). (Students must register for both PSYC 617D1 and PSYC 617D2) (No credit will be given for this course unless both

PSYC 617D1 and PSYC 617D2 are successfully completed in consecutive terms) (PSYC 617D1 and PSYC 617D2 together are equivalent to PSYC 617)

PSYC 618D1 (1.5), PSYC 618D2 (1.5) PRACTICUM - ADULT DIAGNOSTICS. (Students must register for both PSYC 618D1 and PSYC 618D2) (No credit will be given for this course unless both PSYC 618D1 and PSYC 618D2 are successfully completed in consecutive terms)

PSYC 620 PRACTICUM IN PSYCHOTHERAPY. (6) A professional training course including dealing with patients under supervision, and a "case conference" seminar.

PSYC 625 RESEARCH: CLINICAL PSYCHOLOGY. (3) (Summer)

PSYC 630 PSYCHOPATHOLOGY. (3) Review of major types of psychopathology with emphasis on research findings.

PSYC 641D1 (3), PSYC 641D2 (3) BEHAVIOR DEVIATIONS. (Students must register for both PSYC 641D1 and PSYC 641D2) (No credit will be given for this course unless both PSYC 641D1 and PSYC 641D2 are successfully completed in consecutive terms) Appraisal and Modification. Psychotherapy, Theory and Research: traditional treatment modalities, cognitive therapy, family therapy, behaviour therapy, group therapy, etc.

PSYC 650 ADVANCED STATISTICS 1. (3) A course in advanced statistics with specialization in experimental design.

PSYC 651 ADVANCED STATISTICS 2. (3) A course in advanced statistics with specialization in multivariate techniques.

PSYC 660D1 (3), PSYC 660D2 (3) PSYCHOLOGY THEORY. (Students must register for both PSYC 660D1 and PSYC 660D2) (No credit will be given for this course unless both PSYC 660D1 and PSYC 660D2 are successfully completed in consecutive terms) Professors representing the various research areas within the Department discuss critical issues and developments within their fields of expertise.

PSYC 690 MASTERS RESEARCH 1. (15) Development of research topic, study and review of previous literature, preliminary experimental and/or theoretical thesis research.

PSYC 690D1 (7.5), PSYC 690D2 (7.5) MASTERS RESEARCH 1. (Students must register for both PSYC 690D1 and PSYC 690D2) (No credit will be given for this course unless both PSYC 690D1 and PSYC 690D2 are successfully completed in consecutive terms) (PSYC 690D1 and PSYC 690D2 together are equivalent to PSYC 690) Development of research topic, study and review of previous literature, preliminary experimental and/or theoretical thesis research.

PSYC 699 MASTERS RESEARCH 2. (12) Continuation of PSYC 690. Further experimental and/or theoretical research. Data analysis (as needed). Writing of thesis.

PSYC 701 DOCTORAL COMPREHENSIVE EXAMINATION. (6)

PSYC 705 RESEARCH PROJECT FOR M.SC. APPLIED. (9)

PSYC 706 CLINICAL PRACTICUM. (15)

PSYC 707 CLINICAL INTERNSHIP 1. (15)

PSYC 707D1 (7.5), PSYC 707D2 (7.5) CLINICAL INTERNSHIP 1. (Students must register for both PSYC 707D1 and PSYC 707D2) (No credit will be given for this course unless both PSYC 707D1 and PSYC 707D2 are successfully completed in consecutive terms) (PSYC 707D1 and PSYC 707D2 together are equivalent to PSYC 707)

PSYC 707J1 CLINICAL INTERNSHIP 1. (5) (Students must also register for PSYC 707J2 and PSYC 707J3) (No credit will be given for this course unless PSYC 707J1, PSYC 707J2 and PSYC 707J3 are all successfully completed in consecutive terms) (PSYC 707J1, PSYC 707J2 and PSYC 707J3 together are equivalent to PSYC 707)

PSYC 707J2 CLINICAL INTERNSHIP 1. (5) (Prerequisite: PSYC 707J1) (Students must also register for PSYC 707J3) (No credit will be given for this course unless PSYC 707J1, PSYC 707J2 and PSYC 707J3 are all successfully completed in consecutive terms)

(PSYC 707J1, PSYC 707J2 and PSYC 707J3 together are equivalent to PSYC 707) See PSYC 707J1 for course description.

PSYC 707J3 CLINICAL INTERNSHIP 1. (5) (Prerequisite: PSYC 707J2) (No credit will be given for this course unless PSYC 707J1, PSYC 707J2 and PSYC 707J3 are all successfully completed in consecutive terms) (PSYC 707J1, PSYC 707J2 and PSYC 707J3 together are equivalent to PSYC 707) See PSYC 707J1 for course description.

PSYC 708 CLINICAL INTERNSHIP 2. (15)

PSYC 708D1 (7.5), PSYC 708D2 (7.5) CLINICAL INTERNSHIP 2. (Students must register for both PSYC 708D1 and PSYC 708D2) (No credit will be given for this course unless both PSYC 708D1 and PSYC 708D2 are successfully completed in consecutive terms) (PSYC 708D1 and PSYC 708D2 together are equivalent to PSYC 708)

PSYC 708J1 CLINICAL INTERNSHIP 2. (5) (Students must also register for PSYC 708J2 and PSYC 708J3) (No credit will be given for this course unless PSYC 708J1, PSYC 708J2 and PSYC 708J3 are all successfully completed in consecutive terms) (PSYC 708J1, PSYC 708J2 and PSYC 708J3 together are equivalent to PSYC 708)

PSYC 708J2 CLINICAL INTERNSHIP 2. (5) (Prerequisite: PSYC 708J1) (Students must also register for PSYC 708J3) (No credit will be given for this course unless PSYC 708J1, PSYC 708J2 and PSYC 708J3 are all successfully completed in consecutive terms) (PSYC 708J1, PSYC 708J2 and PSYC 708J3 together are equivalent to PSYC 708) See PSYC 708J1 for course description.

PSYC 708J3 CLINICAL INTERNSHIP 2. (5) (Prerequisite: PSYC 708J2) (No credit will be given for this course unless PSYC 708J1, PSYC 708J2 and PSYC 708J3 are all successfully completed in consecutive terms) (PSYC 708J1, PSYC 708J2 and PSYC 708J3 together are equivalent to PSYC 708) See PSYC 708J1 for course description.

PSYC 709 LANGUAGE ACQUISITION ISSUES 1. (2)

PSYC 710 COMPARATIVE AND PHYSIOLOGICAL PSYCHOLOGY 1. (3)

PSYC 711 COMPARATIVE AND PHYSIOLOGICAL PSYCHOLOGY 2. (3)

PSYC 712 COMPARATIVE AND PHYSIOLOGICAL PSYCHOLOGY 3. (3)

PSYC 713 COMPARATIVE AND PHYSIOLOGICAL PSYCHOLOGY 4. (3)

PSYC 714 COMPARATIVE AND PHYSIOLOGICAL PSYCHOLOGY 5. (3)

PSYC 715 COMPARATIVE AND PHYSIOLOGICAL PSYCHOLOGY 6. (3)

PSYC 722 PERSONALITY AND SOCIAL PSYCHOLOGY. (3)

PSYC 723 PERSONALITY AND SOCIAL PSYCHOLOGY. (3)

PSYC 724 PERSONALITY AND SOCIAL PSYCHOLOGY. (3)

PSYC 725 PERSONALITY AND SOCIAL PSYCHOLOGY. (3)

PSYC 726 PERSONALITY AND SOCIAL PSYCHOLOGY. (3)

PSYC 727 PERSONALITY AND SOCIAL PSYCHOLOGY. (3)

PSYC 728 ETHICS AND PROFESSIONAL ISSUES. (3) (Restriction: Permission of instructor.) Clinical psychology as a profession, with particular emphasis on ethical issues.

PSYC 729 THEORY OF ASSESSMENT. (3) (Restriction: Permission of instructor.) Issues related to psychological measurement and assessment.

PSYC 730 CLINICAL NEUROSCIENCE METHODS. (3) (Restriction: Permission of instructor.) Techniques used in the study of biological aspects of clinical disorders, including methods in epidemiology, course and outcome, behavioural and molecular genetics, neuroimaging, psychophysiology and psychopharmacology.

PSYC 732 CLINICAL PSYCHOLOGY 1. (3)

PSYC 733 CLINICAL PSYCHOLOGY 2. (3)

PSYC 734 DEVELOPMENTAL PSYCHOLOGY AND LANGUAGE. (3)

PSYC 736 DEVELOPMENTAL PSYCHOLOGY AND LANGUAGE. (3)

PSYC 740 PERCEPTION AND COGNITION. (3)

PSYC 741 PERCEPTION AND COGNITION. (3)

PSYC 742 PERCEPTION AND COGNITION. (3)

PSYC 743 PERCEPTION AND COGNITION. (3)

PSYC 744 PERCEPTION AND COGNITION. (3)

PSYC 745 PERCEPTION AND COGNITION. (3)

PSYC 746 QUANTITATIVE AND INDIVIDUAL DIFFERENCES. (3)

PSYC 747 QUANTITATIVE AND INDIVIDUAL DIFFERENCES. (3)

PSYC 748 QUANTITATIVE AND INDIVIDUAL DIFFERENCES. (3)

PSYC 749 QUANTITATIVE AND INDIVIDUAL DIFFERENCES. (3)

PSYC 750 QUANTITATIVE AND INDIVIDUAL DIFFERENCES. (3)

PSYC 751 QUANTITATIVE AND INDIVIDUAL DIFFERENCES. (3)

PSYC 752D1 (3), PSYC 752D2 (3) PSYCHOTHERAPY AND BEHAVIOUR CHANGE. (Students must register for both PSYC 752D1 and PSYC 752D2) (No credit will be given for this course unless both PSYC 752D1 and PSYC 752D2 are successfully completed in consecutive terms) A practice-oriented course. Staff and students discuss current cases being treated with a variety of psychotherapeutic and behavioural change techniques.

PSYC 753 HEALTH PSYCHOLOGY SEMINAR 1. (3)

PSYC 797 TEACHING METHODS: PSYCHOLOGY 1. (3) Development of teaching skills for graduate students in psychology under the supervision of academic staff. Relevant skills: stating objectives and sequencing content; preparation and delivery of lectures; running discussion and laboratory sessions; techniques for preparing, marking and assessing evaluation instruments; obtaining feedback on teaching skills.

70 Quebec Studies/Études sur le Québec

Quebec Studies Program / Programme d'études sur le Québec
Ferrier Building
840 Dr. Penfield Avenue, Room 332
Montreal, QC H3A 1A4
Canada

Telephone: (514) 398-3960

Fax: (514) 398-3959

Website: www.mcgill.ca/qcst

Director — Jarrett Rudy; B.A., M.A.(Ott.), Ph.D.(McG.)

Québec Studies Coordinator and Assistant to the Director —
Stéphan Gervais

In 1963, McGill University established a French Canada Studies Program. Some of the energies and resources of the Program are devoted to research on Quebec and French Canada. In 1992, the name of the program was changed to Quebec Studies to reflect its central focus.

The program is offered at the undergraduate level. Should their main field of study be Quebec, graduate students must apply to the relevant departments.

Graduate students taking courses dealing in whole or in part with Quebec, or who are studying Quebec as their special field of study, are welcome to make use of the facilities of the Quebec Studies Program.

En 1963, le Programme d'études canadiennes-françaises fut créé à l'Université McGill. En collaboration avec les autres départements de l'Université, le programme a notamment pour but de développer la recherche sur divers aspects du Québec et du Canada français. Depuis 1992, l'appellation du programme a été modifiée pour celle de programme d'études sur le Québec afin de refléter clairement les objectifs poursuivis.

Les activités du programme se concentrent au premier cycle. Les étudiants qui désirent poursuivre des études en vue de l'obtention d'une maîtrise ou d'un doctorat portant sur le Québec doivent s'adresser aux départements concernés.

Les étudiants dont les cours portent, en tout ou en partie, sur le Québec ou qui se spécialisent dans ce domaine, sont toutefois

invités à se prévaloir des services du Programme d'études sur le Québec.

71 Redpath Museum

Redpath Museum, Room 102
859 Sherbrooke St. W.
Montreal, QC H3A 2K6

Telephone: (514)398-4086
Fax: (514) 398-3185
Website: www.mcgill.ca/redpath

Director — David M. Green

71.1 Staff

Emeritus Professor

Robert L. Carroll; B.Sc.(Mich.), Ph.D.(Harv.), F.R.S.C., F.L.S.

Professor

David M. Green; B.Sc.(Br. Col.), M.Sc., Ph.D.(Guelph), F.L.S.

Associate Professors

Brian J. Alters; B.Sc., Ph.D.(S. Calif.) (*Tomlinson Chair in Science Education, Sir William Dawson Scholar*)

Andrew Hendry; B.Sc.(Vic. (BC)), M.Sc., Ph.D.(Wash.) (*joint appt. with Biology*)

Anthony Ricciardi; B.Sc.(Agr.), M.Sc., Ph.D.(McG.) (*joint appt. with MSE*)

Assistant Professors

Claire de Mazancourt; Bacc.(Ecole des Mines), DEA, Ph.D.(Paris VI)

Hans C.E. Larsson; B.Sc.(McG.), Ph.D.(Chic.) (*CRC Tier 2 Chair in Paleontology*)

Brian Leung; B.Sc.(Br. Col.), Ph.D.(Car.) (*joint appt. with Biology & MSE*)

Virginie Millien; Maitrise(Paris VI), DEA, Ph.D.(Montpellier II)

Faculty Lecturer

Linda Cooper; B.A.(C'dia), M.A.(McM.)

Associate Members

Biology: Graham A.C. Bell

Earth & Planetary Sciences: Jeanne Paquette

Adjunct Professors

Hendry M. Reiswig, Hans Hofmann, Robert Holmes, Michael Woloch

71.2 Programs Offered

The Redpath Museum is a unique interdisciplinary unit within the Faculty of Science and the centre for teaching and research on the history and diversity of life. It houses and displays large collections of ancient and modern organisms, minerals, and ethnological artefacts. Its mandate includes geological, biological and cultural diversity, and science education.

The Museum has an active graduate training program devoted to research in biosystematics, conservation biology and evolutionary biology leading to M.Sc. and Ph.D. degrees. Students are primarily enrolled in McGill's Department of Biology but the Museum also supports the research of graduate students enrolled in other departments, including the Department of Earth and Planetary Sciences and the Department of Anthropology; and the Faculty of Education. Anyone interested should contact the department concerned.

71.3 Courses Offered

The Redpath Museum offers courses in science writing to graduate students.

The course credit weight is given in parentheses after the title.

REDM 610 WRITING SCIENCE ARTICLES 1. (3) (Prerequisite: Permission of instructor.) (Restrictions: Restricted to graduate students in the Faculty of Science; graduate students from other faculties considered, space permitting. Enrolment is limited to 12 students. The language of instruction is English and it is not intended as an ESL course. Course is graded pass/fail.) Principles and techniques for clear scientific writing with an emphasis on how to transform complex ideas into direct and precise ones by explaining research to peers and writing for interdisciplinary audiences.

REDM 710 WRITING SCIENCE ARTICLES 2. (3) (Prerequisite: Permission of instructor.) (Restrictions: Restricted to Ph.D. students in the Faculty of Science; M.Sc. students from the Faculty of Science and Ph.D. students from other faculties considered, space permitting. Enrolment is limited to 12 students. The language of instruction is English and it is not intended as an ESL course. Course is graded pass/fail.) Skills for writing and publishing scientific articles, including peer-reviewed manuscripts and short, critical reviews of published articles. Topics include techniques for developing logical arguments and writing publishable manuscripts.

72 Religious Studies

Faculty of Religious Studies
William and Henry Birks Building
3520 University Street
Montreal, QC H3A 2A7
Canada

Telephone: (514) 398-4121

Fax: (514) 398-6665

Website: www.mcgill.ca/religiousstudies

Dean, Faculty of Religious Studies — Ellen B. Aitken

Graduate Program Chair — G. Victor Hori

Graduate Admissions Chair — Patricia G. Kirkpatrick

72.1 Staff

Emeritus Professors

G.B. Baum; B.A.(McM.), M.A.(Ohio), D.Th.(Fribourg)

D.J. Hall; B.A.(W.Ont.), M.Div., S.T.M., Th.D.(U.T.S., N.Y.), D.D.(Qu.), LL.D.(Wat.), D.D.(Presb. Coll.)

J.C. McLelland; B.A.(McM.), M.A.(Tor.), B.D.(Knox, Tor.), Ph.D.(Edin.), D.D.(Mtl. Dio.Coll.), D.D.(Knox, Tor.)

Post-Retirement

R.C. Culley; B.A.(Tor.), B.D.(Knox, Tor.), M.A., Ph.D.(Tor.), D.D.(Mtl. Dio.Coll.)

Frederik Wisse; Ing.(Utrecht), B.A., B.D.(Calvin, Mich.), Ph.D.(Claremont)

Professors

M. Boutin; B.A., B.A., B.A.(Montr.), D.Th.(Munich) (*J.W. McConnell Professor of Philosophy of Religion*)

T. Kirby; B.A.(KCNS); M.A.(Dal.); D.Phil.(Oxon.)

G.S. Oegema; B.A., Th.D.(Vrije Universiteit, Amsterdam); M.A., Ph.D.(Free Univ., Berlin), Dr. Theol. Habil(Tübingen)

A. Sharma; B.A.(Ald.), M.A.(Syr.), M.T.S., Ph.D.(Harv.) (*Henry Birks Professor of Comparative Religion*)

K.K. Young; B.A.(Vermont), M.A.(Chic.), Ph.D.(McG.) (*James McGill Professor*)

Associate Professors

E.B. Aitken; A.B.(Harv.), M.Div.(Univ. of the South), Th.D.(Harv.)
D.B. Farrow; B.R.E.(Providence), M.Div.(Grace), M.Th.(Regent), Ph.D.(Lond.)

I.H. Henderson; B.A.(Man.), B.D.(St. And.), M.A.(McM.), D.Phil.(Oxon.)

G.V. Hori; B.A.(York), M.A.(Tor.), Ph.D.(Stan.)

P.G. Kirkpatrick; B.A.(McG.), M.Th.(Lond.), D.Phil.(Oxon.)

Assistant Professors

L. Braitstein; B.A.,M.A., Ph.D.(McG.)

Daniel Cere; B.A., M.A.(McG.), Ph.D.(C'dia)
G. Fiasse; B.A., M.A., Ph.D.(Louvain) (*joint appt. with Department of Philosophy*)
D. Soneji; B.A.(Man.), Ph.D.(McG.)

Faculty Lecturer

J. Kanaris; B.A.(C'dia), M.A., Ph.D.(McG.)

Numata Visiting Professor

Miriam Levering; Ph.D.(Harv.)

Associate Member

L. Turner; B.A.(Winn.), M.A.(Manit.), M.A., Ph.D.(USC)

Adjunct Professors

Philip Joudrey; T. Jinpa Langri; John M. Simons; John Vissers

72.2 Programs Offered

The Faculty of Religious Studies offers programs leading to the degrees of Master of Arts (M.A.) (Thesis) and (Non-Thesis), Master of Arts (M.A.) (Thesis) with Specialization in Bioethics, Master of Sacred Theology (S.T.M.) and Doctor of Philosophy (Ph.D.).

The purpose of the M.A. (thesis) degree is to encourage advanced study and research in one of the disciplines of religious studies (see below) for those who wish to become scholars or teachers, or will be engaged in some field of religious or public service. An option in the M.A. (thesis) program is the M.A. in Religious Studies with specialization in Bioethics offered in collaboration with the Bioethics Unit, see [section 9, "Bioethics"](#).

The M.A. without thesis is intended to ensure a student's well-rounded exposure to several religions and to several of the disciplinary approaches currently used in their academic study.

The S.T.M. is meant for those who intend to enter the ministry of the Christian Church or another religious institution, or proceed to a teaching career or to some form of social work. The S.T.M. program is fully accredited by the Association of Theological Schools in the U.S. and Canada.

The purpose of the Ph.D. program is to engage students in advanced academic studies normally in preparation for an academic career.

Adequate library facilities are available in the William and Henry Birks Building and elsewhere in the University for the courses listed, and for research.

The following areas of research are offered:

Biblical Studies Area:

Hebrew Bible and Old Testament Studies;
Greco-Roman Judaism;
New Testament Studies;

History and Theology Area:

Church History;
Christian Theology;

Religion and Culture Area:

Philosophy of Religion;
Religious Ethics;
Biomedical Ethics;

Asian Religions Area:

Hinduism;
Buddhism.

The M.A. (Thesis) with specialization in Bioethics is offered in conjunction with the Bioethics Unit.

72.3 Admission Requirements

Master of Arts (M.A.) (Thesis)

Applicants must possess a B.A. with a Major or Honours in Religious Studies or a Bachelor of Theology (B.Th.), or a Master of Divinity (M.Div.) degree, normally with a minimum CGPA of 3.3/4.0 (B+) from an accredited university or college. Applicants with fewer than 30 appropriate credits in Religious Studies or Theology are normally required to take a Qualifying Program before entering the M.A.

Master of Arts (M.A.) (Thesis) in Religious Studies with specialization in Bioethics – for information contact the Chair, Master's Specialization in Bioethics, Biomedical Ethics Unit, 3690 Peel Street, Montreal, QC, H3A 1W9. Telephone: (514) 398-6980. Fax: (514) 398-8349. E-mail: leigh.turner@mcgill.ca.

Master of Arts (M.A.) (Non-Thesis)

Applicants must possess a B.A. with a Major or Honours in Religious Studies or a Bachelor of Theology (B.Th.), or a Master of Divinity (M.Div.) degree, normally with a minimum CGPA of 3.3/4.0 (B+) from an accredited university or college. Applicants with fewer than 30 appropriate credits in Religious Studies or Theology are normally required to take a Qualifying Program before entering the M.A.

Master of Sacred Theology (S.T.M.)

Applicants must possess a B.A., normally with at least a good second class standing (B+ or CGPA 3.3/4.0), in a major or honours program in religious studies or theology from an accredited university or college. Those who have a McGill B.Th. or an equivalent degree in addition to a B.A. degree with a second class standing may be admitted to the second year of the S.T.M. program.

Doctor of Philosophy (Ph.D.)

Entry into the doctoral program is limited to applicants who have earned an academic Master's degree in Religious Studies or Theology in a recognized graduate program, or those who have finished the course requirements of such a program with a minimum CGPA of 3.5/4.0.

Advanced standing (Ph.D. 2) may be granted if the completed Master's level work including a thesis is in the same area as that of the intended doctoral specialization and involved not less than six (6) courses (18 credits).

It is recommended that a foreign language related to the area of study be included in the bachelor's or master's work preceding doctoral study.

Applicants for doctoral programs are requested to submit a substantial sample of their scholarly writing (15-20 pages) with their application. The application should specify one of the specializations listed in [section 72.2 "Programs Offered"](#).

72.4 Application Procedures

Application forms for admission are available at www.mcgill.ca/applying/graduate. Applications are completed online and submitted electronically. All supporting documents must be submitted to the Graduate Admissions Office of the Faculty of Religious Studies.

The following items must be submitted before the application can be considered by the Faculty's Graduate Admissions Committee:

1. application form;
2. non-refundable \$80 Application fee (credit card, Canadian certified cheque or money order);
3. two copies of the official transcripts of all post-secondary courses taken and degrees completed;
4. two academic letters of recommendation addressed to the Chair of the Graduate Admissions committee;
5. a statement of intent of approximately 500 words;
6. a sample of recent academic writing;
7. non-Canadian applicants whose mother tongue is not English and who have not completed an undergraduate degree from a recognized institution where English is the language of instruction must submit documented proof of competency in oral and written English, e.g. TOEFL (Test of English as a Foreign Language) with a minimum score of 577 on the paper-based test (233 on the computer-based test.)

Permanent residents may be required to submit a TOEFL score.

The application deadline for September admission is February 1 for funding consideration and March 1 for general admission. The

deadline for January admission is September 1 for International students and October 1 for Canadian/Permanent Residents.
N.B. There is no January admission for the M.A. Bioethics option.

72.5 Program Requirements

Language Requirements

The Faculty of Religious Studies offers courses in primary text source languages, such as Biblical Hebrew, Aramaic, Biblical Greek, Sanskrit, Pali, Tamil and classical literary Tibetan. The Faculty does not guarantee instruction in any languages other than those mentioned above. Therefore, if a student wishes to have a language such as French, German or Japanese counted as a second language, instruction may have to be sought outside the Faculty. The successful completion of at least twelve credits at the post-secondary level in a language course, or successful completion of a language examination administered by the appropriate member of the Faculty, will constitute evidence of the student's having the required reading knowledge of the language in question.

M.A.

Students are required to give their area committee evidence of reading knowledge of a scholarly language other than English. This language may be either a modern language in which there is a significant amount of scholarship relevant to the student's area of research, or a classical language relevant to the student's area of research. If a classical language is chosen, it must be in addition to any prerequisite language for the area in question.

Note: The M.A. with specialization in Bioethics has no language requirement.

Ph.D.

Students are required to give their area committee evidence of reading knowledge of two languages other than English. These languages must be chosen from modern languages in which there is a significant amount of scholarship relevant to the student's area of research or classical languages relevant to the student's area of research.

Research in some disciplines, or on certain thesis topics, may require proficiency in more than two languages besides English. In that case, additional language requirements may be stipulated by the supervisor.

S.T.M.

The S.T.M. program has no language requirement.

MASTER OF ARTS (M.A.) (Thesis) (48 credits)

The normal residence requirement is three terms of full-time resident study. Students may apply to do the third term during the Summer of their first year. Students may also register on a half-time basis.

Candidates are required to complete satisfactorily a minimum of six, one-term courses (18 credits) and write a thesis (30 credits) embodying the results of their research. The minimum pass mark in courses is B- for M.A. students.

Research may be undertaken in the areas of specialization listed in [section 72.2 "Programs Offered"](#).

All students must consult with an adviser in the chosen area of study for selection of courses before registration.

Candidates who have studied only one major religious tradition before entering the M.A. program are recommended to do some course work in another major religious tradition. It may prove appropriate for a student to take one or more graduate seminars in other McGill Departments, e.g., in Jewish Studies, Classics, Philosophy, East Asian Studies. Access is also possible to courses in the other universities in Montreal with the approval of the Graduate Committee and the GPSO.

For language requirements, see above.

A thesis proposal (approved by the supervisor) must be submitted to the Graduate Committee for approval.

The dissertation may be submitted at the end of the third term provided all course work and language requirements have been successfully completed. Candidates must complete the degree

within three years of initial full-time registration. A maximum one year extension may be granted.

Required Courses (33 credits)

RELG 602	(3)	Theory in Religious Ethics
RELG 688	(3)	Thesis Research 1
RELG 689	(3)	Thesis Research 2
RELG 698	(12)	Thesis Research 3
RELG 699	(12)	Thesis Research 4

Complementary Courses (15 credits)

15 credits selected from the 500- or 600-level courses accepted by the Faculty of Religious Studies for the granting of a Master's degree.

Master of Arts (M.A.) (Thesis) in Religious Studies with specialization in Bioethics

The curriculum is composed of required courses (6 credits) offered in the Bioethics Unit, bioethics courses (6 credit minimum) offered by the base faculty or department and any graduate courses required or accepted by a base faculty for the granting of a Master's degree, for a total of 21 credits. A minimum of 45 credits is required including the thesis.

Registration requirements: Depending upon the requirements of the base discipline, a minimum of three terms is required for completion of the program, including course work and thesis.

All students must consult with an adviser in the chosen area of study for selection of courses before registration.

Thesis supervision: Thesis supervision for students in the specialization is provided by a participating faculty member in the program. Those students whose supervisors are not appointed to a student's base discipline will have a co-supervisor appointed from the base discipline. Thesis examination will be conducted according to the base discipline norms.

Required Courses – Biomedical Ethics Unit (6 credits)

BIOE 680	(3)	Bioethical Theory
BIOE 681	(3)	Bioethics Practicum

Required Courses – Faculty of Religious Studies (6 credits)

RELG 571	(3)	Religion and Medicine
RELG 602	(3)	Theory in Religious Ethics

Complementary Courses (9 credits)

The remaining credits are to be taken in any graduate courses (500 or 600 level) required or accepted by the base faculty for the granting of a Master's degree, in consultation with the supervisor.

Thesis Component – Required (24 credits)

BIOE 690	(3)	M.Sc. Thesis Literature Survey
BIOE 691	(3)	M.Sc. Thesis Research Proposal
BIOE 692	(6)	M.Sc. Thesis Research Progress Report
BIOE 693	(12)	M.Sc. Thesis

MASTER OF ARTS (M.A.) (Non-Thesis) (45 credits)

The normal residence requirement is three terms of full-time resident study. Students may apply to do the third term during the Summer of their first year. Students may also register on a part-time basis.

The program requires completing a total of 45 credits taken at the 500 and 600 level. The student is required to take 36 credits in course work, normally by taking four courses per term for three terms. The minimum pass mark in courses is B- for M.A. students. Candidates who have studied only one major religious tradition before entering the M.A. program are recommended to do some course work in another major religious tradition.

For language requirements, see above.

All students must consult with a faculty adviser for selection of courses before registration.

The remaining 9 credits are to be earned by writing three research papers, each based on a reading list. Of these papers, one is to be in one specific religious tradition, a second in another religious tradition different from the first, and the third in methods used in the comparative study of religions. Each of these papers is worth three credits and each is graded on a PASS/FAIL basis.

Required Courses (15 credits)

RELG 555	(3)	Honours Seminar
RELG 602	(3)	Theory in Religious Ethics
RELG 660	(3)	M.A. Research Paper 1
RELG 661	(3)	M.A. Research Paper 2
RELG 662	(3)	M.A. Research Paper 3

Complementary Courses (30 credits)

10 courses selected from the 500- or 600-level courses accepted by the Faculty of Religious Studies for the granting of a Master's degree.

MASTER OF SACRED THEOLOGY (S.T.M.) (48 credits)

ATS Accreditation The S.T.M. program is fully accredited by the Association of Theological Schools in the U.S. and Canada.

The normal requirement is two years (of two terms each) of full-time study (or one year of full-time study for those admitted with advanced standing into S.T.M. 2), but the degree may, by permission, be taken on a part-time basis.

Note: Ordination requirements for S.T.M. graduates will normally involve a further year of professional pastoral studies (the In-Ministry Year) provided by the Montreal School of Theology affiliated with the Faculty of Religious Studies.

Candidates are required to complete satisfactorily twelve one-term courses (36 credits) and pass four Area Studies courses (12 credits) chosen from the following areas:

- 1) Biblical Theology (RELG 520)
- 2) Church History (RELG 530)
- 3) Christian Theology (RELG 531)
- 4) Philosophy of Religion (RELG 540)
- 5) Theological Ethics (RELG 541)
- 6) Comparative Religion (RELG 550)

Normally six 3-credit courses and two Area Studies courses shall be taken in each academic year. The pass mark in courses is B- for S.T.M. students. Normally graduate courses should be chosen from at least four different specialty areas in Religious Studies.

N.B. S.T.M. students are normally not permitted to take special studies courses.

Applicants who are admitted directly into S.T.M. 2 are required to complete six one-term courses (18 credits) and two Area Studies (6 credits).

Students who take the S.T.M. as part of their ordination requirements are to choose their courses in consultation with the Principal of the Theological College with which they are associated. Course selection for all S.T.M. students needs the approval of the Chair of the Religious Studies Graduate Committee.

Courses are offered by the Department in the areas of specialization listed in [section 72.2 "Programs Offered"](#).

Related courses are also available in other departments. The S.T.M. has no language requirement.

DOCTOR OF PHILOSOPHY (PH.D.)

Candidates admitted to Ph.D. 1 must be registered on a full-time basis for 4 consecutive years (8 terms) and candidates admitted to Ph.D. 2 must be registered on a full-time basis for 3 consecutive years (6 terms), after which they will continue as additional session students until completion of the program. Half-time study may be permitted upon request. (Refer to the Graduate and Postdoctoral Studies Calendar section 4.2.1 Residence Requirements - Doctoral for the definition of the residency).

Candidates admitted to Ph.D. 1 take a minimum six graduate seminars during their first year and four seminars during their Ph.D. 2 year; those admitted to Ph.D. 2 must take a minimum of four graduate seminars. If possible, two seminars should be in their area of specialization, and at least one should be at the 700-level.

Supervision: One of the professors in the area of specialization acts as program adviser of each candidate in that area until a thesis supervisor is selected. Candidates must meet with their

adviser or supervisor prior to registration to select their courses and to obtain advice concerning the requirements they are obliged to meet (e.g., courses, modern languages, ancient languages, and comprehensive examinations). A thesis proposal (approved by the supervisor) must be submitted to the Religious Studies Graduate Committee for approval by the time the course work is finished, or as soon as possible afterwards. The candidate is expected to be present for the discussion of the proposal. The thesis should be submitted by the end of the Ph.D. 6 year. Further registration will not be allowed after Ph.D. 7 without prior approval of the Faculty of Religious Studies and the Graduate and Postdoctoral Studies Office.

Comprehensive Examinations These examinations are designed to ensure that candidates are adequately prepared to undertake the research required for a doctoral thesis and to teach university-level courses in their chosen field. They are meant to test students' competence in: 1) their chosen field, 2) one or two cognate areas. The latter are areas related to the chosen field and are to be determined by the supervisor in consultation with the candidate. Comprehensives may take the form of a written examination, a major essay, a project, an oral examination, or a combination of these. For further details, refer to "Guidelines for Comprehensive Examinations" on the Website at www.mcgill.ca/religiousstudies/graduate/guidelines.

Doctoral Colloquium (Doktorklub) As one of their requirements, all Ph.D. students in residence shall attend the monthly graduate colloquium, at which time a student's thesis project is formally presented and discussed.

72.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Term(s) offered (Fall, Winter, Summer) may appear after the credit weight to indicate when a course would normally be taught. Please check Class Schedule to confirm this information.

Courses with numbers ending D1 and D2 are taught in two consecutive terms (most commonly Fall and Winter). Students must register for both the D1 and D2 components. No credit will be given unless both components (D1 and D2) are successfully completed in consecutive terms.

The course credit weight is given in parentheses after the title.

★ Denotes courses taught only in alternate years.

BIBLICAL AREA

RELG 501 HONOURS SEMINAR. (3) (Summer)

RELG 520 BIBLICAL THEOLOGY. (3) (Fall and Winter) (Restriction: Limited to S.T.M. students.) Tutorials and guided reading in the field of Biblical Theology.

RELG 601 ANCIENT JEWISH LITERATURE. (3) An examination of current theories of the origin and development of Greco-Roman Judaism with special attention to the treatment of non-canonical Jewish writings, e.g., the Pseudepigrapha and the Qumran Scrolls.

RELG 602 THEORY IN RELIGIOUS ETHICS. (3) Students must e-mail Samieun Khan for permission to take the course at samieun.khan@mcgill.ca. Students should include their student IDs. Basic theories in philosophical and religious ethics.

RELG 603 PRIMARY TEXT: AKKADIAN. (3) (Prerequisite: Basic reading knowledge of Akkadian or permission of instructor.) Religious texts in Akkadian, with particular attention to the problems of translation and interpretation as they apply to the student's thesis research.

RELG 604 FORMATION: POST-EXILIC JUDAISM. (3) An examination of Exilic and post-Exilic biblical materials (in English) that throw light on the cultural milieu and the historical experience out of which rabbinic Judaism arose.

RELG 605 INTERPRETERS OF RELIGION AND FAITH OF ANCIENT ISRAEL. (3) A study of how the biblical tradition has been analyzed and evaluated by outstanding scholars.

RELG 606 STUDIES IN BIBLICAL POETRY. (3) Based on English translations.

RELG 607 STUDIES: BIBLICAL NARRATIVE TRADITIONS. (3)

RELG 611 PAULINE THEOLOGY. (3) A study of the nature, background, origins, development and expression of the theological ideas in the Pauline literature and the connection between these ideas and other early Christian thought.

RELG 613 THE MINISTRY OF JESUS. (3) A study of the Synoptic Presentation of the Aims, Teaching and Achievement of Jesus of Nazareth.

RELG 618 THE CHURCH IN THE NEW TESTAMENT. (3) A study of the history of the Early Church on the basis of the New Testament Writings.

RELG 640 PRIMARY TEXT: BIBLICAL HEBREW. (3) (Prerequisite: Basic reading knowledge of Biblical Hebrew or permission of instructor.) Religious texts in Biblical Hebrew, with particular attention to the problems of translation and interpretation as they relate to the student's thesis research.

RELG 649 PRIMARY TEXT: COPTIC. (3) (Prerequisite: RELG 280 or equivalent; Basic reading knowledge of Coptic or permission of instructor.) Religious texts in Coptic, with particular attention to the problems of translation and interpretation as they apply to the student's thesis research.

JWST 510 JEWISH BIBLE INTERPRETATION 1. (3) (Restriction: Not open to students who have taken JWST 512) The issues, approaches, and texts of Jewish Bible interpretation between the Biblical and talmudic eras: Bible interpretation in the Bible; in Greco-Roman Jewish literature; in the Mishnah, Tosefta, Targumim, and Talmudim; early Samaritan interpretation, Bible interpretation in ancient synagogue art, and in the massoretic literature.

JWST 511 JEWISH BIBLE INTERPRETATION 2. (3) (Restriction: Not open to students who have taken JWST 512) The issues, problems, approaches, and texts of Jewish Bible interpretation in medieval, renaissance, early modern, and modern times. Interpretation in the Geonic, Ashkenazi, Sefardic, North African, Italian, European, Yemenite, North American and Israeli centres of Jewish Learning.

HISTORY AND THEOLOGY AREA

RELG 530 CHURCH HISTORY. (3) (Fall and Winter) Limited to S.T.M. students. Tutorials and guided reading in the field of church history.

RELG 531 CHRISTIAN THEOLOGY. (3) (Fall and Winter) Limited to S.T.M. studies. Tutorials and guided reading in the field of Christian Theology.

RELG 532 HISTORY OF CHRISTIAN THOUGHT 1. (3) (Prerequisite: At least six (6) credits at the 300-level in Christianity or the Christian Bible.) (Restriction: Not open to students who have taken RELG 320) The development of Christian theology in the Patristic and Medieval periods. Focus on the controversial development of Christian doctrines and disciplines through intensive exposure to primary texts.

RELG 533 HISTORY OF CHRISTIAN THOUGHT 2. (3) (Prerequisite: At least six (6) credits at the 300-level in Christianity or the Christian Bible.) (Restriction: Not open to students who have taken RELG 327) The development of Christian theology in the Reformation, Post Reformation and Modern periods through intensive exposure to primary texts.

RELG 621 PATRISTIC STUDIES. (3) (Restrictions: M.A., S.T.M., or Ph.D. students only.) Selected texts of patristic theology and history of the early Christian Church from Irenaeus to Boethius.

RELG 622 MEDIEVAL STUDIES. (3) (Restrictions: M.A., S.T.M., Ph.D. students only. Not open to students who have taken RELG 731.) Selected religious and theological texts from Boethius to Nicholas of Cusa.

RELG 624 REFORMATION STUDIES. (3) (Restrictions: M.A., S.T.M., Ph.D. students only. Not open to students who have taken RELG 732) Selected texts of Reformation and Counter-Reformation theology and history.

RELG 629 PRIMARY TEXT: ARAMAIC. (3) (Prerequisite: Basic reading knowledge of Aramaic or permission of instructor.) Religious texts in Aramaic, with particular attention to the problems of translation and interpretation as they apply to the student's thesis research.

RELG 630 THEOLOGICAL FOUNDATIONS. (3) Readings and discussions of theologians from the formative periods of Christian thought, with attention to the history of philosophy, ethics and dogma.

RELG 631 THEOLOGY OF THE CROSS. (3) The tradition Luther called *Theologia Crucis* as an appropriate theological response to the experience of the dominant culture of this continent.

RELG 633 THE THEOLOGY OF KARL BARTH. (3) Extensive reading and discussion of Part IV of the Church Dogmatics with special reference to Barth's Christology, doctrine of sin, ecclesiology, eschatology and doctrine of Christian life.

RELG 634 MOVEMENTS IN CONTEMPORARY THEOLOGY. (3) Readings and discussion of theologians of the first half of the twentieth century, especially the Niebuhrs, Barth, Brunner, Tillich, Bonhoeffer and other representatives of "Neo-Orthodoxy".

RELG 635 CHRISTOLOGY AND ECCLESIOLOGY. (3) Studies in the relation between two central theological loci, with special attention to their trinitarian, sacramental and eschatological frame of reference.

RELG 683 RESEARCH IN CHRISTIAN THEOLOGY. (3) Theologies of Religious Pluralism.

RELIGION AND CULTURE AREA

RELG 571 RELIGION AND MEDICINE. (3) (Fall) A study of the resources of major world religions (Judaism, Christianity, Islam, Hinduism, Buddhism, Taoism and Shinto) for thinking about ethical issues related to modern medicine, e.g., health, illness, suffering; new reproductive technologies; genetic engineering; euthanasia; palliative care; animal research; transplants.

RELG 641 MODERN PHILOSOPHY OF RELIGION. (3)

RELG 642 PHILOSOPHY OF RELIGION IN THE 21ST CENTURY. (3) Intuition, Concept, Experience.

RELG 643 PROBLEMS: PHILOSOPHY OF RELIGION. (3) Faith and skepticism.

RELG 672 VALUE SYSTEMS - CHRISTIAN PERSPECTIVE. (3) A study of the dialogue between Christian theology and the sociology of religion.

RELG 684 RESEARCH IN PHILOSOPHY OF RELIGION 1. (3)

RELG 745 MEANING AND INTERPRETATION. (3) (Restriction: This course is available only to students in Ph.D. 2 or higher) An interdisciplinary seminar on hermeneutical problems.

ASIAN RELIGIONS AREA

ISLA 531D1 (3), ISLA 531D2 (3) SURVEY DEVELOPMENT OF ISLAMIC THOUGHT. (Fall) (3 hours) (Students must register for both ISLA 531D1 and ISLA 531D2.) (No credit will be given for this course unless both ISLA 531D1 and ISLA 531D2 are successfully completed in consecutive terms) A survey of the development of the major intellectual traditions of Islamic civilization in medieval and modern times.

RELG 546 INDIAN PHILOSOPHY. (3) (Fall) (Prerequisites: 6 credits in Indian religions, philosophy of religion, philosophy, or permission of the instructor.) Introduction to the orthodox systems of Hindu Philosophy leading up to Vedanta i.e. Nyaya, Vaishnava,

Sankhya, Yoga and Mimamsa, which will include discussion of such topics as: grounds for belief and disbelief in God, the nature of revelation, means of knowledge, etc.

RELG 547 SPECIAL TOPICS IN HINDUISM. (3) (Prerequisites: 6 credits in Indian religions, philosophy of religion, philosophy, or permission of the instructor.) A research-oriented seminar dealing with topics in Hindu studies.

RELG 548 INDIAN BUDDHIST PHILOSOPHY. (3) (Prerequisites: RELG 252 or RELG 342 or permission of instructor.) The rise of buddhist schools of philosophy, especially the Theravada and Sauntranika, as an attempt to systematize the canonical teachings and defend Buddhism against its critics.

★ **RELG 549 JAPANESE BUDDHIST PHILOSOPHY.** (3) (Prerequisites: RELG 344, or RELG 451, or permission of the instructor.) (Note: Taught in alternate years.) Major figures of the Kyoto School of Buddhist philosophy (Nishida, Tanabe, Nishitani), emphasizing their intellectual debts to both modern European philosophy (Hegel, Nietzsche, Heidegger) and Mahayana Buddhism (Zen and Pure Land Buddhism).

RELG 550 COMPARATIVE RELIGION. (3) (Fall, Winter and Summer) Tutorials and guided reading in the field of Comparative Religion.

RELG 552 ADVAITA VEDANTA. (3) (Fall) (Prerequisites: 6 credits in Indian religions.) The relation of Nyaya-Vaisesika and Mimamsa to Kevaladvaita with concentration on Sankara's Brahmasutrabhasya, Pada 1 and 2.

RELG 553 RELIGIONS OF SOUTH INDIA 1. (3) (Winter) (Prerequisite: 6 credits in Indian religions.) Topics include: definitions of Tamil identity, the relation of akam to bhakti poetry, the theology of the Alvars and Nayanmars, inter-religious and sectarian competition, the motif of pilgrimage, questions of caste and women.

★ **RELG 554 RELIGIONS OF SOUTH INDIA 2.** (3) (Winter) (Prerequisite: RELG 553) Analysis of the following: sampradaya; ubhayedanta; comparison of Visistadvaita and Saiva Siddhanta with reference to selected themes that illustrate the Tamil contribution; the relationship of theology to the sociology of knowledge in Tamilnad.

RELG 555 HONOURS SEMINAR. (3) (Winter) (Restriction: For Religious Studies Honours students or with permission of the Chair of the Religious Studies B.A. Committee) Current trends in the study of religion, including the approaches of critical theory, feminism, post-modernism, and post-colonialism.

RELG 556 ISSUES IN BUDDHIST STUDIES. (3) (Fall and Winter) (Prerequisite: permission of instructor.) A graduate seminar taught by the Numata Visiting Professor on critical issues in contemporary Buddhist Studies. Emphasis will be placed on the intensive application of different methods - philological, philosophical or social scientific - to some area of modern Buddhist research.

RELG 557 ASIAN ETHICAL SYSTEMS. (3) (Fall) (Prerequisites: RELG 252, RELG 253, or permission of instructor.) An examination of the ethical ideals that have evolved in Asia with reference to Hinduism, Buddhism, Confucianism, and Taoism. Issues to be explored include competing views of the individual's duties to social and political institutions, the individual's right to non-conformity, the relationship between morality and metaphysics, and a comparison of moral principles in theistic and atheistic contexts.

RELG 558 INDIAN TANTRIC TRADITIONS. (3) (Winter) (Prerequisites: Any two 300-level courses in Hinduism or Buddhism.) Study of esoteric Tantric culture (philosophy, ritual, pilgrimage, art, and iconography) with focus on either Hindu or Buddhist Tantric traditions.

RELG 571 RELIGION AND MEDICINE. (3) (Fall) A study of the resources of major world religions (Judaism, Christianity, Islam, Hinduism, Buddhism, Taoism and Shinto) for thinking about ethical issues related to modern medicine, e.g., health, illness, suffering; new reproductive technologies; genetic engineering; euthanasia; palliative care; animal research; transplants.

RELG 651 INDIAN BUDDHIST EPISTEMOLOGY. (3) (Prerequisite: two years of Sanskrit or Pali, or permission of the instructor.)

RELG 654 PRIMARY TEXT: JAPANESE. (3) (Prerequisite: Basic reading knowledge of Japanese or permission of instructor.) Religious texts in Japanese, with particular attention to the problems of translation and interpretation as they apply to the student's thesis research.

RELG 657D1 (3), RELG 657D2 (3) INTRODUCTORY SANSKRIT. (Students must register for both RELG 657D1 and RELG 657D2) (No credit will be given for this course unless both RELG 657D1 and RELG 657D2 are successfully completed in consecutive terms)

RELG 658 DOGEN: PHILOSOPHY AND PRACTICE. (3) (Prerequisite: RELG 451 or permission of the instructor.) (Taught in alternate years.) An introduction to the recent scholarship on the Japanese Zen monk Dogen focussing on both his philosophical writings and his attempt to create a life of monastic practice.

RELG 659 PRIMARY TEXT: PALI. (3) (Prerequisite: Basic reading knowledge of Pali or permission of instructor.) Introduction to the grammar of the Pali language and to the vocabulary found in the Pali canon and its commentaries.

RELG 665 PRIMARY TEXT: SANSKRIT 1. (3) (Prerequisite: Basic reading knowledge of Sanskrit or permission of instructor.) The Sanskrit alphabet, basic morphology and syntax of the classical language. Reading and analysis of passages from the Hindu epics and fable literature.

RELG 666 PRIMARY TEXT: SANSKRIT 2. (3) (Prerequisite: Basic reading knowledge of Sanskrit or RELG 665 or permission of instructor.) Focus on development of greater speed and accuracy in reading poetry, mythology and philosophical texts, basic grammar, an introduction to the Sanskrit grammarians, analysis of word formation and compound formation, and to the conventions of commentators.

RELG 667 READINGS IN INDIC TEXTS 1. (3) (Prerequisite: RELG 457D1/D2 or equivalent or permission of instructor.) Advanced course in critical reading of Sanskrit and/or other Indian texts.

RELG 668 READINGS IN INDIC TEXTS 2. (3) (Prerequisite: RELG 457D1/D2 or equivalent or permission of instructor.) Continued critical reading of Sanskrit and/or other Indian texts.

RELG 669 PRIMARY TEXT: TIBETAN. (3) (Prerequisite: RELG 357 or permission of the instructor.) Comparison of original Sanskrit texts with their Tibetan translations. For advanced students of Sanskrit who wish to learn to consult Tibetan translations of Buddhist texts originally written in Sanskrit.

SPECIAL STUDIES

RELG 680 OLD TESTAMENT RESEARCH. (3)

RELG 681 RESEARCH IN NEW TESTAMENT. (3)

RELG 682 RESEARCH: HISTORY OF CHRISTIANITY. (3)

RELG 683 RESEARCH IN CHRISTIAN THEOLOGY. (3) Theologies of Religious Pluralism.

RELG 684 RESEARCH IN PHILOSOPHY OF RELIGION 1. (3)

RELG 685 RESEARCH IN ETHICAL PROBLEMS. (3)

RELG 687 RESEARCH IN COMPARATIVE RELIGION 1. (3)

RELG 690 OLD TESTAMENT RESEARCH. (6)

RELG 690D1 (3), RELG 690D2 (3) OLD TESTAMENT RESEARCH. (Students must register for both RELG 690D1 and RELG 690D2) (No credit will be given for this course unless both RELG 690D1 and RELG 690D2 are successfully completed in consecutive terms)

RELG 692D1 (3), RELG 692D2 (3) RESEARCH: HISTORY OF CHRISTIANITY. (Students must register for both RELG 692D1 and RELG 692D2) (No credit will be given for this course unless both RELG 692D1 and RELG 692D2 are successfully completed in consecutive terms)

RELG 694 RESEARCH IN PHILOSOPHY OF RELIGION 2. (6)

RELG 696 RESEARCH: RELIGIOUS PSYCHOLOGY. (6)

RELG 696D1 (3), RELG 696D2 (3) RESEARCH: RELIGIOUS PSYCHOLOGY. (Students must register for both RELG 696D1 and RELG 696D2) (No credit will be given for this course unless both RELG 696D1 and RELG 696D2 are successfully completed in consecutive terms) (RELG 696D1 and RELG 696D2 together are equivalent to RELG 696)

RELG 751 TUTORIAL ON A SELECTED TOPIC.(3)

RELG 751D1 (1.5), RELG 751D2 (1.5) TUTORIAL ON A SELECTED TOPIC. (Students must register for both RELG 751D1 and RELG 751D2) (No credit will be given for this course unless both RELG 751D1 and RELG 751D2 are successfully completed in consecutive terms) (RELG 751D1 and RELG 751D2 together are equivalent to RELG 751)

RELG 752 TUTORIAL ON A SELECTED TOPIC. (6)

RELG 752D1 (3), RELG 752D2 (3) TUTORIAL ON A SELECTED TOPIC. (Students must register for both RELG 752D1 and RELG 752D2) (No credit will be given for this course unless both RELG 752D1 and RELG 752D2 are successfully completed in consecutive terms) (RELG 752D1 and RELG 752D2 together are equivalent to RELG 752)

M.A. (NON-THESIS)

RELG 660 M.A. RESEARCH PAPER 1. (3)

RELG 661 M.A. RESEARCH PAPER 2. (3)

RELG 662 M.A. RESEARCH PAPER 3. (3)

M.A. (THESIS)

RELG 688 THESIS RESEARCH 1. (3)

RELG 689 THESIS RESEARCH 2. (3)

RELG 698 THESIS RESEARCH 3. (12)

RELG 698D1 (6), RELG 698D2 (6) THESIS RESEARCH 3. (Students must register for both RELG 698D1 and RELG 698D2) (No credit will be given for this course unless both RELG 698D1 and RELG 698D2 are successfully completed in consecutive terms) (RELG 698D1 and RELG 698D2 together are equivalent to RELG 698)

RELG 698N1 THESIS RESEARCH 3. (6) (Students must also register for RELG 698N2) (No credit will be given for this course unless both RELG 698N1 and RELG 698N2 are successfully completed in a twelve month period) (RELG 698N1 and RELG 698N2 together are equivalent to RELG 698)

RELG 698N2 THESIS RESEARCH 3. (6) (Prerequisite: RELG 698N1) (No credit will be given for this course unless both RELG 698N1 and RELG 698N2 are successfully completed in a twelve month period) (RELG 698N1 and RELG 698N2 together are equivalent to RELG 698) See RELG 698N1 for course description.

RELG 699 THESIS RESEARCH 4. (12)

RELG 699D1 (6), RELG 699D2 (6) THESIS RESEARCH 4. (Students must register for both RELG 699D1 and RELG 699D2) (No credit will be given for this course unless both RELG 699D1 and RELG 699D2 are successfully completed in consecutive terms) (RELG 699D1 and RELG 699D2 together are equivalent to RELG 699)

RELG 699N1 THESIS RESEARCH 4. (6) (Students must also register for RELG 699N2) (No credit will be given for this course unless both RELG 699N1 and RELG 699N2 are successfully completed in a twelve month period) (RELG 699N1 and RELG 699N2 together are equivalent to RELG 699)

RELG 699N2 THESIS RESEARCH 4. (6) (Prerequisite: RELG 699N1) (No credit will be given for this course unless both RELG 699N1 and RELG 699N2 are successfully completed in a twelve month period) (RELG 699N1 and RELG 699N2 together are equivalent to RELG 699) See RELG 699N2 for course description.

COMPREHENSIVE EXAMINATION

RELG 701 COMPREHENSIVE EXAMINATION. (0)

RELG 701D1 (0), RELG 701D2 (0) COMPREHENSIVE EXAMINATION. (Students must register for both RELG 701D1 and RELG 701D2) (No credit will be given for this course unless both RELG 701D1 and RELG 701D2 are successfully completed in consecutive terms) (RELG 701D1 and RELG 701D2 together are equivalent to RELG 701)

RELG 702 COMPREHENSIVE EXAMINATION. (0)

RELG 702D1 (0), RELG 702D2 (0) COMPREHENSIVE EXAMINATION. (Students must register for both RELG 702D1 and RELG 702D2) (No credit will be given for this course unless both RELG 702D1 and RELG 702D2 are successfully completed in consecutive terms) (RELG 702D1 and RELG 702D2 together are equivalent to RELG 702)

RELG 703 COMPREHENSIVE EXAMINATION. (0)

RELG 703D1 (0), RELG 703D2 (0) COMPREHENSIVE EXAMINATION. (Students must register for both RELG 703D1 and RELG 703D2) (No credit will be given for this course unless both RELG 703D1 and RELG 703D2 are successfully completed in consecutive terms) (RELG 703D1 and RELG 703D2 together are equivalent to RELG 703)

73 Russian and Slavic Studies

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Chair — P.M. Austin

Graduate Director — L. Parts

73.1 Staff

Associate Professors

P.M. Austin; M.A.(C'nell), B.A., Ph.D.(Tor.)

L. Beraha; B.A., M.A., Ph.D.(McG.) (*on sabbatical 2008-2009*)

Assistant Professor

L. Parts; M.A., Ph.D.(Col.)

73.2 Programs Offered

Master's and Ph.D. in Russian

The Department offers graduate instruction (seminar and guided independent reading courses) as well as research and thesis supervision in the fields of Russian culture and literature. Current faculty specialize in 19th and 20th century literature. Particular emphasis is placed on working with the original language; credits may be allotted, at the discretion of the Department, to course work leading to advanced proficiency in this area.

Ph.D. Language Tests

Ph.D. candidates in other departments who require Russian for research and in satisfaction of the language requirement should contact the Department for recommended courses.

73.3 Admission Requirements

The general rules of the Graduate and Postdoctoral Studies Office apply and are outlined in the General Information and Regulations section of the Calendar.

The minimum academic requirement is normally a high standing in an undergraduate degree with Honours Russian

(or an equivalent specialization). Further, the Department must be convinced that the candidate for admission has an aptitude for research work and will be able to make an original contribution to knowledge.

A working knowledge of French is recommended for the Ph.D. program.

Any necessary preparation to fulfill these requirements will be offered within the Department or elsewhere at McGill. Certain graduate courses may be taken by arrangement at approved universities.

73.4 Application Procedures

Applications will be considered upon receipt of:

1. application form;
2. two certified copies of all university transcripts; (all transcripts not in English or French **must** be accompanied by a **certified** English or French translation);
3. two letters of recommendation (in English or French);
4. \$80 application fee;
5. test results - GRE (recommended); TOEFL (required of all applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone). Minimum score of 86, with each component score not less than 20, required on the internet-based TOEFL examination. Proof of TOEFL must be presented at time of application or shortly thereafter);
6. a sample of written work;
7. statement of academic intent.
8. interview, where appropriate, if necessary by telephone, with members of the Department Graduate Committee.

All information must be submitted to the Graduate Coordinator, Department of Russian and Slavic Studies.

Deadline: January 5.

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

73.5 Program Requirements

Original research work and the scholarly qualities of the thesis are the principal criteria for conferring a graduate degree in Russian.

M.A. in Russian (Thesis) (48 credits)

The Thesis Proposal is normally submitted for review by the Department Graduate Committee at the end of the second term of residency. Candidates should consult the Department Thesis Proposal Guidelines.

Complementary Courses (18 credits)

12 - 18 credits of graduate coursework in the Department
0 - 6 credits of graduate coursework outside the Department,
subject to approval by the Department Graduate Committee

RUSS 600* (0) Tutorial in Russian 1

RUSS 601* (0) Tutorial in Russian 2

* if deemed necessary by the Department.

Thesis Component - Required (30 credits)

RUSS 691 (6) M.A. Thesis Proposal

RUSS 692 (24) M.A. Thesis

Ph.D.

The Ph.D. requirements include:

RUSS 700, RUSS 701, and RUSS 702;

French Language Examination;

Thesis and Thesis Defence.

Depending on their individual background, students may be asked to take additional coursework as approved by the Department Graduate Committee. Students must complete two of the following guided research projects: RUSS 750, RUSS 760 or RUSS 770.

Ph.D. language requirements include proficiency in Russian, functional ability in English and in French, and proficiency in a second Slavic language, if relevant to the research topic and where deemed appropriate by the Department Graduate Committee.

73.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

The course credit weight is given in parentheses after the title.

RUSS 500 SPECIAL TOPICS. (3) (Given in English) (Prerequisite: Permission of Department) Focus on a critical theme, author or work, as determined by the current research interests of faculty and visiting faculty.

RUSS 600 TUTORIAL IN RUSSIAN 1. (0) (Prerequisite: Permission of Department Graduate Committee.) Supervised independent study towards the achievement of professional competence in conducting research in Russian, including advanced language proficiency, bibliographic and electronic information retrieval.

RUSS 601 TUTORIAL IN RUSSIAN 2. (0) Continued independent study towards achieving professional competence in conducting research in Russian, including advanced language proficiency, bibliographic and electronic information retrieval.

RUSS 691 M.A. THESIS PROPOSAL. (6)

RUSS 692 M.A. THESIS. (24)

RUSS 700 PHD TUTORIAL. (0) (Prerequisite: Permission of the Department Graduate Committee.) Supervised preparation for the candidate's two designated Major Fields in the Ph.D. Comprehensive Examination.

RUSS 701 PH.D. COMPREHENSIVE EXAMINATION. (0) (Prerequisites: RUSS 700 and two of: RUSS 750, RUSS 760, RUSS 770.) Written and oral examination in two Major and two Minor fields of Russian literature and culture, as determined by the candidate and the Department's Graduate Committee.

RUSS 702 PHD THESIS PROPOSAL. (0) (Prerequisite: Permission of the Department Graduate Committee.) Ph.D. thesis proposal.

RUSS 750 HISTORY OF RUSSIAN LANGUAGE. (0) (Prerequisite: Permission of the Department Graduate Committee.) (Restriction: Not open to students who have taken RUSS 650D1/D2.) Exploration of the principal themes and critical issues in Russian historical grammar and the history of the Russian literary language from the 10th century to the present.

RUSS 760 PRE-PETRINE FOUNDATION. (0) (Prerequisite: Permission of the Department Graduate Committee.) (Restriction: Not open to students who have taken RUSS 660D1/D2.) Exploration of the principal themes and critical issues in Russian literature of the Pre-Petrine period. Comparison with similar problems in the candidate's major fields for the comprehensive examination.

RUSS 770 18TH CENTURY FOUNDATION. (0) (Prerequisite: Permission of the Department Graduate Committee.) (Restriction: Not open to students who have taken RUSS 670D1/D2.) Exploration of the principal themes and critical issues in Russian literature of the 18th century. Comparison with similar problems in the candidate's major fields for the comprehensive examination.

RUSS 790D1 (0), RUSS 790D2 (0) RUSSIAN LANGUAGE REQUIREMENT - PH.D. (Students must register for both RUSS 790D1 and RUSS 790D2) (No credit will be given for this course unless both RUSS 790D1 and RUSS 790D2 are successfully completed in consecutive terms)

74 Social Studies of Medicine

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Chair — Alberto Cambrosio

74.1 Staff

Emeritus Professor

Margaret Lock; B.Sc.(Leeds), M.A., Ph.D.(Calif., Berk.) (*Marjorie Bronfman Professor of Social Studies in Medicine*)

Professors

Alberto Cambrosio; M.A.(Sher.), Ph.D.(Montr.)

Andrea Tone; M.A., Ph.D.(Emory) (*Canada Research Chair in the Social History of Medicine*)

George Weisz; M.A., Ph.D.(SUNY), Dr. 3rd Cycle(Paris)
Cotton-Hannah Professor of the History of Medicine

Allan Young; M.A.(Wash.), B.A., Ph.D.(Penn.)

Associate Professors

Thomas Schlich; M.D.(Marburg), Ph.D.(Freiburg) (*Canada Research Chair in History of Medicine*)

Faith E. Wallis; M.A., M.L.S.(McG.), Ph.D.(Tor.)

Assistant Professor

Tobias Rees; M.A.(Tübingen), Ph.D.(Calif., Berk.)

Assistant Professors (Primary Appointment: Biomedical Ethics Unit)

Jonathan Kimmelman; M.A., Ph.D.(Yale)

Jennifer Fishman; M.A. (Calif., Irvine), Ph.D.(Calif.)

Nicolas King; M.A., Ph.D.(Harv.)

Adjunct Professor

Cornelius Borck

74.2 Programs Offered

The Department (SSOM) offers graduate studies in three programs:

- one in medical anthropology, given jointly with the Department of Anthropology;
- one in medical history, given jointly with the Department of History; and
- one in medical sociology, given jointly with the Department of Sociology.

In each program, the student may work towards the M.A. and Ph.D. degrees. All degrees are awarded by the relevant Faculty of Arts department. For further information regarding those departments, please consult the Anthropology, History, or Sociology sections.

The Department (SSOM) is interdisciplinary, having faculty in the fields of medical anthropology, medical history, and medical sociology. In its programs of graduate studies, it attempts to provide two things: a training that is solidly grounded in the discipline of the chosen program, i.e., in anthropology, history or sociology; and, through seminars and interaction with Department members and other graduate students, exposure to the other disciplines that are represented in the Department. The Department aims to instill in its graduates a combination of disciplinary competence and interdisciplinary perspective.

74.3 Admission Requirements

M.A. in Medical Anthropology

The program is open to students with backgrounds in the social sciences, the medical professions, or the medical sciences.

M.A. in the History of Medicine

Candidates must have a background in either history (Honours B.A. in History, or equivalent) or a degree in one of the health professions.

M.A. in Medical Sociology

The program is open to students with a background in social sciences, health professions or health sciences. It aims to prepare candidates for a career of teaching and research in medical sociology, and there is consequently a preference for applicants with the potential to proceed to the doctoral degree.

Ph.D. Programs

Candidates for a Ph.D. will normally have taken their M.A. in the same field. Please refer to the appropriate Department – Anthropology, History, or Sociology.

74.4 Application Procedures

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

M.A. in Medical Anthropology

Admission is granted by a joint admissions committee made up of representatives from Anthropology and SSOM.

For details concerning applications, teaching assistantships, fellowships, etc., see section 4 "Anthropology".

M.A. in the History of Medicine

Application is made directly to the History Department. For details see Department of History.

M.A. in Medical Sociology

Admission is granted by a joint admissions committee made up of representatives from Sociology and SSOM. For details concerning applications, teaching, assistantships, fellowships, etc., see Department of Sociology.

Ph.D. Programs

Please refer to the appropriate Department – Anthropology, History, or Sociology.

74.5 Program Requirements

M.A. IN MEDICAL ANTHROPOLOGY

For Anthropology courses, see Department of Anthropology. For SSOM seminars, see below.

M.A. in Medical Anthropology (Thesis) (48 credits)

Required Courses (42 credits)

HSSM 605	(3)	Medical Anthropology
ANTH 615	(3)	Seminar in Medical Anthropology
ANTH 694	(6)	M.A. Thesis Tutorial 1
ANTH 695	(6)	M.A. Thesis Tutorial 2
ANTH 699	(24)	M.A. Thesis

Complementary Courses (6 credits)

Two Anthropology courses.

M.A. IN THE HISTORY OF MEDICINE

The M.A. degree in Medical History does not have a thesis option.

The program requires the completion of 45 credits, composed of required courses, graduate seminars, plus a major research paper. The program is normally completed in three terms, or one calendar year (Fall, Winter and Summer).

M.A. in History of Medicine (Non-Thesis) (45 credits)]**Required Courses (27 credits)**

HIST 684	(3)	Research Proposal
HIST 685	(3)	Directed Research
HIST 686	(6)	Bibliography Tutorial
HIST 687	(9)	MA Paper 1
HIST 688	(6)	MA Paper 2

Complementary Courses (18 credits)

18 credits at the 500-level or higher comprised of the following:

6 - 12 credits in History of Medicine courses below:

HIST 619	(3)	Ancient Medicine Seminar 1
HIST 620	(3)	Ancient Medicine Seminar 2
HIST 636	(3)	Medieval Medicine Seminar 1
HIST 637	(3)	Medieval Medicine Seminar 2
HIST 640	(3)	Modern Medicine Seminar 1
HIST 641	(3)	Modern Medicine Seminar 2
HSSM 604	(3)	History of Medicine

6 - 12 credits in History (non-Medicine) courses

0 - 6 credits may be taken outside the department

Candidates for the M.A. degree follow an individual program approved by the Department.

M.A. IN MEDICAL SOCIOLOGY

Students may choose between two programs: M.A. thesis or non-thesis.

For Sociology courses, see Department of Sociology. For SSOM seminars, see below.

M.A. in Medical Sociology (Thesis) (48 credits)

This includes 18 credits of course work and a research thesis that is based on original research (30 credits)

Required Courses (12 credits)

SOCI 504	(3)	Quantitative Methods 1
SOCI 540	(3)	Qualitative Research Methods
SOCI 580	(3)	Social Research Design and Practice
SOCI 652	(3)	Current Sociological Theory

Complementary Courses (6 credits)

one of the following two courses:

SOCI 515	(3)	Medicine and Society
SOCI 538	(3)	Selected Topics in Sociology of Biomedical Knowledge

plus one course in the History of Medicine.

Thesis Component – Required (30 credits)

SOCI 690	(3)	M.A. Thesis 1
SOCI 691	(6)	M.A. Thesis 2
SOCI 692	(3)	M.A. Thesis 3
SOCI 693	(3)	M.A. Thesis 4
SOCI 695	(15)	M.A. Thesis 6

M.A. in Medical Sociology (Non-Thesis) (45 credits)

This includes 27 credits of course work and a research paper based on original research (18 credits).

Required Courses (36 credits)

SOCI 504*	(3)	Quantitative Methods 1
SOCI 540*	(3)	Qualitative Research Methods
SOCI 580*	(3)	Social Research Design and Practice
SOCI 603	(3)	Bibliographic Methods 1
SOCI 604	(3)	Bibliographic Methods 2
SOCI 652*	(3)	Current Sociological Theory
SOCI 696	(3)	Research Paper 1
SOCI 697	(3)	Research Paper 2
SOCI 699	(12)	Research Paper 4

* All students must have taken these courses or take them during the first year of the program. Students granted an exemption from any one or more of these courses by the Graduate Studies Committee must substitute another substantive seminar in its place.

Complementary Courses (9 credits)

3 credits, one of the following courses:

SOCI 515	(3)	Medicine and Society
SOCI 538	(3)	Selected Topics in Sociology of Biomedical Knowledge

3 credits, one graduate-level course in History of Medicine.

3 credits, one graduate-level course in Social Studies of Medicine.

PH.D. PROGRAMS

For information on the doctoral programs, please refer to the appropriate Department – Anthropology, History, or Sociology.

74.6 SSOM Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Courses with numbers ending D1 and D2 are taught in two consecutive terms (most commonly Fall and Winter). Students must register for both the D1 and D2 components. No credit will be given unless both components (D1 and D2) are successfully completed in consecutive terms.

The course credit weight is given in parentheses after the title.

HSSM 604 HISTORY OF MEDICINE. (3) Tutorial.

HSSM 605 MEDICAL ANTHROPOLOGY. (3)

HSSM 610 SOCIOLOGY OF MEDICINE. (3)

HSSM 611 SOCIOLOGY OF BIOMEDICAL KNOWLEDGE. (3)

75 Social Work

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75.1 Staff*Emeritus Professor*

David E. Woodsworth; B.A., Dipl.S.W.(Tor.), M.A.(Mich.), Ph.D.(Brandeis)

Professors

Linda Davies; B.S.W., M.S.W.(McG.), Ph.D.(N. Lond. Poly.)

Peter Leonard; B.Sc., M.Sc., Dipl. Mental Health(Lond.)

James Torczyner; B.H.L.(Yeshiva), M.S.W., D.S.W.(Calif.)

Nico Trocmé; B.A., M.S.W., Ph.D.(Tor.) (*The Philip Fisher Chair in Social Work*)

Wendy Thomson; B.S.W., M.S.W.(McG.), Ph.D.(Brist.)

Associate Professors

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Myriam Denov; B.A.(Tor.), B.S.W.(McG.), M.A.(Ott.), Ph.D.(Camb.)

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 Lucyna Lach; B.A., M.S.W., Ph.D.(Tor.)
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Coordinator of Field Education

Francine Granner; B.S.W., M.S.W.(McG.)

Associate Coordinator of Field Education

Karen Hetherington; B.A.(C'dia), M.A.(Montr.)

75.2 Programs Offered

Master of Social Work, a Joint program: Master of Social Work (MSW) with integrated Bachelor of Civil Law (BCL) / Bachelor of Laws (LLB), and a Ph.D. program offered jointly with Université de Montréal.

The McGill School of Social Work is a member of the International Association of Schools of Social Work, the Canadian Association of Schools of Social Work, and of the Rassemblement des Unités de Formation Universitaire en Travail Social du Québec.

The School of Social Work is a professional school whose primary objective is to prepare students for careers and for leadership in the fields of social work and social welfare.

M.S.W. Program

The overarching objective of the Master's program is the provision of advanced professional training by means of integrated learning experiences. Specifically, the educational goals are to:

1. Develop a deepened and advanced competence in practice and research;
2. Embrace a capacity for critical understanding of social theories, social problems and emergent issues;
3. Understand population groups in need, institutional structures, and policy initiatives and processes.

Ph.D. Program in Social Work

The School of Social Work offers a dynamic Ph.D. program in social work/social policy in order to promote the development of scholarship on social issues within Canada and Quebec. Courses are offered in English at McGill. A parallel stream is offered in French at Université de Montréal. Students have the option of taking courses at either university.

The program aims to:

1. Prepare graduates for careers in university teaching and research, policy development, implementation and evaluation, practice and program evaluation, leadership and management of human services;
2. Offer students the opportunity to acquire research methodology skills and to apply these to a range of areas relevant to social work;
3. Stimulate original research on important social problems and issues.

Of particular value and importance is the opportunity for students to be exposed throughout their program to the multicultural and multiracial character of Montreal.

75.3 Admission Requirements**M.S.W. Program**

Students who have successfully completed a B.S.W., with a minimum B average (GPA 3.0/4.0), and who have completed course work in statistics and in research methods at the undergraduate level are admissible to the Master of Social Work program. Normally, applicants will have professional experience in social service work, or related experience, subsequent to obtaining the B.S.W.

Students who have successfully completed all requirements in the first year of the 60 credit (two year) BSW program in the School of Social Work at McGill University are also eligible to

apply to the M.S.W. program. These students must have an overall B average (GPA 3.0/4.0), professional or related experience in social service work prior to entering the 2 year B.S.W. program and have completed course work in statistics and in research methods at the undergraduate level.

Joint program: Master of Social Work (MSW) with integrated Bachelor of Civil Law (BCL) / Bachelor of Laws (LLB)

Students must apply **separately** for admission to each Faculty. Students must meet or surpass the requirements for admission to both the M.S.W. program and to Law and must submit a brief statement explaining their interest in this joint program.

Ph.D. Program

Students apply directly to the School of Social Work. Applicants applying to the Ph.D. program must hold a Master's degree in social work or, exceptionally, a Bachelor's degree in social work with a Master's degree in a related subject from an accredited program. However, applicants who hold a master's degree in a related social science discipline with strong research interests in social work/social policy may also be considered.

Criteria considered in weighing applications include:

- Quality of the student's research project;
- Conviction/motivation demonstrated in the personal statement
- 'Fit' between the proposed research project and faculty research interest.

A professor has to agree to act as thesis supervisor before the student is formally admitted to the program.

75.4 Application Procedures

Applications are available online by mid-September from the School of Social Work Website. The deadlines to apply are January 15 for the Ph.D. Program and February 1st for the M.S.W. and Joint M.S.W./Law Program. Applications will only be considered upon receipt of all required documents.

Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English. Before acceptance, appropriate exam results must be submitted directly from the TOEFL (Test of English as a Foreign Language) or IELTS (International English Language Testing Systems) Office. An institutional version of the TOEFL is not acceptable. Applications will not be considered if a TOEFL or IELTS test result is not available.

- Test of English as a Foreign Language (TOEFL) International applicants must achieve a minimum score of 577 on the paper-based test, 233 on the computer-based test, or 90* on the internet based test
 * each individual components of reading, writing, listening, and speaking must have a minimum score of 21.
- the International English Language Testing System (IELTS) International applicants must achieve a minimum overall band score of 6.5.

All documents must be submitted to the School of Social Work, attention: Ms. Lillian Iannone, Student Affairs Coordinator.

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/online.

75.5 Program Requirements**MASTER OF SOCIAL WORK**

The School of Social Work at McGill University prepares graduates for careers and leadership in the fields of social work and social welfare. In the M.S.W. program, students develop an understanding of a broad range of theories which inform practice, policy and research. Envisioned as an opportunity to advance knowledge and skills, students are encouraged to immerse themselves in an area of scholarship and practice related to "Children

and Families", "Health and Social Care", and "Community and International Development". In addition, students investigate a subject matter of their choice in one of these broad areas of study through an Independent Study Project or a master's Thesis. Through the M.S.W. program, students develop critical and innovative approaches to practice competence and to policy analysis such that they may contribute to both established social services and to new and less developed areas of service provision.

The M.S.W. degree can be pursued via two options: thesis and non-thesis. Both options carry a weight of 45 credits, and, taken on a full-time basis, both options involve three terms of study. In both options, part-time study can be arranged (see section on **Duration and Time Limitations** below).

NOTE: While not a prerequisite for admission, possession of a working knowledge of the French language is important not only to candidates who intend to seek admission to the Quebec professional Ordre after graduation but also to those who wish to maximize their field placement opportunities during their program. In consultation with the Field Education Coordinator, students may have the option of completing their field requirements at an approved social service agency outside of Quebec.

M.S.W. (Thesis) (45 credits)

This option is designed for students who have strong research interests.

Required Courses (9 credits)

SWRK 612 (3) Knowledge, Values and Practice
SWRK 643 (3) Research Methods 2
SWRK 653 (3) Research Methods 1

Elective Courses (9 credits)

9 credits of SWRK 500 or 600 level courses; up to 6 credits in total may be taken outside of the department.

Thesis Component – Required (27 credits)

SWRK 698 (12) Thesis Research 1
SWRK 699 (15) Thesis Research 2

M.S.W. (Non-Thesis) (45 credits)

This option is designed for students who are interested in advancing practice skills in a specialized area.

Required Courses (21 credits)

SWRK 612 (3) Knowledge, Values and Practice
SWRK 643 (3) Research Methods 2
SWRK 650 (3) Field Work Practicum 1
SWRK 651 (3) Field Work Practicum 2
SWRK 653 (3) Research Methods 1
SWRK 660 (6) Field Work Practicum 3

Elective Courses (15 credits)

15 credits of SWRK 500 or 600 level courses; up to 6 credits in total may be taken outside of the department.

Project Component – Required (9 credits)

SWRK 690 (9) Independent Study Project

Courses Taken Outside of the Department

Students in both M.S.W. options are invited to take up to two courses in other departments of the University in areas of study not offered in the School of Social Work. Students also have the option of taking equivalent research methodology courses offered in other departments to fulfill the research requirement. All students must secure the approval of their advisor prior to registration for such courses.

Duration and Time Limitations

Taken on a full-time basis, both M.S.W. options involve three terms of study. The third term may optionally be taken in the Summer, in which case the entire program may be completed in one calendar year.

In both options, part-time study can be arranged. In the thesis option, a student may register for half-time studies, in which case the program may be completed in six terms. In the practice

(non-thesis) option, students may arrange to register course by course, so that greater flexibility is possible. Students in both options who have met their residency requirement of three full-time terms (all 45 credits of study should have been registered for), but still have some incomplete work, must register for additional sessions and pay fees accordingly until all their program requirements have been completed.

The Graduate and Postdoctoral Studies Office sets time limitations for students pursuing masters programs at McGill. Full-time students must complete the M.S.W. degree within three years of initial registration, and part-time/half-time students must complete the degree within five years of initial registration. Under certain exceptional conditions, an extension may be permitted. These conditions are described in the General Information section of the *Graduate and Postdoctoral Studies Calendar*.

Joint program: Master of Social Work (M.S.W.) with integrated Bachelor of Civil Law (B.C.L.) / Bachelor of Laws (LL.B.)

Students should note that course requirements for the joint M.S.W. and B.C.L./LL.B. programs are currently under review.

This degree may be completed in three calendar years, rather than the four calendar years it would take to attain both degrees separately, as some courses are jointly credited. Students must complete a total of 126 credits over the three-year period, as follows:

Practicum: (12 credits)

to be completed during the Summer of the first or second year.

Coursework: (102 credits)

Twenty-nine pure law courses (87 credits).

Five pure social work courses (15 credits),

including course SWRK 612 (required) and at least one of the research methods courses (SWRK 633, 643, or 653).

Research: (12 credits)

A major social work/law research paper, jointly credited in both degree programs. This is a key component of this joint degree.

Two social work courses are also jointly credited in the Law program, to make up the required 105 Law credits, and two Law courses are also jointly credited in the Social Work program, to make up the required 45 Social Work credits.

JOINT Ph.D. PROGRAM IN SOCIAL WORK

Ph.D. in Social Work

(offered jointly by McGill and Université de Montréal)

Required Courses (6 credits)

SWRK 720 (3) Thought and Theory Development in Social Work

SWRK 721 (3) Dissertation Seminar

Complementary Courses (9 credits)

3 credits, one of the following courses:

SWRK 722 (3) Advanced Seminar: Social Work Intervention
SWRK 723 (3) Advanced Seminar on Social Policy

3 credits, one of the following courses:

SWRK 724 (3) Advanced Research Methods and Analysis: Quantitative Data

SWRK 725 (3) Advanced Qualitative Research Methods and Data Analysis

3 credits, one 3-credit course in Social Work or a related discipline.

Comprehensive – Required

SWRK 701 (0) Comprehensive Examination

Thesis

Duration of Program

McGill Graduate and Postdoctoral Studies regulations prescribe a minimum of two years' "residence" - that is, registration on a full-time basis for two years, or paying the corresponding fees - after the master's degree for a doctoral degree. The deadline for submission of the dissertation is five years from the completion of residence requirements. Students entering McGill with a Masters'

degree, as will be the case with all students in this program, have the student status of Ph.D. 2 in their first year.

75.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

The course credit weight is given in parentheses after the title.

SWRK 531 SOCIAL PERSPECTIVES ON AGING 2. (3) (Summer) (Restriction: School of Social Work: Limited to U3 and M.S.W. students) Instructors and students from various disciplines will focus on certain aspects of aging related to issues of independence in later life. The provision of services and their impact on the recipients will be evaluated. Senior citizens will participate in the course as Senior Consultants.

SWRK 532 INTERNATIONAL SOCIAL WORK. (3) (Winter) (Restriction: Limited to B.S.W. U3, 2-year B.S.W. and M.S.W. students) Discussion based upon intensive study and reports on problems in selected countries. Emphasis on identifying major social problems, understanding the social forces bearing on those problems and considering appropriate professional approaches to aid in their solution.

SWRK 539 CHRONIC AND TERMINAL ILLNESS. (3) (Winter) (Restriction: Limited to B.S.W. U3, 2-year B.S.W. and M.S.W. students) A seminar to examine practice with persons living with chronic and terminal illnesses. Needs of families, caretakers, health care workers and the gay community are studied.

SWRK 600 PRACTICE WITH WOMEN AS MOTHERS. (3) This course will explore maternal subjectivity and its implications for clinical practice with mothers and families. We will examine how social work intervention has tended to reproduce traditional attitudes towards mothers and consider the development of alternative social relations in our practice with mothers.

SWRK 601 CONSTRUCTION OF SUBJECTIVITY. (3) This course will present a critical approach to understanding how personality is constructed within the major social relations of class, gender and race. Relevance to students' research and practice interests will be explored.

SWRK 602 CHILDREN AND YOUTH AT RISK. (3) (Note: Open to all graduate-level students (including students outside of Social Work).) The provision of care, protection and treatment of the most vulnerable children and youth in our society. Prevention and intervention efforts within community-based organizations, schools, and clinical settings for children, youth and families.

SWRK 604 CRITICAL ISSUES: SOCIAL POLICY. (3) With the erosion of the contemporary welfare state, analysts have argued that state responsibility for social and economic well-being has been shifted to the private sphere, notably families. This course explores how social policies and practices contribute to this shift, and how gender, class and inequalities are thereby reinforced.

SWRK 606 PRACTICE IN CHILD WELFARE. (3) Reflection on current practices in child welfare. An overview of contemporary theoretical frameworks and students' experiences in the field will form the basis of class discussion. Topics include: the construction of abuse and neglect; the risk ethos, families'/mothers' experiences of child welfare services; the reflective practitioner and resistance.

SWRK 609 UNDERSTANDING SOCIAL CARE. (3) Historical overview of social care to respond to contemporary issues in health and community services. Topics include: meaning of care; history of care in home and community; need, risk, dependence/independence; and organisation of care in Quebec and beyond.

SWRK 610 FAMILY TREATMENT. (3) (Prerequisite: SWRK 622) An advanced seminar on techniques and practice of current therapies.

SWRK 612 KNOWLEDGE, VALUES AND PRACTICE. (3) (Required course) Introduction of the current debate about the status of knowledge in the social sciences, especially issues of scientific objectivity, cultural differences and their implications for social work practice.

SWRK 622 FAMILY ASSESSMENT AND TREATMENT. (3) A seminar on current techniques of family diagnosis and therapy.

SWRK 623 COUPLE COUNSELLING. (3) Triadic perspective on couple counselling. Topics include: value issues; origins of intimate conflict; characteristics of troubled couples; presenting couple complaints; separation; treatment techniques: alliances, coalitions, hierarchies, third party positioning, neutrality, secrets, counsellor symmetry and power, resistance.

SWRK 624 COMMUNITY ORGANIZATION. (3) The aim of this course is to develop an understanding of the organizing process at the grass-roots level. Emphasis is placed upon community power and conflict, the development of organizing strategies and the application of such strategies in groups and movements dedicated to social change.

SWRK 625 PLANNING THEORY/SERVICE DELIVERY. (3) Planning theory and practice as they relate to community organizing and social service delivery. It focuses on 3 themes: 1) theories of planning and their applicability to social work practice, 2) the planning process (steps and process), 3) an examination of major planning issues in service delivery.

SWRK 627 SOCIAL WORK PRACTICE WITH GROUPS. (3) This seminar will explore topics related to social work practice with groups including concepts of race, culture, gender and sexual orientation; authority and empowerment, ethical issues in practice; work with hard to reach and involuntary populations; termination and evaluation. It will be concerned with both theoretical issues and intervention strategies.

SWRK 628 VIOLENCE AGAINST WOMEN. (3) Discussion of the psychological, social and political factors which create and maintain a society where male violence against the women they love occurs. A feminist theoretical perspective will be developed and analyzed. Treatment approaches will be considered focussing on interventive strategies to help both the battered and the batterers.

SWRK 631 SUPERVISION/MANAGEMENT. (3) Every human service organization is characterized by the need to manage people, information and resources. This course will provide an overview of the nature and function of these fundamental supervision and management processes.

SWRK 633 PROGRAM EVALUATION. (3) The theoretical and practical problems involved in evaluating the impact of social work services and social welfare programs. Topics include goal definition, comparison of experimental and non-experimental designs, data sources, qualitative and quantitative approaches, and outcome measures.

SWRK 635 ADVANCED CLINICAL PRACTICE. (3) Advanced clinical seminar to develop detailed, assessment theories, skills that apply to direct work - primarily with children and young adults. Critical examination of child meta-psychology, attachment and British object relations theories in light of research and current Canadian realities. Students expected to provide current practice examples for analysis and discussion.

SWRK 636 TUTORIAL IN SOCIAL WORK. (3) An individual or small group tutorial in which students will work independently in conjunction with the instructor. The student will undertake a major project related to the area of specialization.

SWRK 642 TUTORIAL SOCIAL WELFARE. (3) This tutorial permits students to pursue studies in special areas not covered in other courses offered, or to study in greater depth subjects covered in earlier work. Emphasis is on the content, operation and analysis of social welfare programs.

SWRK 643 QUANTITATIVE RESEARCH METHODS. (3) A comparative review of the research methods and data sources that are used in social work and social welfare, with consideration of the statistical methods and computer programs that are appropriate

for each. Topics will include experimental and nonexperimental designs, questionnaire construction, data analysis and reporting research.

SWRK 648 SPECIAL TOPICS IN SOCIAL WORK. (3) This course will be offered from time to time to deal with topics of current interest in social work, that are not covered in other courses. Specific content will differ from year to year.

SWRK 649 SPECIAL TOPICS IN SOCIAL WELFARE. (3) This course will be offered from time to time to deal with topics of current interest in social welfare, that are not covered in other courses. Specific content will differ from year to year.

SWRK 650 FIELD WORK PRACTICUM 1. (3) Supervised educational experience in social work practice integrating practice with theoretical knowledge characteristic of the specialized field. Individual and group instruction. Involves approximately 115 hours of work in a field setting.

SWRK 651 FIELD WORK PRACTICUM 2. (3) Supervised educational experience in social work practice integrating practice with theoretical knowledge characteristic of the specialized field. Individual and group instruction. Involves approximately 115 hours of work in a field setting.

SWRK 653 QUALITATIVE RESEARCH METHODS. (3) Qualitative methodologies concerned with description and interpretation of social phenomena, including participant observation, structured and unstructured interviewing. Student research projects will form the basis for class discussion.

SWRK 655 SEMINAR ON AGING.(3) Advanced graduate seminar which focuses on a critical examination of historical and contemporary theories and practice models in gerontological social work. Specific content will vary from year to year to allow for in-depth explorations of current topics in aging such as women, ethno-racial communities and health and disability. Particular emphasis will be placed on issues of caregiving in each of these larger topic areas.

SWRK 657 MENTAL HEALTH POLICY AND PRACTICE. (3) The definition and management of madness during the last 200 years or so of Western societies. Focuses upon relevant dimensions of intellectual and social history, particularly the histories of what we now think of as mental health professions. Particular attention is paid to the history of current controversies about involuntary commitment, chemotherapy, and so forth.

SWRK 660 FIELD WORK PRACTICUM 3. (6) (Involves approximately 220 hours of work in a field setting) Supervised educational experience in social work practice integrating practice with theoretical knowledge characteristic of the specialized field. Individual and group instruction. Involves approximately 115 hours of work in a field setting.

SWRK 663 SOCIAL WORK APPLIED TO ALCOHOLISM. (3) This course provides information needed for social work treatment of alcoholism. It concentrates on the following issues: 1) the development and definition of alcoholism; 2) theories of alcoholism; 3) assessment of the alcoholic; and 4) intervention.

SWRK 664 MULTICULTURAL CONTEXT PRACTICE. (3) This course will examine current theory in "multicultural" social work and explore alternative models of practice based on anti-racist/anti-oppression principles. Of special interest in this course are the issues of access and equity in human services. Students are encouraged to develop critical analyses and to develop projects based on practice issues.

SWRK 668 LIFE-THREATENING ILLNESS AND BEREAVEMENT. (3) This seminar addresses the psycho-social concerns of patients and family members living with life threatening illness. An interdisciplinary theoretical perspective is combined with clinical practice interventions. Topics discussed include phases of the illness (diagnosis, chronic, terminal), bereavement, suicide, euthanasia, AIDS and cultural factors related to illness. Special attention will be given to the role of the social worker.

SWRK 669 DISABILITY AND REHABILITATION. (3) This seminar focusses on social work practice with individuals who experience

various disabilities. It examines the societal reaction to disability and the history of these values and attitudes and provides an overview of historical and contemporary perspectives regarding intervention. As well, it critically reviews and analyzes recent legislation and advances in the integration of the disabled into the social contexts of the family, school, work force, community, and society at large.

SWRK 690 INDEPENDENT STUDY PROJECT. (9) An independent study project on a topic of interest in a comprehensive and creative fashion. The project is completed by the student following initial guidance from her/his advisor. It systematically examines a theoretical, substantive or empirical matter, using appropriate methodology.

SWRK 690D1 (4.5), SWRK 690D2 (4.5) INDEPENDENT STUDY PROJECT. (Students must register for both SWRK 690D1 and SWRK 690D2) (No credit will be given for this course unless both SWRK 690D1 and SWRK 690D2 are successfully completed in consecutive terms) (SWRK 690D1 and SWRK 690D2 together are equivalent to SWRK 690) An independent study project on a topic of interest in a comprehensive and creative fashion. The project is completed by the student following initial guidance from her/his advisor. It systematically examines a theoretical, substantive or empirical matter, using appropriate methodology.

SWRK 691 SOCIAL WORK / LAW INDEPENDENT STUDY PROJECT. (12) Students will produce an essay consisting of: 1) identifying a substantive area which integrates core legal and social work knowledge; 2) analyzing the legal and behavioural science information in each substantive area; 3) developing and applying relevant theoretical frameworks; 4) developing research questions to be examined by qualitative or quantitative methods; 5) integrating research findings.

SWRK 691D1 (6), SWRK 691D2 (6) SOCIAL WORK / LAW INDEPENDENT STUDY PROJECT. (Students must register for both SWRK 691D1 and SWRK 691D2) (No credit will be given for this course unless both SWRK 691D1 and SWRK 691D2 are successfully completed in consecutive terms) (SWRK 691D1 and SWRK 691D2 together are equivalent to SWRK 691) Students will produce an essay consisting of: 1) identifying a substantive area which integrates core legal and social work knowledge; 2) analyzing the legal and behavioural science information in each substantive area; 3) developing and applying relevant theoretical frameworks; 4) developing research questions to be examined by qualitative or quantitative methods; 5) integrating research findings.

SWRK 698 THESIS RESEARCH 1. (12) Independent research work under the direction of a supervisor.

SWRK 698D1 (6), SWRK 698D2 (6) THESIS RESEARCH 1. (Students must register for both SWRK 698D1 and SWRK 698D2) (No credit will be given for this course unless both SWRK 698D1 and SWRK 698D2 are successfully completed in consecutive terms) (SWRK 698D1 and SWRK 698D2 together are equivalent to SWRK 698) Independent research work under the direction of a supervisor.

SWRK 699 THESIS RESEARCH 2. (15) Independent research work under the direction of a supervisor.

SWRK 699D1 (7.5), SWRK 699D2 (7.5) THESIS RESEARCH 2. (Students must register for both SWRK 699D1 and SWRK 699D2) (No credit will be given for this course unless both SWRK 699D1 and SWRK 699D2 are successfully completed in consecutive terms) (SWRK 699D1 and SWRK 699D2 together are equivalent to SWRK 699) Independent research work under the direction of a supervisor.

SWRK 701 COMPREHENSIVE EXAMINATION. (0) (Restriction: Open only to students in the joint Social Work Ph.D. program)

SWRK 720 THOUGHT AND THEORY DEVELOPMENT IN SOCIAL WORK. (3) (Restriction: Open only to students in the joint Social Work Ph.D. program) The purpose of this seminar is to explore the origins and historical development of social work theory. Included in the analysis of this development will be the impact of material, cultural and ideological shifts within society in general and social

welfare in particular. Attention will also be given to the effect of changes within relevant social science disciplines on the process of social work theory development and its relation to intervention.

SWRK 721 DISSERTATION SEMINAR. (3) (Restriction: Open only to students in the joint Social Work Ph.D. program) The objective of this seminar is to provide an opportunity for doctoral students and faculty to explore a range of issues arising from students' research projects. Particular attention will be given to the relationship between research objectives and research methodology, and to situating the project in its historical context. The implications for intervention of students' research in terms of "Who benefits?" will also be an important focus of the seminar. It is to be given every other week throughout the two consecutive terms following completion of comprehensives.

SWRK 723 ADVANCED SEMINAR ON SOCIAL POLICY. (3) (Restriction: Open only to students in the joint Social Work Ph.D. program) Analysis of social policies and their impact on social work practice and on the clientele that they affect. Study of the interaction between social policies and styles of management of social work organizations responsible for their application.

SWRK 724 ADVANCED RESEARCH METHODS AND ANALYSIS: QUANTITATIVE DATA. (3) (Restriction: Open only to students in the joint Social Work Ph.D. program) Problems encountered in the use of quantitative methods in social work research. Types of quantitative research useful in social welfare policy analysis and discussion of yield from alternative analytic methods.

SWRK 725 ADVANCED QUALITATIVE RESEARCH METHODS AND DATA ANALYSIS. (3) (Restriction: Open only to students in the joint Social Work Ph.D. program) Review of the principal methods comprised under the area of qualitative research and problems related to the utilization of those methods. Particular attention to analysis arising from these methods.

SWRK 726 INDEPENDENT STUDY. (3) (Restriction: Open only to students in the joint Social Work Ph.D. program)

76 Sociology

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Chair — TBD

Graduate Program Director — TBD

Graduate Admissions Director — Axel van den Berg

76.1 Staff

Emeritus Professor

Maurice Pinard; B.A., LL.L., M.A.(Montr.), Ph.D.(Johns H.), F.R.S.C.

Professors

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John A. Hall; B.A.(Oxf.), M.A.(Penn. St.), Ph.D.(L.S.E.)

Céline Le Bourdais; B.Sc.(Montr.), B.Sc.(Laval), M.Sc.(Montr.), Ph.D.(Brown) (*Canada Research Chair in Social Statistics and Family Change*)

Anthony Masi; A.B.(Colgate), M.A., Ph.D.(Brown) (*Provost*)

Michael Smith; B.A.(Leic.), M.A., Ph.D.(Brown) (*James McGill Professor*)

Suzanne Staggenborg; B.A.(Miami), M.A.(Wash.), Ph.D. (N'western)

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Jason Carmichael; B.A.(Ariz. St.), M.A., Ph.D.(Ohio St.)

Kathleen Fallon; B.A.(Calif.), M.A., Ph.D.(Ind.)

Jennifer Fosket; B.A.(Hills College), Ph.D.(Calif.)

Matthew Lange; B.A.(Carleton College), M.A., Ph.D.(Brown)

Amélie Quesnel-Vallée; B.S., M.S.(Montr.), M.S., Ph.D.(Duke)

John (Jack) Sandberg; B.A.(Hunter), Ph.D.(Mich.)

Elaine Weiner; B.A.(Grinnell College); M.A.(Fla.); Ph.D.(Mich.)

Faculty Lecturer

Rodney Nelson; B.A.(Regina), M.A.(Wash.), Ph.D.(Tor.)

Adjunct Professors

Catherine Montgomery

Donald Hinrichs; B.A.(W. Md), M.A.(Md.), Ph.D.(Ohio St.)

Associate Member

Gregory Baum (*Religious Studies*)

76.2 Programs Offered

The Department offers training leading to the degrees of Master of Arts in Sociology (Thesis and Non-Thesis), Master of Arts in Sociology - Development Studies option (Thesis and Non-Thesis), Master of Arts in Sociology - Environment option (Thesis), Master of Arts in Sociology - Gender and Women's Studies option (Thesis and Non-Thesis) Master of Arts in Sociology - Medical Sociology option (Thesis and Non-Thesis options) with the Social Studies of Medicine Department, Master of Arts in Sociology - Neotropical Environment option (Thesis) not offered in 2008-2009, Master of Arts in Sociology - Social Statistics option (Non-Thesis); and the Doctor of Philosophy in Sociology.

Theses and dissertations are normally supervised in one of the following areas of Department research concentration: states and social movements; economy and society; social inequality (class, ethnicity and gender); deviance and social control and medical sociology.

Availability of Funding

Prospective students may apply for a variety of fellowships administered by the University, through research-granting agencies in Quebec, Canada, or in their home countries. Other sources of funding include private companies, agencies, foundations, other provincial and federal government agencies, as well as foreign governments and organizations. Detailed information on other funding sources is available on the McGill Website, www.mcgill.ca/gps/fellowships.

The Department offers a limited number of teaching assistantships of \$4,003.20 per term. Teaching assistantships require 12 hours of work per week in the Fall and Winter terms. Students who wish to be considered for such assistantships should inform the Graduate Admissions Director, Leacock 713, in writing and preference will be given to those dossiers completed by January 15th.

76.3 Admission Requirements

Applicants must have a Bachelor's degree with a standing equivalent to a Cumulative Grade Point Average (CGPA) of 3.3 or better out of a possible 4.0. The degree may be either in Sociology – in which case it should be equivalent to the Honours B.A. degree at

McGill – or it may be in another relevant social science. In the latter case, applicants may be required to take some additional Sociology courses to fill gaps in their background.

The strength of an applicant's academic record is of primary importance in consideration of an applicant's dossier. For a detailed description of courses open to graduates and undergraduates, and of preparation required of McGill University honours students, candidates should consult the *Undergraduate Programs Calendar* via the Web at www.mcgill.ca.

All applicants are asked to submit two letters of recommendation and two certified copies of their university-level grades along with an example of their written work. Applicants who have received a Master's degree at a university other than McGill should submit a copy of their thesis or evidence of equivalent research experience with their application for admission. The applicant's dossier must be completed by January 15th to be considered for the McGill Awards Competition and the internal Teaching Assistantship competition.

Applicants not registered at Canadian universities must submit with their applications the results of the Verbal and Quantitative aptitude tests of the Graduate Record Examination. Canadian students are also encouraged to submit the results of this test with their application. Arrangements to take the Graduate Record Examination should be made directly with the Educational Testing Service by visiting their Website at www.gre.org/ttindex.html.

Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone) must submit documented proof of competency in oral and written English. The minimum acceptable score for the TOEFL exam is 580 on the paper-based test and 237 on the computer-based test. International students can also contact International Student Services at 514-398-4349 for more information, or visit their Website, <https://home.mcgill.ca/internationalstudents>.

Candidates who lack sufficient preparation in the social sciences, but whose academic record justifies consideration for eventual admission to the Master's graduate program, must register for a qualifying year during which they are required to take courses to broaden their knowledge of sociology. Candidates must achieve a final mark of at least a B in these courses and an average in all courses of at least B+; in general, they must, in the opinion of the Department, have achieved sufficient preparation in the subject matter of sociology before they will be allowed to proceed with graduate work. All candidates are expected to have taken courses in statistics, research methods and sociological theory at the undergraduate level.

Any prospective students are encouraged to contact faculty members that they may wish to work with to ascertain that they will be available and not on leave during the time at which they wish to study. If need be, they may feel free to contact the Chair of the Graduate Admissions Committee to guide them.

The program of study is designed to give students an advanced understanding of a major field in sociology, of current methods of sociological research, and of some principal theoretic issues in the discipline. Three terms of residence study is the minimum requirement for a Master's degree.

M.A. in Medical Sociology

The program is open to students with a social sciences, health professions or health sciences background. It is interdisciplinary in nature and includes required courses offered by both participating departments as well as a research thesis based on original research. For additional information concerning this program, please consult the Social Studies of Medicine section or the Website, www.mcgill.ca/ssom.

76.4 Application Procedures

Please note that the dossier must be complete with ALL of the following information before the applicant will be considered for entrance to the graduate program:

1. Application form.
2. Statistics, Theory, Methods form.
3. Two certified copies of undergraduate and graduate level transcripts. Please provide an official translation if the original is not in English or French.
4. Two letters of reference on the departmental forms enclosed with the graduate application package.
5. Test results (Graduate Record Examination (GRE) / Test of English as a Foreign Language (TOEFL) (if applicable) minimum score: 580 on the paper-based test, 237 on the computer-based test.
6. Statement of Academic Background - a brief statement of the applicant's interests and the areas of sociology he/she wishes to study at McGill.
7. One or two samples of written work. This can be in the form of a graded paper or a chapter from a thesis and must be at least 15 typewritten pages in length translated into English or French.
8. M.A. Option Form (for M.A. applicants only).

Applicants must apply using on-line (Web) Application: (www.mcgill.ca/applying/graduate/procedures)

M.A. in Medical Sociology

Admission is granted by a joint admissions committee made up of representatives from Sociology and Social Studies of Medicine.

76.5 Program Requirements

M.A. PROGRAM OPTIONS

The M.A. degree has ten options:

- non-thesis option consisting of seven required courses plus a research paper;
- non-thesis option in Development Studies which requires seven courses plus a research paper;
- non-thesis option in Gender and Women's Studies plus a gender and/or women's studies based research paper;
- non-thesis option in Medical Sociology which requires seven courses plus a research paper;
- non-thesis option in Social Statistics which requires seven courses (supplemented by further statistical courses) plus a statistics-based research paper;
- thesis option with five required courses and a thesis;
- thesis option in Development Studies with five required courses and a thesis;
- thesis option in Environment;
- thesis option in Gender and Women's Studies plus a gender and/or women's studies based thesis
- thesis option in Medical Sociology, which requires six courses plus a thesis;
- thesis option in Neotropical Environment – not offered in 2008-09.

Although the non-thesis option requires more course work, students taking this option are likely to obtain the M.A. more rapidly than those in the thesis option because of the difficulty and length of time involved in completing an M.A. thesis. The expectation is that most students will choose the non-thesis Master's program so as to progress more quickly, especially those wishing to pursue a doctoral degree. The programs are described in more detail below.

M.A. in Sociology (Non-Thesis) (45 credits)

This program requires a research paper that will normally, but not necessarily, flow out of a paper written for one of the graduate seminars or an independent reading course. Comparable to an article in a professional journal, the paper ought to focus on a clearly defined research problem, demonstrating familiarity with the most important relevant scholarly work and the ability to carry out research and organize the results of the research. This paper is expected to be no more than 30 pages in length, exclusive of footnotes and bibliography.

Required Courses (36 credits)

SOCI 504	(3)	Quantitative Methods 1
SOCI 540	(3)	Qualitative Research Methods
SOCI 580	(3)	Social Research Design and Practice
SOCI 603	(3)	Bibliographic Methods 1
SOCI 604	(3)	Bibliographic Methods 2
SOCI 652	(3)	Current Sociological Theory
SOCI 696	(3)	Research Paper 1
SOCI 697	(3)	Research Paper 2
SOCI 699	(12)	Research Paper 4

Complementary Courses (9 credits)

9 credits of complementary courses at the 500 level or higher

M.A. in Sociology (Non-Thesis) – Development Studies Option/Concentration (45 credits)

The research essay must be on a topic relating to development studies, approved by the Development Studies Option (DSO) coordinating committee.

Required Courses (39 credits)

INTD 657	(3)	Development Studies Seminar
SOCI 504	(3)	Quantitative Methods 1
SOCI 540	(3)	Qualitative Research Methods
SOCI 580	(3)	Social Research Design and Practice
SOCI 603	(3)	Bibliographic Methods 1
SOCI 604	(3)	Bibliographic Methods 2
SOCI 652	(3)	Current Sociological Theory
SOCI 696	(3)	Research Paper 1
SOCI 697	(3)	Research Paper 2
SOCI 699	(12)	Research Paper 4

Complementary Courses (6 credits)

6 credits of complementary courses at the 500 level or higher related to international development studies from the list below:

SOCI 505	(3)	Quantitative Methods 2
SOCI 510	(3)	Seminar in Social Stratification
SOCI 511	(3)	Movements/Collective Action
SOCI 512	(3)	Ethnicity & Public Policy
SOCI 515	(3)	Medicine and Society
SOCI 520	(3)	Migration and Immigrant Groups
SOCI 530	(3)	Sex and Gender
SOCI 535	(3)	Sociology of the Family
SOCI 538	(3)	Selected Topics in Sociology of Biomedical Knowledge
SOCI 545	(3)	Sociology of Population
SOCI 550	(3)	Developing Societies
SOCI 565	(3)	Social Change in Panama
SOCI 571	(3)	Deviance and Social Control
SOCI 588	(3)	Sociology of Knowledge
SOCI 627	(3)	Political Sociology 1
SOCI 688	(3)	Social Statistics 1
SOCI 720	(3)	Reading in Social Theory
SOCI 730	(3)	Reading and Research

M.A. in Sociology (Non-Thesis) – Gender and Women's Studies Option/Concentration (45 credits)

The Graduate Option in Gender and Women's Studies is an interdisciplinary program for students who meet the degree requirements in Sociology who wish to earn 6 credits of approved coursework focusing on gender and women's studies, and issues in feminist research and methods. The student's research paper must be on a topic centrally relating to issues of gender and/or women's studies.

Required Courses (39 credits)

SOCI 504*	(3)	Quantitative Methods 1
SOCI 540*	(3)	Qualitative Research Methods
SOCI 580*	(3)	Social Research Design and Practice
SOCI 603	(3)	Bibliographic Methods 1
SOCI 604	(3)	Bibliographic Methods 2
SOCI 652*	(3)	Current Sociological Theory

WMST 601	(3)	Feminist Theories and Methods
SOCI 696	(3)	Research Paper 1
SOCI 697	(3)	Research Paper 2
SOCI 699	(12)	Research Paper 4

*All students must have taken these courses or take them during the first year of the program. Students granted an exemption from any one or more of these courses by the Graduate Studies Committee must substitute another substantive seminar in its place.

Complementary Courses (6 credits)

6 credits at the 500 level or higher including:

WMST 602	(3)	Feminist Research Symposium
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or one 3-credit course on gender/women's studies issues at the 500 level or higher (may be taken in the Department or outside)

Candidates for the M.A. degree follow an individual program approved by the Department.

M.A. in Sociology (Non-Thesis) – Medical Sociology (45 credits)

This program is given jointly by the Sociology Department and the Department of Social Studies in Medicine.

Required Courses (36 credits)

SOCI 504*	(3)	Quantitative Methods 1
SOCI 540*	(3)	Qualitative Research Methods
SOCI 580*	(3)	Social Research Design and Practice
SOCI 603	(3)	Bibliographic Methods 1
SOCI 604	(3)	Bibliographic Methods 2
SOCI 652*	(3)	Current Sociological Theory
SOCI 696	(3)	Research Paper 1
SOCI 697	(3)	Research Paper 2
SOCI 699	(12)	Research Paper 4

* All students must have taken these courses or take them during the first year of the program. Students granted an exemption from any one or more of these courses by the Graduate Studies Committee must substitute another substantive seminar in its place.

Complementary Courses (9 credits)

3 credits, one of the following courses:

SOCI 515	(3)	Medicine and Society
SOCI 538	(3)	Selected Topics in Sociology of Biomedical Knowledge

3 credits, one graduate-level course in History of Medicine.

3 credits, one graduate-level course in Social Studies of Medicine.

M.A. in Sociology (Non-Thesis)– Social Statistics Option/Concentration (45 credits)

The program complements disciplinary training with research experience applying statistical methods to Statistics Canada data (or equivalent). It requires a statistics-based research paper that will normally, but not necessarily, flow out of a paper written for one of the graduate seminars. Comparable to an article in a professional journal, the paper ought to focus on a clearly defined research problem, demonstrating familiarity with the most important relevant scholarly work and the ability to carry out research and organize the results of the research. This paper is expected to be no more than 30 pages in length, exclusive of footnotes and bibliography.

Acceptance into the program is by application to the Social Statistics Option Committee and is contingent on acceptance into the M.A. program in one of the participating departments (Economics, Geography, Political Science, Sociology).

Required Courses (39 credits)

SOCI 504*	(3)	Quantitative Methods 1
SOCI 540*	(3)	Qualitative Research Methods
SOCI 580*	(3)	Social Research Design and Practice
SOCI 603	(3)	Bibliographic Methods 1

SOCI 604	(3)	Bibliographic Methods 2
SOCI 652*	(3)	Current Sociological Theory
SOCI 688	(1.5)	Social Statistics 1
SOCI 689	(1.5)	Social Statistics 2
SOCI 696	(3)	Research Paper 1
SOCI 697	(3)	Research Paper 2
SOCI 699	(12)	Research Paper 4

* All students must have taken these courses or take them during the first year of the program. Students granted an exemption from any one or more of these courses by the Graduate Studies Committee must substitute another substantive seminar in its place

Complementary Courses (6 credits)

6 credits of complementary courses at the 500 level or higher

M.A. in Sociology (Thesis) (48 credits)

To provide students with some research experience, all candidates in this program must present a thesis based on their own research. While not necessarily requiring an exhaustive review of work in the particular field of study, or a great deal of original scholarship, the thesis must show familiarity with previous work in the field and must normally demonstrate the ability to carry out research and to organize results, all of which must be presented in good literary style. The thesis will consist of between 50-75 pages of text, exclusive of footnotes and bibliography, which must be completed no later than August 31st of the second year in the program.

Required Courses (12 credits)

SOCI 504	(3)	Quantitative Methods 1
SOCI 540	(3)	Qualitative Research Methods
SOCI 580	(3)	Social Research Design and Practice
SOCI 652	(3)	Current Sociological Theory

All students must have taken these courses or take them during the first year of the program. Students granted an exemption from any one or more of these courses by the Graduate Studies Committee must substitute another substantive seminar in its place.

Complementary Courses (3 credits)

One 3-credit graduate-level course, which may be in a cognate field, subject to the approval of the Graduate Committee.

Thesis Component - Required (33 credits)

SOCI 690	(3)	M.A. Thesis 1
SOCI 691	(6)	M.A. Thesis 2
SOCI 692	(3)	M.A. Thesis 3
SOCI 693	(3)	M.A. Thesis 4
SOCI 694	(18)	M.A. Thesis 5

M.A. in Sociology (Thesis) – Development Studies

Option/Concentration (48 credits)

The M.A. thesis must be on a topic relating to development studies, approved by the Development Studies Option (DSO) coordinating committee.

Required Courses (15 credits)

INTD 657	(3)	Development Studies Seminar
SOCI 504	(3)	Quantitative Methods 1
SOCI 540	(3)	Qualitative Research Methods
SOCI 580	(3)	Social Research Design and Practice
SOCI 652	(3)	Current Sociological Theory

All students must have taken these courses or take them during the first year of the program. Students granted an exemption from any one or more of these courses by the Graduate Studies Committee must substitute another substantive seminar in its place.

Thesis Component - Required (33 credits)

SOCI 690	(3)	M.A. Thesis 1
SOCI 691	(6)	M.A. Thesis 2
SOCI 692	(3)	M.A. Thesis 3

SOCI 693	(3)	M.A. Thesis 4
SOCI 694	(18)	M.A. Thesis 5

M.A. in Sociology (Thesis) Environment **Option/Concentration** (48 credits)

Required Courses (18 credits)

ENVR 610	(3)	Foundations of Environmental Policy
ENVR 650	(1)	Environmental Seminar 1
ENVR 651	(1)	Environmental Seminar 2
ENVR 652	(1)	Environmental Seminar 3
SOCI 504	(3)	Quantitative Methods 1
SOCI 540	(3)	Qualitative Research Methods
SOCI 580	(3)	Social Research Design and Practice
SOCI 652	(3)	Current Sociological Theory

Complementary Courses (3 credits)

3 credits from:

ENVR 519	(3)	Global Environmental Politics
ENVR 544	(3)	Environmental Measurement and Modelling
ENVR 580	(3)	Topics in Environment 3
ENVR 611	(3)	The Economy of Nature
ENVR 620	(3)	Environment and Health of Species
ENVR 622	(3)	Sustainable Landscapes
ENVR 630	(3)	Civilization and Environment 1
ENVR 680	(3)	Topics in Environment 4

or another course at the 500-level or higher recommended by the advisory committee and approved by the Environment Option Committee

Thesis Component - Required (27 credits)

An environmental component is required in the thesis.

SOCI 690	(3)	M.A. Thesis 1
SOCI 692	(3)	M.A. Thesis 3
SOCI 693	(3)	M.A. Thesis 4
SOCI 694	(18)	M.A. Thesis 5

M.A. in Sociology (Thesis) – Gender and Women's Studies **Option/Concentration** (48 credits)

The Graduate Option in Gender and Women's Studies is an interdisciplinary program for students who meet the degree requirements in Sociology who wish to earn 6 credits of approved coursework focusing on gender and women's studies, and issues in feminist research and methods. The student's M.A. thesis must be on a topic centrally relating to issues of gender and/or women's studies.

Required Courses (15 credits)

SOCI 504	(3)	Quantitative Methods 1
SOCI 540	(3)	Qualitative Research Methods
SOCI 580	(3)	Social Research Design and Practice
SOCI 652	(3)	Current Sociological Theory
WMST 601	(3)	Feminist Theories and Methods

All students must have taken these courses or take them during the first year of the program. Students granted an exemption from any one or more of these courses by the Graduate Studies Committee must substitute another substantive seminar in its place.

Complementary Course (3 credits)

3 credits at the 500 level or higher including:

WMST 602	(3)	Feminist Research Symposium
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or one 3-credit course on gender/women's studies issues at the 500-level or higher (may be taken in the Department or outside)

Candidates for the M.A. degree follow an individual program approved by the Department.

Thesis Component - Required (30 credits)

Preparation and completion of a thesis on a topic approved by the supervisor and by participating faculty members in the Gender and Women's Studies program.

SOCI 691	(6)	M.A. Thesis 2
SOCI 692	(3)	M.A. Thesis 3
SOCI 693	(3)	M.A. Thesis 4
SOCI 694	(18)	M.A. Thesis 5

M.A. in Sociology (Thesis) – Medical Sociology (48 credits)

This program is given jointly by the Sociology Department and the Department of Social Studies in Medicine.

Required Courses (12 credits)

SOCI 504*	(3)	Quantitative Methods 1
SOCI 540*	(3)	Qualitative Research Methods
SOCI 580*	(3)	Social Research Design and Practice
SOCI 652*	(3)	Current Sociological Theory

* All students must have taken these courses or take them during the first year of the program. Students granted an exemption from any one or more of these courses by the Graduate Studies Committee must substitute another substantive seminar in its place.

Complementary Courses (6 credits)

3 credits, one of the following courses:

SOCI 515	(3)	Medicine and Society
SOCI 538	(3)	Selected Topics in Sociology of Biomedical Knowledge

3 credits, one graduate-level course in History of Medicine.

Thesis Component - Required (30 credits)

SOCI 690	(3)	M.A. Thesis 1
SOCI 691	(6)	M.A. Thesis 2
SOCI 692	(3)	M.A. Thesis 3
SOCI 693	(3)	M.A. Thesis 4
SOCI 695	(15)	M.A. Thesis 6

M.A. in Sociology (Thesis)– Neotropical Environment Option/Concentration (48 credits)

Not offered in 2008-09.

McGill University and the Smithsonian Tropical Research Institute (STRI) have joined forces to offer graduate studies in neotropical environment. These are offered as options within existing programs in Biology, Bioresource Engineering, Geography, Political Science, Plant Science, Renewable Resources, and Sociology. Students must meet the Graduate and Postdoctoral Studies Office admission requirements, enter through one of the participating departments and meet the requirements of that unit. Advisors will be McGill professors and STRI scientists. The degree is granted by McGill University.

To provide students with some research experience, all candidates in this program must present a thesis based on their own research with the thesis fieldwork conducted in Latin America on a topic approved by the Neotropical Environment Option coordinating committee.

While not necessarily requiring an exhaustive review of work in the particular field of study, or a great deal of original scholarship, the thesis must show familiarity with previous work in the field and must normally demonstrate the ability to carry out research and to organize results, all of which must be presented in good literary style. The thesis will consist of between 50-75 pages of text, exclusive of footnotes and bibliography, which must be completed no later than August 31st of the second year in the program.

Required Courses (18 credits)

BIOL 640	(3)	Tropical Biology and Conservation
ENVR 610	(3)	Foundations of Environmental Policy
SOCI 504*	(3)	Quantitative Methods 1
SOCI 540*	(3)	Qualitative Research Methods
SOCI 580*	(3)	Social Research Design and Practice

SOCI 652* (3) Current Sociological Theory

* All students must have taken these courses or take them during the first year of the program. Students granted an exemption from any one or more of these courses by the Graduate Studies Committee must substitute another substantive seminar in its place.

Complementary Course (3 credits)

3 credits, one of the following courses:

AGRI 550	(3)	Sustained Tropical Agriculture
BIOL 553	(3)	Neotropical Environments
BIOL 641	(3)	Issues in Tropical Biology
ENVR 611	(3)	The Economy of Nature
ENVR 612	(3)	Tropical Environmental Issues
ENVR 680	(3)	Topics in Environment 4
POLI 644	(3)	Tropical Environmental Politics
SOCI 565	(3)	Social Change in Panama

Thesis Component - Required (27 credits)

SOCI 690	(3)	M.A. Thesis 1
SOCI 691	(6)	M.A. Thesis 2
SOCI 692	(3)	M.A. Thesis 3
SOCI 695	(15)	M.A. Thesis 5

Ph.D. in Sociology

A minimum of three years of study is required.

Required Courses (3 credits)

SOCI 505	(3)	Quantitative Methods 2
SOCI 703	(0)	Bibliographic Methods 3
SOCI 704	(0)	Bibliographic Methods 4

Complementary Courses (15 - 27 credits)

Complementary (15 credits)

Five substantive courses at the 500 level or higher offered by the Department subject to the approval of the Graduate Committee.

Students who have not taken the courses listed below must make up the deficiencies in addition to the regular coursework: (12 credits)

SOCI 504	(3)	Quantitative Methods 1
SOCI 540	(3)	Qualitative Research Methods
SOCI 580	(3)	Social Research Design and Practice
SOCI 652	(3)	Current Sociological Theory

If exemption is obtained for one or more seminars, another one must then be substituted in its place.

Comprehensives

SOCI 700*	(0)	Ph.D. Area Examination 1
SOCI 701*	(0)	Ph.D. Area Examination 2
SOCI 702	(0)	Ph.D. Proposal Approval

*Ph.D. Candidates must take examinations in two subfields of sociology. These fields will be chosen from the Department's areas of specialization.

Examinations must be completed and the student's candidacy for the degree established no later than the end of the third year of graduate study.

Language Requirement

Ph.D. Candidates must demonstrate ability to read French with high proficiency or to read another language relevant to their field of research. The language requirement should be met by the end of the third year and may be satisfied by taking an approved French language course at the English and French Language Centre at McGill, or by a written examination in the Department or by exemption.

Thesis

Ph.D. Candidates are required to submit a thesis on an approved topic. The topic must be approved by a dissertation proposal committee convened by the student's dissertation supervisor. The thesis should be completed within five years after the initial residency period of two years.

Further details on the requirements and regulations for the thesis and the fields in which the Department is prepared to direct research may be obtained from the Sociology Website at www.mcgill.ca/sociology and at www.mcgill.ca/gps.

Ph.D. in Sociology – Environment Option/Concentration**Required Courses** (9 credits)

ENVR 610	(3)	Foundations of Environmental Policy
ENVR 650	(1)	Environmental Seminar 1
ENVR 651	(1)	Environmental Seminar 2
ENVR 652	(1)	Environmental Seminar 3
SOCI 505	(3)	Quantitative Methods 2
SOCI 700*	(0)	Ph.D. Area Examination 1
SOCI 701*	(0)	Ph.D. Area Examination 2
SOCI 702	(0)	Ph.D. Proposal Approval

*Ph.D. Candidates must take examinations in two subfields of sociology. These fields will be chosen from the Department's areas of specialization.

Examinations must be completed and the student's candidacy for the degree established no later than the end of the third year of graduate study.

Complementary Courses (9 credits)

3 credits, one of the following courses:

ENVR 519	(3)	Global Environmental Politics
ENVR 544	(3)	Environmental Measurement and Modelling
ENVR 580	(3)	Topics in Environment 3
ENVR 611	(3)	The Economy of Nature
ENVR 620	(3)	Environment and Health of Species
ENVR 622	(3)	Sustainable Landscapes
ENVR 630	(3)	Civilization and Environment 1
ENVR 680	(3)	Topics in Environment 4

or other course at the 500-level or higher recommended by the advisory committee and approved by the Environment Option Committee

6 credits at the 500-level or higher chosen from among the elective courses listed in the Sociology Department course offerings.

Students who have not taken the following courses must make up the deficiencies in addition to the regular coursework.

SOCI 504	(3)	Quantitative Methods 1
SOCI 540	(3)	Qualitative Research Methods
SOCI 580	(3)	Social Research Design and Practice
SOCI 652	(3)	Current Sociological Theory

If exemption is obtained for one or more seminars, another one must then be substituted in its place.

Language Requirement

Ph.D. Candidates must demonstrate ability to read French with high proficiency or to read another language relevant to their field of research. The language requirement should be met by the end of the third year and may be satisfied by taking an approved French language course at the English and French Language Centre at McGill, or by a written examination in the Department or by exemption.

Thesis– Required

An environmental component is required in the thesis.

Ph.D. in Sociology – Gender and Women's Studies Option/Concentration

The Graduate Option in Gender and Women's Studies is an interdisciplinary program for students who meet the degree require-

ments in Sociology who wish to earn 9 credits of approved coursework focusing on gender and women's studies, and issues in feminist research and methods. The student's doctoral thesis must be on a topic centrally relating to issues of gender and/or women's studies.

Required Courses (9 credits)

SOCI 505	(3)	Quantitative Methods 2
SOCI 703	(0)	Bibliographic Methods 3
SOCI 704	(0)	Bibliographic Methods 4
WMST 601	(3)	Feminist Theories and Methods
WMST 602	(3)	Feminist Research Symposium

Complementary Courses (15 - 27 credits)

Complementary (15 credits)

15 credits of complementary courses at the 500-level or higher

Four of these five courses must be taken within the Department, one of the five must be on gender/women's issues.

Students who have not taken the courses listed below must make up the deficiencies in addition to the regular coursework:

(12 credits)

SOCI 504	(3)	Quantitative Methods 1
SOCI 540	(3)	Qualitative Research Methods
SOCI 580	(3)	Social Research Design and Practice
SOCI 652	(3)	Current Sociological Theory

If exemption is obtained for one or more seminars, another one must then be substituted in its place.

Comprehensives

SOCI 700*	(0)	Ph.D. Area Examination 1
SOCI 701*	(0)	Ph.D. Area Examination 2
SOCI 702	(0)	Ph.D. Proposal Approval (Proposal subject to department approval and to approval by participating faculty members in Gender and Women's Studies program)

*Ph.D. Candidates must take examinations in two subfields of sociology. These fields will be chosen from the Department's areas of specialization.

Examinations must be completed and the student's candidacy for the degree established no later than the end of the third year of graduate study.

Thesis

The doctoral thesis must be on a topic centrally relating to gender and/or women's studies and approved by the Department and participating faculty members in the Gender and Women's Studies program.

76.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Catalog and Schedule Menu/Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Note: All undergraduate courses administered by the Faculty of Arts (courses at the 100- to 500-level) have limited enrolment.

All 500-level Sociology courses listed in the Faculty of Arts Calendar are open to graduate students and can be taken for graduate credit.

The course credit weight is given in parentheses after the title.

SOCI 504 QUANTITATIVE METHODS 1. (3) (Prerequisites: SOCI 350 and SOCI 461 or equivalents) Analysis of quantitative information, especially in large, survey-type, data sets. Use of computer programs such as SPSS and SAS. Topics include: cross tabulations with an emphasis on multi-dimensional tables, multiple correlation and regression, and, the relationship between individual and aggregate level statistical analyses. Special reference to demographic techniques.

SOCI 505 QUANTITATIVE METHODS 2. (3) (Prerequisite: SOCI 504) Topics include: problems - and solutions - in regression analysis, models for categorical dependent variables, including logit, log-linear, and linear probability models, measurement models, structural equation models with latent variables (LISREL), and time series and panel analysis.

SOCI 506 QUANTITATIVE METHODS 3. (3) (Prerequisite: SOCI 504 or equivalent or permission of instructor.) Advanced statistical analyses focusing on advanced methods such as event history analysis and analysis of contingency tables.

SOCI 507 SOCIAL CHANGE. (3) (Restrictions: Not open to students who have taken SOCI 672. Undergraduates by permission of instructor only.) An examination of the major sociological theories of long term macro social change. Topics include why industrialization began in Europe instead of Asia, the divergence among societies in systems of class, gender, ethnic and racial inequality, and whether industrial society has entered a new post-industrial or post-modern phase.

SOCI 508 MEDICAL SOCIOLOGY AND SOCIAL PSYCHIATRY. (3) (Prerequisite: SOCI 309 or SOCI 310 or Permission of the Instructor.) (Note: Open to Social Studies of Medicine students.)

The social construction of mental illness and disease, the personal and professional definition and recognition of illness, the distribution and determinants of illness, disease, sickness in the population, and the politics of medical research.

SOCI 510 SEMINAR IN SOCIAL STRATIFICATION. (3) (Prerequisites: SOCI 333 and SOCI 350 or equivalents) Recent theoretical and empirical developments in social stratification and inequality. The study of social class, with attention to the anomalous findings on heterogeneity in labour markets and the labour process, status attainment processes, and the socio-political and industrial attitudes of the working class. Students will prepare quantitative analysis of Canadian survey material as well as critical qualitative reviews.

SOCI 511 MOVEMENTS/COLLECTIVE ACTION. (3) A critical examination of classical and more recent approaches to the study of social movements and collective action. Discussion of: the role of grievances and interests, incentives and beliefs, conditions of breakdown and solidarity, mobilization and social control, the dynamics of collective action.

SOCI 512 ETHNICITY & PUBLIC POLICY. (3) (Prerequisite: SOCI 230 or permission from the instructor.) (Restriction: Not open to students who have taken SOCI 629.) Major themes in the theoretical literature on ethnicity. Public policies with direct and indirect implications for inter-ethnic relations will be studied. Policies affecting areas such as language, education, immigration, employment and promotion, multiculturalism and welfare. Examples drawn from several multi-ethnic societies. Political, constitutional, and economic problems associated with these policy initiatives.

SOCI 513 SOCIAL ASPECTS HIV/AIDS IN AFRICA. (3) (Prerequisites: SOCI 225 or SOCI 309 or Permission of Instructor.) Examination of the social causes and consequences of HIV/AIDS in Africa. Gender inequality, sexual behaviors, marriage systems, migration, and poverty are shaping the pandemic as well as how the pandemic is altering social, demographic and economic conditions across Africa.

SOCI 514 CRIMINOLOGY. (3) (Prerequisite: Permission of Instructor.) (Note: Grad students and U3 students only.) A survey of the major schools of thought that have developed to explain criminal behavior from the emergence of modern criminology in the 18th and 19th centuries to current debates.

SOCI 515 MEDICINE AND SOCIETY. (3) (Prerequisite: Undergraduate students require permission of instructor) The sociology of health and illness. Reading in areas of interest, such as: the sociology of illness, health services occupations, organizational settings of health care, the politics of change in national health service systems, and contemporary ethical issues in medical care and research.

SOCI 516 SOCIOLOGICAL THEORY & RESEARCH. (3) (Prerequisites: SOCI 330 or Permission of Instructor.) (Note: Topics will vary

from year to year.) Selected topics of current faculty interest in sociological theory and research.

SOCI 519 GENDER AND GLOBALIZATION. (3) (Prerequisite: SOCI 270 or permission of instructor.) Focus on the diverse forces of globalization that impact the lives of men and women. Critical analysis of key theories and concepts implicated in the intersection of globalization processes with gender dynamisms.

SOCI 520 MIGRATION AND IMMIGRANT GROUPS. (3) (Prerequisite: 15 credits in the Social Sciences) Review of the major demographic, economic and sociological theories of internal and international migration. The main emphasis will be on empirical research on migration and immigrant groups.

SOCI 525 HEALTH CARE SYSTEMS IN COMPARATIVE PERSPECTIVE. (3) (Prerequisite: Permission of instructor.) (Restriction: Not open to students who are taking or have taken EPIB 525.) (Note: This course is cross-listed in Epidemiology, Biostatistics and Occupational Health and in Sociology.) Comparative perspective to illustrate processes involved in the development and evolution of health care systems around the world. Countries examined will represent different welfare state regimes, health care system typologies, levels of development and wealth.

SOCI 530 SEX AND GENDER. (3) (Restriction: Open to Honours Sociology students and to Sociology Majors with the permission of the instructor) This seminar critically reviews theoretical perspectives and research on sex and gender in various domains of social life. It gives special emphasis to work which considers the meaning of gender and how it differs across time and place.

SOCI 535 SOCIOLOGY OF THE FAMILY. (3) (Undergraduate students require permission of instructor) This seminar reviews literature on major research areas in family. The course examines families in the past, the study of family using a life course approach, and considers selective areas which may have had significant influences on contemporary family such as work and family, family violence, and cultural variation in families.

SOCI 538 SELECTED TOPICS IN SOCIOLOGY OF BIOMEDICAL KNOWLEDGE. (3) The seminar will examine recent work in the sociology of biomedical knowledge. It will focus on the technological shaping of biomedical knowledge, i.e. on the impact of new technologies and equipments on the development of biomedical knowledge.

SOCI 540 QUALITATIVE RESEARCH METHODS. (3) (Restrictions: open to Sociology Honours students, and Sociology Major Concentration students with the instructor's permission) Qualitative methodology, mainly participant observation, structured and unstructured interviewing. Students begin a research project using these techniques and submit field notes once a week.

SOCI 545 SOCIOLOGY OF POPULATION. (3) (Prerequisites: SOCI 234 or equivalent.) The classic literature of sociology of population. Drawing reciprocal linkages between social and population processes: Historical, family and labour force demography, demographic and fertility transitions, mortality, ethnic and race relations, gender, macro-structural interaction theory, and the relation of population and the environment.

SOCI 550 DEVELOPING SOCIETIES. (3) Comparison of alternative explanations of underdevelopment: the impact of social stratification, relations of domination and subordination between countries, state interference with the market. Alternative strategies of change: revolution, structural adjustment, community development and cooperatives. Students will write and present a research paper, and participate extensively in class discussion.

SOCI 555 COMPARATIVE HISTORICAL SOCIOLOGY. (3) (Restriction: Undergraduate students require permission of instructor) The analysis of patterns of state and nation-building in historical and comparative perspectives with particular attention being given to methodology.

SOCI 565 SOCIAL CHANGE IN PANAMA. (3) (Prerequisites: SOCI 210 and SOCI 350 or equivalents.) (Restriction: Students must register for a full term in the Panama Field Studies Semester.) (Note: Four field trips.) Analysis of social change in Panama, particularly during the 20th century: demography, social and

economic structures, rural and urban activities and landscapes, indigenous peoples, the effects of the Canal and the Free Trade Zone. Focus throughout on the interaction of human society and the environment.

SOCI 571 DEVIANCE AND SOCIAL CONTROL. (3) This seminar focuses on how social groups enforce rules (and maintain social order) through coercion and socialization. It reviews current research and critiques key theoretical approaches to social control. Included are discussions of regulating institutions such as prisons and mental asylums, and the roles of gossip, manners and etiquettes.

SOCI 580 SOCIAL RESEARCH DESIGN AND PRACTICE. (3) (Restriction: Open to U3 and graduate students) Asking researchable sociological questions and evaluation of different research designs used to answer such questions. Development of cogent research proposals, including data collection procedures. Principles, dynamics, strengths and practical limitations of research designs. Examples from recent publications.

SOCI 588 SOCIOLOGY OF KNOWLEDGE. (3) (Restriction: Not open to students who have taken SOCI 661.) A review of the current research in the sociology of knowledge. The focus will be on sociological studies of the formation, circulation and reception of scientific and artistic ideas, beliefs and practices, and the configuration and social organization of the collectives involved in these processes.

SOCI 603 BIBLIOGRAPHIC METHODS 1. (3) (Corequisite: SOCI 604.) (Restriction: Restricted to Sociology M.A. students.) Research-related skills for the production of a research bibliography under the supervision of a faculty member.

SOCI 604 BIBLIOGRAPHIC METHODS 2. (3) (Corequisite: SOCI 603.) (Restriction: Restricted to Sociology M.A. students.) Advanced research-related skills for the production of a research bibliography under the supervision of a faculty member.

SOCI 627 POLITICAL SOCIOLOGY 1. (3) Key theories and empirical areas of political sociology. Major works relevant to each theme will be read and analyzed. Topics include: political socialization, the social psychology of political behaviour, class and politics, political organizations, elite studies. A research paper in one of the areas covered will be required.

SOCI 652 CURRENT SOCIOLOGICAL THEORY. (3) (Prerequisite: SOCI 330) Examination of works in some major areas of Sociology with a focus on: antecedent thought and research in the area; the internal structure and consistency of these works; the validity of the major claims made; and the implications for future theoretical development and research.

SOCI 688 SOCIAL STATISTICS 1. (1.5) (Prerequisite: SOCI 504 or permission of Social Statistics Program advisor.) (Note: Students in the Social Statistics Option must take both SOCI 688 (Social Statistics 1) and SOCI 689 (Social Statistics 2).) (Restriction: Not open to students who have taken SOCI 688 prior to Winter 2007.) Social statistics seminar.

SOCI 689 SOCIAL STATISTICS 2. (1.5) (Prerequisite: SOCI 688 or permission of Social Statistics Program advisor.) (Note: Students in the Social Statistics Option must take both SOCI 688 (Social Statistics 1) and SOCI 689 (Social Statistics 2).) (Restriction: Not open to students who have taken SOCI 688 prior to Winter 2007.) Social statistics seminar.

SOCI 690 M.A. THESIS 1. (3) (Restriction: Open only to graduate students registered in the M.A. thesis program of the Sociology Department.) Exploratory thesis research for the selection of a thesis topic.

SOCI 691 M.A. THESIS 2. (6) (Restriction: Open only to graduate students registered in the M.A. thesis program of the Sociology Department.) Preparation, submission and approval of the thesis proposal by the student to his/her committee.

SOCI 696 RESEARCH PAPER 1. (3) (Restriction: Open only to graduate students registered in the M.A. thesis program of the Sociology Department.) Exploratory research for the selection of a research topic.

SOCI 697 RESEARCH PAPER 2. (3) Preparation, submission and approval of the proposal by the student to his/her supervisor.

SOCI 699 RESEARCH PAPER 4. (12) Completion, submission and approval of the research paper by the committee.

SOCI 700 PH.D. AREA EXAMINATION 1. (0) (Restriction: Only open to Ph.D. students in the Sociology Department) The examination assesses the student's breadth of knowledge in one substantive area. This is the first of two required comprehensive examinations for the Ph.D. Program.

SOCI 701 PH.D. AREA EXAMINATION 2. (0) (Restriction: Only open to Ph.D. students in the Sociology Department) The examination assesses the student's breadth of knowledge in one substantive area. This is the second of two required comprehensive examinations for the Ph.D. Program.

SOCI 702 PH.D. PROPOSAL APPROVAL. (0) (Restriction: Only open to Ph.D. students in the Sociology Department) Presentation and acceptance of the Ph.D. Proposal Defense by the student to the Department Proposal Committee.

SOCI 703 BIBLIOGRAPHIC METHODS 3. (0) (Restriction: Restricted to Sociology Ph.D. students.) Further development of research-related skills and the production of a research bibliography under the supervision of a faculty member.

SOCI 704 BIBLIOGRAPHIC METHODS 4. (0) (Restriction: Restricted to Sociology Ph.D. students.) Further development of research-related skills and the production of a research bibliography under the supervision of a faculty member.

SOCI 720 READING IN SOCIAL THEORY. (3)

SOCI 730 READING AND RESEARCH. (3)

77 Surgical Research

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Website: www.surgery-research.mcgill.ca

Director — L. Rosenberg

Associate Director — A. Philip

Administrative & Student Affairs Coordinator — I. Sidorenko

77.1 Staff

Professors

J.D. Bobyn; B.Sc., M.Sc.(McG.), Ph.D.(Tor.)
P. Brodt; B.Sc.(Bar-Ilan), M.Sc.(Ott.), Ph.D.(McG.)
R.C.-J. Chiu; M.B.(Taiwan), Ph.D.(McG.)
N.V. Christou; B.Sc., M.Sc., Ph.D., M.D., C.M.(McG.)
M.M. Elhilali; M.B., B.Ch., D.S., DU, M.Ch.(Cairo), Ph.D.(McG.)
G.M. Fried; B.Sc., M.D., C.M.(McG.)
C. Gagnon; B.Sc., M.Sc., Ph.D.(Montr.)
F. Glorieux; M.D.(Louvain), M.Sc.(Montr.), Ph.D.(McG.)
P.H. Gordon; M.D.(Sask.)
J.M. Laberge; M.D.(Laval)
D.S. Mulder; M.D.(Sask.), M.Sc.(McG.)
L. Rosenberg; M.Sc., M.D., Ph.D.(McG.)
P.J. Roughley; B.Sc., Ph.D.(Nott.)
R. St.Arnaud; Ph.D.(Laval)
M. Tanzer; M.D., C.M.(McG.), F.R.C.S.(C)
C.I. Tchervenkov; B.Sc., M.D., C.M.(McG.), F.R.C.S.(C)
H.B. Williams; B.A.(Acad.), M.D., C.M.(McG.)

Associate Professors

J. Antoniou; M.D., C.M., Ph.D.(McG.), F.R.C.S.(C)

J. Barkun; M.D., M.Sc.(McG.)
 O. Blaschuk; B.Sc.(Winn.), M.Sc.(Man.), Ph.D.(Tor.)
 S. Chevalier; B.Sc., M.Sc., Ph.D.(Montr.)
 L. Feldman; M.D., C.M., M.Sc.(McG.)
 D. Fleiszer; B.Sc., M.D., C.M.(McG.)
 R.C. Hamdy; M.Sc, M.D.(Egypt), F.R.C.S.(C)
 E. Harvey; B.Sc.(Ont.) M.D., C.M., M.Sc.(McG.)
 K.J. Lachapelle; M.Sc., M.D., C.M.(McG.)
 L. Lessard; B.Sc., M.D.(Laval), F.R.C.S.(C)
 S. Meterissian; M.D., C.M., M.Sc.(McG.)
 P. Metrakos; B.Sc., M.D.(McG.), F.R.C.S.(C)
 J.S. Mort; B.Sc.(McG.), Ph.D.(McM.)
 A. Philip; M.Sc., Ph.D.(McG.)
 J. Sampalis; M.Sc., Ph.D.(McG.)
 D. Shum-Tim; M.Sc., M.D., C.M.(McG.)
 T. Steffen; M.D.(Switz.), Ph.D.(McG.)
 T. Taketo-Hosotani; B.Sc., M.Sc., Ph.D.(Kyoto)
 M. Tanzer; M.D., C.M.(McG.), F.R.C.S.(C)
 J.I. Tchernenkov; M.D., C.M.(McG.), F.R.C.S.(C)
 D. Zukor; B.Sc., M.D., C.M.(McG.)

Assistant Professors

M. Basik; M.D., C.M. (McG.)
 J. Chen; B.Sc.(China), Ph.D.(Guelph)
 E. Chevet; M.Sc., Ph.D.(Paris)
 M. Chevrete; B.Sc., M.Sc., Ph.D.(Laval)
 J. Faria; M.D., C.M., M.Sc.(McG.), F.R.C.S.(C)
 L. Feldman; M.D., C.M., M.Sc.(McG.)
 L. Ferri; M.D., M.Sc. (McG.)
 J. Lapointe; M.D., Ph.D.(Laval)
 E. Lee; B.A.(Boston), M.Sc., Ph.D.(McG.)
 S. Paraskevas; M.D., Ph.D.(McG.)
 M. Petropavlovskaja; M.Sc., Ph.D.(Moscow)
 P. Puligandla; M.D., M.Sc.(W. Ont.), F.R.C.S.(C)
 A.D. Recklies; B.Sc.(McG.), Ph.D.(McM.)
 K. Shaw; M.D., C.M., M.Sc.(McG.)

77.2 Programs Offered

The Department of Surgery offers graduate programs leading to M.Sc. and Ph.D. degrees, and a Graduate Diploma in Surgical Health Care Research.

The main research interests in the Department include projects in islet cell differentiation and islet transplantation, tissue engineering of cardiac muscle, immunopathogenesis of liver xenograft rejection; the biology of tissue repair and fibrosis; cartilage regeneration, osteoinduction and biomechanics; sepsis and multi-organ failure; biology of cancer; sexual dysfunction and prostate cancer; and surgical health outcomes.

A list of research directors and a description of their research topics, as well as application forms may be obtained from our Website.

77.3 Admission Requirements

Graduate Diploma in Surgical Health Care Research

The program is open to all graduate students in the Division of Surgical Research, but is specifically designed for surgical residents who have allotted time during their residency training. To be accepted into the Graduate Diploma Program students must be accepted into the Division of Surgical Research; fulfill the minimum requirements for admission to the Graduate and Postdoctoral Studies Office; identify an acceptable and feasible research project; and identify an accredited faculty member willing to support the research and supervise the student. **The program is under the direction of Professor John Sampalis.**

M.Sc. Program

Usually a B.Sc., M.D. or D.V.M. degree, with a minimum CGPA of 3.2/4.0. Applications will be accepted from candidates sponsored by a research supervisor willing to provide laboratory space and direction for their research work.

Ph.D. Program

Admission is usually from the M.Sc. program either upon completion of the M.Sc. degree, or by transfer from the first year of M.Sc. to the second year of Ph.D. studies. Request for such transfer is to be made in writing by the thesis supervisor during the candidate's first year of M.Sc. studies, not later than March 30th for students enrolled in September, or October 15 for those registered in January. The student must then apply for admission to the Ph.D. program in order to effect the transfer. **Transfer is granted on the basis of an examination administered by the student's Research Supervisory Committee.** Exceptional students with a minimum 3.5/4.0 CGPA may apply directly to the Ph.D. program. Students must apply for admission to transfer to the Ph.D. by the deadline.

Students with an M.Sc. degree from other departments or from other recognized universities whose M.Sc. topic is closely related to the subject of their Ph.D. research may be admitted directly into the Ph.D. program, at the level of Ph.D.2, at the discretion of the Department. Exceptional students with a Master's degree unrelated to their proposed research may be admitted to Ph.D.1.

77.4 Application Procedures

Applicants must submit a completed application form including a brief curriculum vitae, a short description of the proposed thesis research (prepared by the student and/or the prospective research director), \$80 (payable by credit card, certified cheque or money order to McGill University), as well as two copies of all academic transcripts and two letters of recommendation mailed directly to the Department. A letter of intent and a memorandum of agreement are also required from the prospective supervisor. TOEFL scores must be submitted when applicable.

Deadline for receipt of complete applications:

Canadian applicants: June 1 for September (Fall term)
 September 1 for January (Winter term)
 International applicants: February 1 for September (Fall term)
 August 1 for January (Winter term)

McGill's on-line application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

77.5 Program Requirements

Graduate Diploma in Surgical Health Care Research (30 credits)

This program is designed to be completed within one year.

Required Courses (9 credits)

EXSU 601 (6) Knowledge Management
 EXSU 606 (3) Statistics for Surgical Research

Complementary Courses (12 credits)

at least 3 credits from the following courses:

EPIB 631* (2) Pharmacoepidemiology 2
 EPIB 633* (2) Pharmacoepidemiology 1
 EPIB 656 (3) Health Care Technology Assessment
 EPIB 679 (3) Special Topics 10
 EXMD 631 (3) Topics in Economic Evaluation

* Must be taken in tandem for a total of four credits.

at least 9 credits from the following courses:

EPIB 606 (3) Introduction to Epidemiology
 EPIB 607 (3) Inferential Statistics
 EPIB 610 (2) Occurrence of Health Events in Population
 EPIB 631* (2) Pharmacoepidemiology 2
 EPIB 633* (2) Pharmacoepidemiology 1
 EPIB 643 (1) Substantive Epidemiology 3
 EPIB 655 (3) Epidemiology in Public Health
 EPIB 668 (2) Special Topics 1
 EXMD 631 (3) Topics in Economic Evaluation
 POTH 630 (3) Measurement: Rehabilitation 2

* Must be taken in tandem for a total of four credits.

Project - Required (9 credits)
EXSU 637 (9) Research Project

M.Sc. in Experimental Surgery (48 credits)

Students must complete the program during three terms; an additional term is assigned for the preparation of the thesis.

Depending on their individual background, students may be asked by their Research Supervisory Committee to take additional courses.

Required Courses (12 credits)
EXSU 601 (6) Knowledge Management
EXSU 606 (3) Statistics for Surgical Research
EXSU 605 (3) Biomedical Research Innovation

Complementary Course (3 credits)
3 credits, one graduate-level course in the student's specialty, selected in consultation with the Research Supervisory Committee.

Thesis Component - Required (33 credits)

EXSU 690 (4) M.Sc. Research 1
EXSU 691 (4) M.Sc. Research 2
EXSU 692 (4) M.Sc. Research 3
EXSU 693 (21) M.Sc. Thesis

Ph.D. in Experimental Surgery

The minimum residence time in the program is three calendar years. In addition to those listed below, students are encouraged to select additional courses from allied disciplines relevant to their research topic.

Depending on their individual background, students may be asked by their Research Supervisory Committee to take additional courses.

Required Courses (12 credits)
EXSU 601 (6) Knowledge Management
EXSU 606 (3) Statistics for Surgical Research
EXSU 605 (3) Biomedical Research Innovation

Complementary Course (3 credits)
3 credits, one graduate-level course in the student's specialty, selected in consultation with the Research Supervisory Committee.

Comprehensive – Required
EXSU 700 (0) Comprehensive Examination

All Ph.D. students (admitted directly into the Ph.D. program, or those allowed to transfer from M.Sc.1 to Ph.D. 2 without writing an M.Sc. thesis) must take the Comprehensive Examination.

The examination is to take place after 12 months of residence in the Ph.D. program, and will be administered by an expanded Research Supervisory Committee under its Chair.

The examination will have two components: an oral presentation of the candidate's research project, as well as preparation of a report in writing on an assigned research publication, and its oral presentation. The candidate must receive a pass mark in both components to continue in the Ph.D. program.

77.6 Courses

Students preparing to register should consult the Web at www.mcgill.ca/minerva (click Class Schedule) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

Courses with numbers ending D1 and D2 are taught in two consecutive terms (most commonly Fall and Winter). Students must register for both the D1 and D2 components. No credit will be given unless both components (D1 and D2) are successfully completed in consecutive terms.

The course credit weight is given in parentheses after the title.

EXSU 601 KNOWLEDGE MANAGEMENT. (6) (1 1/2 hours/week) (Compulsory for students in the Department of Surgery and available to others by permission of the coordinators) Critical elements required for the preparation of abstracts and full-length manuscripts, and the creation and delivery of digital slide presentations.

EXSU 601D1 (3), EXSU 601D2 (3) KNOWLEDGE MANAGEMENT. (Students must register for both EXSU 601D1 and EXSU 601D2) (No credit will be given for this course unless both EXSU 601D1 and EXSU 601D2 are successfully completed in consecutive terms) (EXSU 601D1 and EXSU 601D2 together are equivalent to EXSU 601) Critical elements required for the preparation of abstracts and full-length manuscripts, and the creation and delivery of digital slide presentations.

EXSU 601N1 KNOWLEDGE MANAGEMENT. (3) (Students must also register for EXSU 601N2) (No credit will be given for this course unless both EXSU 601N1 and EXSU 601N2 are successfully completed in a twelve month period) (EXSU 601N1 and EXSU 601N2 together are equivalent to EXSU 601) Critical elements required for the preparation of abstracts and full-length manuscripts, and the creation and delivery of digital slide presentations.

EXSU 601N2 KNOWLEDGE MANAGEMENT. (3) (Prerequisite: EXSU 601N1) (No credit will be given for this course unless both EXSU 601N1 and EXSU 601N2 are successfully completed in a twelve month period) (EXSU 601N1 and EXSU 601N2 together are equivalent to EXSU 601) See EXSU 601N1 for course description.

EXSU 605 BIOMEDICAL RESEARCH INNOVATION. (3) (2 hours/week) (Compulsory for students in the Department of Surgery and available to others by permission of the coordinators) Introduction to the novel and/or emerging technologies in the field of biomedical research.

EXSU 606 STATISTICS FOR SURGICAL RESEARCH. (3) (2 hours/week) (Compulsory for students in the Department of Surgery and available to others by permission of the coordinators)

EXSU 637 RESEARCH PROJECT. (9)

EXSU 637D1 (4.5), EXSU 637D2 (4.5) RESEARCH PROJECT. (Students must register for both EXSU 637D1 and EXSU 637D2) (No credit will be given for this course unless both EXSU 637D1 and EXSU 637D2 are successfully completed in consecutive terms)

EXSU 684 SIGNAL TRANSDUCTION. (3) (2 hours/week) (Restriction: Open to graduate students with prerequisites and U3 undergraduates with special permission)

EXSU 690 M.Sc. RESEARCH 1. (4)

EXSU 690D1 (2), EXSU 690D2 (2) M.Sc. RESEARCH 1. (Students must register for both EXSU 690D1 and EXSU 690D2) (No credit will be given for this course unless both EXSU 690D1 and EXSU 690D2 are successfully completed in consecutive terms) (EXSU 690D1 and EXSU 690D2 together are equivalent to EXSU 690)

EXSU 690N1 M.Sc. RESEARCH 1. (2) (Students must also register for EXSU 690N2) (No credit will be given for this course unless both EXSU 690N1 and EXSU 690N2 are successfully completed in a twelve month period) (EXSU 690N1 and EXSU 690N2 together are equivalent to EXSU 690)

EXSU 690N2 M.Sc. RESEARCH 1. (2) (Prerequisite: EXSU 690N1) (No credit will be given for this course unless both EXSU 690N1 and EXSU 690N2 are successfully completed in a twelve month period) (EXSU 690N1 and EXSU 690N2 together are equivalent to EXSU 690) See EXSU 690N1 for course description.

EXSU 691 M.Sc. RESEARCH 2. (4)

EXSU 691D1 (2), EXSU 691D2 (2) M.Sc. RESEARCH 2. (Students must register for both EXSU 691D1 and EXSU 691D2) (No credit will be given for this course unless both EXSU 691D1 and EXSU 691D2 are successfully completed in consecutive terms) (EXSU 691D1 and EXSU 691D2 together are equivalent to EXSU 691)

EXSU 691N1 M.Sc. RESEARCH 2. (2) (Students must also register for EXSU 691N2) (No credit will be given for this course unless both EXSU 691N1 and EXSU 691N2 are successfully completed

in a twelve month period) (EXSU 691N1 and EXSU 691N2 together are equivalent to EXSU 691)

EXSU 691N2 M.Sc. RESEARCH 2. (2) (Prerequisite: EXSU 691N1) (No credit will be given for this course unless both EXSU 691N1 and EXSU 691N2 are successfully completed in a twelve month period) (EXSU 691N1 and EXSU 691N2 together are equivalent to EXSU 691) See EXSU 691N1 for course description.

EXSU 692 M.Sc. RESEARCH 3. (4)

EXSU 692D1 (2), EXSU 692D2 (2) M.Sc. RESEARCH 3. (Students must register for both EXSU 692D1 and EXSU 692D2) (No credit will be given for this course unless both EXSU 692D1 and EXSU 692D2 are successfully completed in consecutive terms) (EXSU 692D1 and EXSU 692D2 together are equivalent to EXSU 692)

EXSU 692N1 M.Sc. RESEARCH 3. (2) (Students must also register for EXSU 692N2) (No credit will be given for this course unless both EXSU 692N1 and EXSU 692N2 are successfully completed in a twelve month period) (EXSU 692N1 and EXSU 692N2 together are equivalent to EXSU 692)

EXSU 692N2 M.Sc. RESEARCH 3. (2) (Prerequisite: EXSU 692N1) (No credit will be given for this course unless both EXSU 692N1 and EXSU 692N2 are successfully completed in a twelve month period) (EXSU 692N1 and EXSU 692N2 together are equivalent to EXSU 692) See EXSU 692N1 for course description.

EXSU 693 M.Sc. THESIS. (21)

EXSU 693D1 (10.5), EXSU 693D2 (10.5) M.Sc. THESIS. (Students must register for both EXSU 693D1 and EXSU 693D2) (No credit will be given for this course unless both EXSU 693D1 and EXSU 693D2 are successfully completed in consecutive terms) (EXSU 693D1 and EXSU 693D2 together are equivalent to EXSU 693)

EXSU 693N1 M.Sc. THESIS. (10.5) (Students must also register for EXSU 693N2) (No credit will be given for this course unless both EXSU 693N1 and EXSU 693N2 are successfully completed in a twelve month period) (EXSU 693N1 and EXSU 693N2 together are equivalent to EXSU 693)

EXSU 693N2 M.Sc. THESIS. (10.5) (Prerequisite: EXSU 693N1) (No credit will be given for this course unless both EXSU 693N1 and EXSU 693N2 are successfully completed in a twelve month period) (EXSU 693N1 and EXSU 693N2 together are equivalent to EXSU 693) See EXSU 693N1 for course description.

EXSU 700 COMPREHENSIVE EXAMINATION. (0)

EXSU 700D1 (0), EXSU 700D2 (0) COMPREHENSIVE EXAMINATION. (Students must register for both EXSU 700D1 and EXSU 700D2) (No credit will be given for this course unless both EXSU 700D1 and EXSU 700D2 are successfully completed in consecutive terms) (EXSU 700D1 and EXSU 700D2 together are equivalent to EXSU 700)

78 Urban Planning

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78.1 Staff

Emerita Professor

Jeanne M. Wolfe; B.Sc.(Lond.), M.Sc.(W. Ont.), M.A.(McG.)

Professor

Jane Matthews-Glenn; B.A., LL.B.(Qu.), D. en droit (Stras.)

Associate Professors

Madhav G. Badami; B.Tech., M.S.(I.I.T., Madras) M.E.Des.(Calg.), Ph.D.(Br. Col.) (*joint appt. with McGill School of Environment*)
David F. Brown; B.A.(Bishop's), M.U.P.(McG.), Ph.D.(Sheff.)
Raphaël Fischler; B.Eng.(Eindhoven), M.Sc., M.C.P.(MIT), Ph.D.(Calif.)

Assistant Professors

Lisa Bornstein; B.Sc.(Calif., Berk.), M.R.P.(C'nell), Ph.D.(Calif., Berk.)
Ahmed Elgeneidy; B.S., M.S.(Alexandria), Ph.D.(Port St.)
Nik Luka; B.A.A.(Ryerson), M.Arch.(Laval), Ph.D.(Tor.) (*joint appt. with School of Architecture*)

Adjunct Professors

David Farley, Mario Polèse, Ray Tomalty

Instructor

Danielle Labbe; B.Arch. M.Sc.(Laval)

Guest Lecturers

Cameron Charlebois, Luc Danielse, Marc Denhez, Miguel Escobar, Andrew Hoffmann, Paul Le Cavalier, Damaris Rose, Larry Sherman, Alain Trudeau, Martin Wexler

78.2 Programs Offered

The objective of the School is to produce qualified professional urban planners for the public and the private sectors. Training is provided at the post-graduate level; the degree offered is the Master of Urban Planning (M.U.P.). There is one formal specialization available: the M.U.P. with Urban Design option. This is a joint program with the School of Architecture involving shared studio and seminar courses. All M.U.P. students may also opt to spend a semester in Barbados as part of the Barbados Field Study Semester.

Upon completion of the two-year program of studies, graduates are expected to have acquired basic planning skills, a broad understanding of urban issues, and specialized knowledge in a field of their own choice.

The program of study offered by the School is fully recognized by the Ordre des Urbanistes du Québec (O.U.Q.) and the Canadian Institute of Planners (C.I.P.). Graduates can become full members of the O.U.Q. and other provincial planning associations by meeting their respective internship and examination requirements; this, in turn, will make them eligible for membership in the C.I.P., and for admission to the American Institute of Certified Planners (A.I.C.P.) and other such organizations.

Modern urban planning developed into a profession in the early decades of the twentieth century, largely as a response to the appalling sanitary, social and economic conditions of rapidly developing industrial cities. Initially, the disciplines of architecture, landscape architecture, civil engineering and public health provided the nucleus of concerned professionals; beautification schemes and infrastructure works marked the early stages of public intervention in the nineteenth century. Architects, engineers and public health specialists were joined by economists, sociologists, lawyers and geographers as the complexities of the city's problems came to be more fully understood and public pressure mounted for their solution. Contemporary urban and regional planning techniques for survey, analysis, design and implementation developed from an interdisciplinary synthesis of these various fields, as did the practice of urban design.

Today, urban planning can be described as the collective management of urban development. It is concerned with the welfare of communities, control of the use of land, design of the built environment (including transportation and communication networks), and protection and enhancement of the natural environment. It is

at once a technical and a political process which brings together actors from the public, private and community spheres. Planners participate in this process in a variety of ways, as designers, analysts, advocates and mediators, facilitating the search for equitable and efficient solutions to problems of urban growth and development.

McGill University was the first institution in Canada to offer a full-time planning program. An inter-disciplinary program was established in 1947, in which students combined a master's degree in Urban Planning with one in a related field. An autonomous program was established in 1972. It became the School of Urban Planning in 1976, a unit within the Faculty of Engineering. It has strong links with the School of Architecture, which is housed in the same building, notably in initiating a new set of joint options in Urban Design. The Urban Design option enables qualified students to specialize in this growing area of professional practice. Urban design practitioners work in concert with developers, architects, builders, and other key stakeholders on strategic interventions or projects. They develop clear guidelines that are used to shape the built environment as well as articulating plans in four dimensions, including space and time. Details are outlined on the Urban Design option Website at www.mcgill.ca/urbandesign.

Students come to the School from diverse backgrounds, the physical sciences, the traditional professions, such as architecture and engineering, and the social sciences. Alumni of the School work as planners and designers at various levels of government, in non-profit organizations and with private consulting firms. Their expertise ranges from historic preservation to traffic management, from housing development to computer imaging. They devote their efforts in increasing numbers to environmental planning and sustainable development.

The School is a partner in the Montreal Interuniversity Group on Urbanization and Development, a consortium recognized by CIDA as a Centre of Excellence, which is devoted to the study of urban problems and the formulation of policies in developing regions. Faculty and students collaborate actively with members of other McGill departments, notably Architecture, Geography, Civil Engineering and Law, and with colleagues at other institutions in Montréal, across Canada, and abroad.

78.3 Admission Requirements

The M.U.P. degree is open to students holding a bachelor's degree or equivalent in Anthropology, Architecture, Economics, Engineering, Environmental Studies, Geography, Law, Management, Political Science, Social Work, Sociology or Urban Studies. Students from other backgrounds are considered for admission on an individual basis.

In addition to the documents for admission required by the Graduate and Postdoctoral Studies Office, the following must be submitted:

1. Statement of specific interest in the area of Urban Planning.
2. For architects and applicants to the urban design specialization only, a portfolio containing at least five (5) examples of architectural work accomplished in school and in practice. (Portfolios are not to exceed 8½" x 11" in size.)
3. Curriculum Vitae
4. Applicants to graduate studies whose mother tongue is not English and who have not completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must submit documented proof of competency in oral and written English. By the admissions deadline, appropriate exam results must be submitted directly from the TOEFL (Test of English as a Foreign Language) or IELTS (International English Language Testing Systems) Office. The minimum requirement for the TOEFL test is as follows: PBT - 600, CBT - 250, iBT - 100, with each component score not less than 23. The minimum score for the IELTS test is 7.0

The deadline for submitting applications and supporting material is February 1.

McGill's online application form for graduate program candidates is available at www.mcgill.ca/applying/graduate.

Awards and Financial Assistance

For information regarding awards and financial assistance, please refer to the Graduate and Postdoctoral Studies Office *Graduate Fellowships and Awards Calendar*.

78.4 Program Requirements

Master of Urban Planning (Non-Thesis) (66 credits)

The M.U.P. requires two years of study including a three-month internship with a member of a recognized planning association.

Students are required to prepare a Supervised Research Project which may take the form of investigative research, an impact study, a development project, or a plan. It may be undertaken jointly with another student.

Required Courses (27 credits)

PUB1 004*	(3)	Land Use Planning
URBP 609*	(3)	Planning Graphics
URBP 612	(3)	History and Theory of Planning
URBP 622	(6)	Planning Project 1
URBP 623	(3)	Planning Projects 2
URBP 624	(6)	Planning Projects 3
URBP 633	(3)	Planning Methods

* Students who have completed the material for courses marked with an asterisk may request permission from the instructor to substitute another course.

Complementary Courses (12 - 18 credits)

At least 12 credits, a minimum of 4 courses, must be selected from the following list. It is highly recommended that students complete at least one course in each of the disciplines: housing, transportation, environment and design.

ARCH 527	(3)	Civic Design
ARCH 528	(3)	History of Housing
ARCH 529	(3)	Housing Theory
ARCH 550	(4)	Urban Planning and Development
CIVE 540	(3)	Urban Transportation Planning
URBP 501	(2)	Principles and Practice 1
URBP 505	(3)	Geographical Information Systems
URBP 506	(3)	Environmental Policy and Planning
URBP 507**	(3)	Planning and Infrastructure
URBP 519**	(6)	Sustainable Development Plans
URBP 520**	(3)	Globalization: Planning and Change
URBP 530	(3)	Urban Environmental Planning
URBP 605	(3)	Graduate Seminar
URBP 607	(3)	Reading Course: Urban Planning
URBP 616	(3)	Selected Topics 1
URBP 617	(3)	Selected Topics 2
URBP 618	(3)	Selected Topics 3
URBP 619	(3)	Transportation and Land Development
URBP 621	(3)	Theories of Urban Form
URBP 625	(2)	Principles and Practice 2
URBP 626	(2)	Principles and Practice 3
URBP 627	(2)	Principles & Practice: Design Competition
URBP 629	(3)	Cities in a Globalization World
URBP 634**	(3)	Planning Water Resources in Barbados

**Courses open only to students enrolled in the Barbados Field Study Semester.

Students may elect to complete a Field Study Semester in Barbados during the fall term of their second year in the program. With this option, URBP 519 is substituted for URBP 624. Coursework must include URBP 507, URBP 520 and URBP 634. All other requirements for the MUP degree apply.

Elective Courses (0 - 6 credits)

Students may select additional courses that would be helpful in developing an in-depth knowledge of one or more subject areas in the field of planning. These courses must be at the 500 or 600 levels. They may be taken in any academic unit at McGill or at another university. Frequent choices are classes in real-estate analysis, urban geography, sociology, anthropology, law, politics, and environmental science. Students must confirm that the elective course(s) they select will be counted towards the MUP degree prior to registration.

Internship - Required (6 credits)

URBP 628 (6) Practical Experience

Project Component - Required (15 credits)

URBP 630 (3) Supervised Research Project 1

URBP 631 (6) Supervised Research Project 2

URBP 632 (6) Supervised Research Project 3

Master of Urban Planning (Non-Thesis)– Urban Design Option/Concentration (66 credits)

The Urban Design option allows students to specialize in this field as part of their course of study for the Master of Urban Planning degree (M.U.P.). Studio courses, an internship and a final project involve real-life work that prepares students for the professional practice of Urban Design.

Required Courses (33 credits)

PUB1 004* (3) Land Use Planning

URBD 611 (6) Studio 1: Analysis and Concept

URBD 612 (3) Seminar 1: Analysis and Concept

URBD 613 (6) Studio 2: Project Development

URBD 614 (3) Seminar 2: Project Development

URBP 612 (3) History and Theory of Planning

URBP 624 (6) Planning Projects 3

URBP 633 (3) Planning Methods

* Students who have completed the material for a course marked with an asterisk may request permission from the instructor to substitute another course.

Complementary Courses (12 credits)

6 credits: a minimum of two courses must be selected from the following:

ARCH 520 (3) Montreal: Urban Morphology

ARCH 521 (3) Structure of Cities

ARCH 527 (3) Civic Design

URBP 616 (3) Selected Topics 1

URBP 621 (3) Theories of Urban Form

In order to satisfy this requirement, students may take graduate level courses that are equivalent at the Université de Montréal with approval of the School.

6 credits: a minimum of two courses must be selected from the following:

ARCH 515 (3) Sustainable Design

ARCH 528 (3) History of Housing

ARCH 529 (3) Housing Theory

ARCH 550 (4) Urban Planning and Development

URBP 501 (2) Principles and Practice 1

URBP 505 (3) Geographical Information Systems

URBP 530 (3) Urban Environmental Planning

URBP 605 (3) Graduate Seminar

URBP 607 (3) Reading Course: Urban Planning

URBP 617 (3) Selected Topics 2

URBP 618 (3) Selected Topics 3

URBP 619 (3) Transportation and Land Development

URBP 625 (2) Principles and Practice 2

URBP 626 (2) Principles and Practice 3

URBP 627 (2) Principles & Practice: Design Competition

URBP 629 (3) Cities in a Globalization World

Students may select classes from among additional courses at the 500 or 600 levels in any academic unit at McGill or at another university subject to the approval of the School

Internship - Required (6 credits)

URBP 628 (6) Practical Experience

Project Component - Required (15 credits)

URBP 630 (3) Supervised Research Project 1

URBP 631 (6) Supervised Research Project 2

URBP 632 (6) Supervised Research Project 3

78.5 Courses

Students preparing to register should consult the [Web at www.mcgill.ca/minerva](http://www.mcgill.ca/minerva) (click **Class Schedule**) for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled after this Calendar went to press. **Class Schedule lists courses by term and includes days, times, locations, and names of instructors.**

The course credit weight is given in parentheses after the title.

URBP 501 PRINCIPLES AND PRACTICE 1. (2) (2-0-4) This six-week intensive course exposes students to issues and techniques that are applicable in diverse professional planning contexts. The subject matter, geographic area, scale of intervention and institutional location of planning varies from semester to semester. The course focuses on a specific case study and is taught by a visiting lecturer with professional experience in the selected subject matter.

URBP 505 GEOGRAPHIC INFORMATION SYSTEMS. (3) (0-2-7) An introduction to fundamental geographic information system (GIS) concepts and a range of GIS applications in urban and regional planning.

URBP 506 ENVIRONMENTAL POLICY AND PLANNING. (3) (3-0-6) (Restriction: This course is open to students in U3 and above) Analytical and institutional approaches for understanding and addressing urban and other environmental problems at various scales; characteristics of environmental problems and implications; political-institutional context and policy instruments; risk perception and implications; cost-benefit analysis, risk assessment, multiple-objectives approaches, life-cycle analysis; policy implementation issues; case studies.

URBP 507 PLANNING AND INFRASTRUCTURE. (3) (8-.5-.5) (Restriction: Must be enrolled in the Barbados Field study Semester.) An exploration of the interrelationship between land-use planning and infrastructure provision, especially water and sewerage. An examination of their policy and regulatory frameworks and other methodology of plan making and evaluation.

URBP 519 SUSTAINABLE DEVELOPMENT PLANS. (6) (0-10-8) (Restrictions: Must be enrolled in Barbados Field Study Semester. Not open to students who have taken or are taking AGRI 519 or CIVE 519.) Geared for solving real-world environmental problems related to water at the local, regional and international scale in Barbados. Projects to be designed by instructors in consultation with university, government and NGO partners and to be conducted by teams of 2 to 4 students in collaboration with them.

URBP 520 GLOBALIZATION: PLANNING AND CHANGE. (3) (3-3-3) (Restriction: Must be enrolled in the Barbados Field study Semester.) Economic and social issues related to planning for sustainable development, with a focus on water. Political and environmental determinants of resource use. Impact of global, regional and local institutions, programs and plans in Barbados and in the field locale in general.

URBP 530 URBAN ENVIRONMENTAL PLANNING. (3) (Note: Not open to students who have taken URBP 614.) Urban environmental planning with a focus on sustainability and smart growth. Consideration is given to the tools, techniques and processes that planners use to promote sustainable urban development. Local applications and community initiatives are addressed.

URBP 605 GRADUATE SEMINAR. (3) This seminar is directed to the needs of individual students. It focuses on topics of special interest not included in the curriculum. It is given by members of staff as a tutorial.

URBP 607 READING COURSE: URBAN PLANNING. (3) The Reading Course offers an opportunity to explore, under the supervision of a staff member, subject areas relevant to urban planning.

URBP 609 PLANNING GRAPHICS. (3) Designed to familiarize the student with graphic techniques used in professional planning work, as well as to heighten environmental perception. Weekly lecture which reviews theory and practice followed by a weekly studio assignment involving the application of practical skills.

URBP 612 HISTORY AND THEORY OF PLANNING. (3) A review of planning history and theories of planning. These are examined under three categories: explanation of urban phenomena, substantive theory, and theories of process.

URBP 616 SELECTED TOPICS 1. (3) Special topics related to Urban Planning will be presented by staff and visiting lecturers.

URBP 617 SELECTED TOPICS 2. (3) Special topics related to Urban Planning will be presented by staff and visiting lecturers.

URBP 618 SELECTED TOPICS 3. (3) Special topics related to Urban Planning will be presented by staff and visiting lecturers.

URBP 619 TRANSPORTATION AND LAND DEVELOPMENT. (3) Urban land development projects: design procedures and standards for internal traffic distribution, auto, truck and pedestrian access, parking requirements, and the development of transportation-related land-use controls. Methods for assessing the impact of land development projects on external traffic. Transportation/land-use relationships at the broader regional scale, with a review of land-use forecasting and allocation models and procedures for the coordination of comprehensive transportation/land-use planning.

URBP 622 PLANNING PROJECT 1. (6) (studio) This studio introduces practical problems based on real world cases. Material covered includes: problem definition; data sources, collection and analysis; goal setting; the creative process; problem solving; and policy implications. Students work in interdisciplinary groups. Each studio terminates with an oral and graphic presentation of work to which expert critics are invited. Progress is evaluated according to performance in class, in the oral presentation, and on written reports.

URBP 623 PLANNING PROJECTS 2. (3) This studio introduces practical problems based on real world cases. Material covered includes: problem definition; data sources, collection and analysis; goal setting; the creative process; problem solving; and policy implications. Students work in interdisciplinary groups. Each studio terminates with an oral and graphic presentation of work to which expert critics are invited. Progress is evaluated according to performance in class, in the oral presentation, and on written reports.

URBP 624 PLANNING PROJECTS 3. (6) (Prerequisites: Planning Projects I and II.) (Restriction: Not open to students who have taken URBP 604.) The second-year studio is designed to permit the study of planning problems in depth. Problems are chosen depending on the experience and research interests of the participants, or for their topical nature.

URBP 625 PRINCIPLES AND PRACTICE 2. (2) This six-week intensive course exposes students to issues and techniques which are applicable in diverse professional planning contexts that vary in terms of their subject matter, location, scale and the role played by planners. The course focusses on a specific case study and is taught by a visiting lecturer with experience in the selected subject area. Course topics are systematically varied over a two-year cycle.

URBP 626 PRINCIPLES AND PRACTICE 3. (2)

URBP 628 PRACTICAL EXPERIENCE. (6) An internship related to the practice of urban planning is required. The practical experience must be of at least 3 months duration and be supervised by a professional in the planning field. An evaluation of the student's

performance by the supervisor, as well as a short report by the student, forms the basis for assessment.

URBP 629 CITIES IN A GLOBALIZING WORLD. (3) (3-0-6) (Prerequisite: URBP 622 or permission of instructor.) Cities and planning in comparative perspective; focus on the developing world. Topics covered include: global and local processes shaping cities worldwide, urban problems in developed and developing regions, and the impacts of planning and governance on urban form, economic growth, and equity.

URBP 630 SUPERVISED RESEARCH PROJECT 1. (3) The Supervised Research Project is intended to focus a student's interests on a particular area of enquiry at the end of studies for a Master's Degree in Planning. It should ideally provide the transition into practice or more advanced studies. Joint research projects are allowed.

URBP 631 SUPERVISED RESEARCH PROJECT 2. (6) Continuation of the requirements for the Supervised Research Project.

URBP 632 SUPERVISED RESEARCH PROJECT 3. (6) Continuation of the requirements for the Supervised Research Project.

URBP 633 PLANNING METHODS. (3) (Priority given to Urban Planning Students) An introduction to quantitative methods that are commonly used in urban research and planning practice. Topics include municipal information systems, fieldwork techniques, survey design and analysis, analysis of spatial and temporal patterns, and the evaluation of policies and plans.

URBP 634 PLANNING WATER RESOURCES IN BARBADOS. (3) (Restrictions: Must be enrolled in Barbados Field Study Semester. Only open to graduate students in architecture and urban planning.) Physical environment challenges faced by an island nation, with a focus on water resources. Private, government and NGO institutional context for conservation strategies. Water quantity and quality analyses for water management and planning specific to Barbados.

URBP 636 TRANSPORTATION SEMINAR. (1) Current transportation issues and topics are addressed from practitioner and academic perspectives.

79 Index of Graduate Programs

Administration, Joint Ph.D.	318	Computer Science	181
Aerospace Engineering	325	Counselling Psychology (M.A.).....	207
Agricultural Chemistry	239	Counselling Psychology (Ph.D.).....	207
Agricultural Economics	120	Culture and Values [Education]	272
Air and Space Law	293	Curriculum Studies [Education]	274
Anatomy and Cell Biology	120	Dental Sciences	186
Animal Science	122	Dietetics and Human Nutrition	189
Anthropology	125	Earth and Planetary Sciences.....	193
Anthropology, Medical [Anthropology]	125	East Asian Studies	197
Anthropology, Medical [SSOM]	439	Economics	200
Architecture	129	Economics [Agriculture]	120
Art History	134	Education, Culture and Values	272
Asian Studies, East	197	Education, Curriculum Studies	274
Atmospheric and Oceanic Sciences	138	Education, Music.....	350
Biochemistry	142	Education, Physical	289
Bioethics [Biomedical Ethics Unit]	146	Education, Second Language.....	277
Bioethics [Experimental Medicine].....	334	Educational Leadership	275
Bioethics [Law]	293	Educational Psychology (M.A. Thesis)	210
Bioethics [Philosophy]	395	Educational Psychology (M.Ed.).....	209
Bioethics [Religious Studies]	431	Educational Psychology (Ph.D.).....	212
Bioinformatics [Animal Science].....	124	Educational Studies	274
Bioinformatics [Biochemistry]	145	Electrical and Computer Engineering	221
Bioinformatics [Biology]	149	Engineering, Aerospace.....	325
Bioinformatics [Biomedical Engineering]	153	Engineering, Biomedical	152
Bioinformatics [Computer Science].....	182	Engineering, Bioresource Engineering	154
Bioinformatics [Mathematics and Statistics].....	321	Engineering, Chemical	160
Bioinformatics [Natural Resource Science, Microbiology]	368	Engineering, Civil and Applied Mechanics	169
Bioinformatics [Parasitology]	388	Engineering, Electrical	221
Bioinformatics [Physiology].....	410	Engineering, Mechanical	325
Bioinformatics [Plant Science]	414	Engineering, Mining and Materials	342
Biology	147	English	228
Biomedical Engineering.....	152	Entomology [Natural Resource Sciences]	363
Bioresource Engineering	154	Environment	231
Biostatistics [Epidemiology and Biostatistics]	234, 235	Environmental Engineering [Mining and Materials Engineering] ..	342
Biotechnology [Parasitology]	386	Environmental Engineering [Bioresource Engineering]	154
Chemical Biology [Biochemistry]	144	Environmental Engineering [Chemical Engineering].....	160
Chemical Biology [Chemistry].....	165	Environmental Engineering [Civil Engineering and Applied Mechanics]	169
Chemical Biology [Pharmacology and Therapeutics].....	394	Epidemiology and Biostatistics	233
Chemical Engineering	160	Experimental Medicine.....	334
Chemistry	163	Experimental Surgery.....	452
Civil Engineering and Applied Mechanics	169	Food Science and Agricultural Chemistry.....	239
Clinical Research [Experimental Medicine]	334	French.....	241
Communication Sciences and Disorders	174	Genetic Counselling	258
Communication Studies.....	178	Geography	245
Comparative Law	293	German Studies	250
Composition [Music].....	347	Hispanic Studies	251
Computational Science and Engineering [Atmospheric and Oceanic Sciences]	139, 140, 194	History.....	253
Computational Science and Engineering [Computer Science].....	182	History of Medicine [History]	253
Computational Science and Engineering [Electrical and Computer Engineering]	223	History of Medicine [SSOM]	439
Computational Science and Engineering [Mathematics and Statistics]	322	Human Genetics	258
Computational Science and Engineering [Mechanical Engineering]	327	Human Nutrition	189
Computer Applications in Music.....	347	Immunology, Microbiology and.....	339
Computer Engineering [Electrical and Computer Engineering]	221	Information Studies.....	262
Computer Science	181	Integrated Water Resource Management [Bioresource Engineering]	156
Counselling Psychology (M.A.).....	207	International Masters Programs in Practicising Management (IMPM).....	316
Counselling Psychology (Ph.D.).....	207	Islamic Studies	281
Culture and Values [Education]	272		
Curriculum Studies [Education]	274		
Dental Sciences	186		
Dietetics and Human Nutrition	189		
Earth and Planetary Sciences.....	193		
East Asian Studies	197		
Economics	200		
Economics [Agriculture]	120		
Education, Culture and Values	272		
Education, Curriculum Studies	274		
Education, Music.....	350		
Education, Physical	289		
Education, Second Language.....	277		
Educational Leadership	275		
Educational Psychology (M.A. Thesis)	210		
Educational Psychology (M.Ed.).....	209		
Educational Psychology (Ph.D.).....	212		
Educational Studies	274		
Electrical and Computer Engineering	221		
Engineering, Aerospace.....	325		
Engineering, Biomedical	152		
Engineering, Bioresource Engineering	154		
Engineering, Chemical	160		
Engineering, Civil and Applied Mechanics	169		
Engineering, Electrical	221		
Engineering, Mechanical	325		
Engineering, Mining and Materials	342		
English	228		
Entomology [Natural Resource Sciences]	363		
Environment	231		
Environmental Engineering [Mining and Materials Engineering] ..	342		
Environmental Engineering [Bioresource Engineering]	154		
Environmental Engineering [Chemical Engineering].....	160		
Environmental Engineering [Civil Engineering and Applied Mechanics]	169		
Epidemiology and Biostatistics	233		
Experimental Medicine.....	334		
Experimental Surgery.....	452		
Food Science and Agricultural Chemistry.....	239		
French.....	241		
Genetic Counselling	258		
Geography	245		
German Studies	250		
Hispanic Studies	251		
History.....	253		
History of Medicine [History]	253		
History of Medicine [SSOM]	439		
Human Genetics	258		
Human Nutrition	189		
Immunology, Microbiology and.....	339		
Information Studies.....	262		
Integrated Water Resource Management [Bioresource Engineering]	156		
International Masters Programs in Practicising Management (IMPM).....	316		
Islamic Studies	281		

INDEX OF GRADUATE PROGRAMS

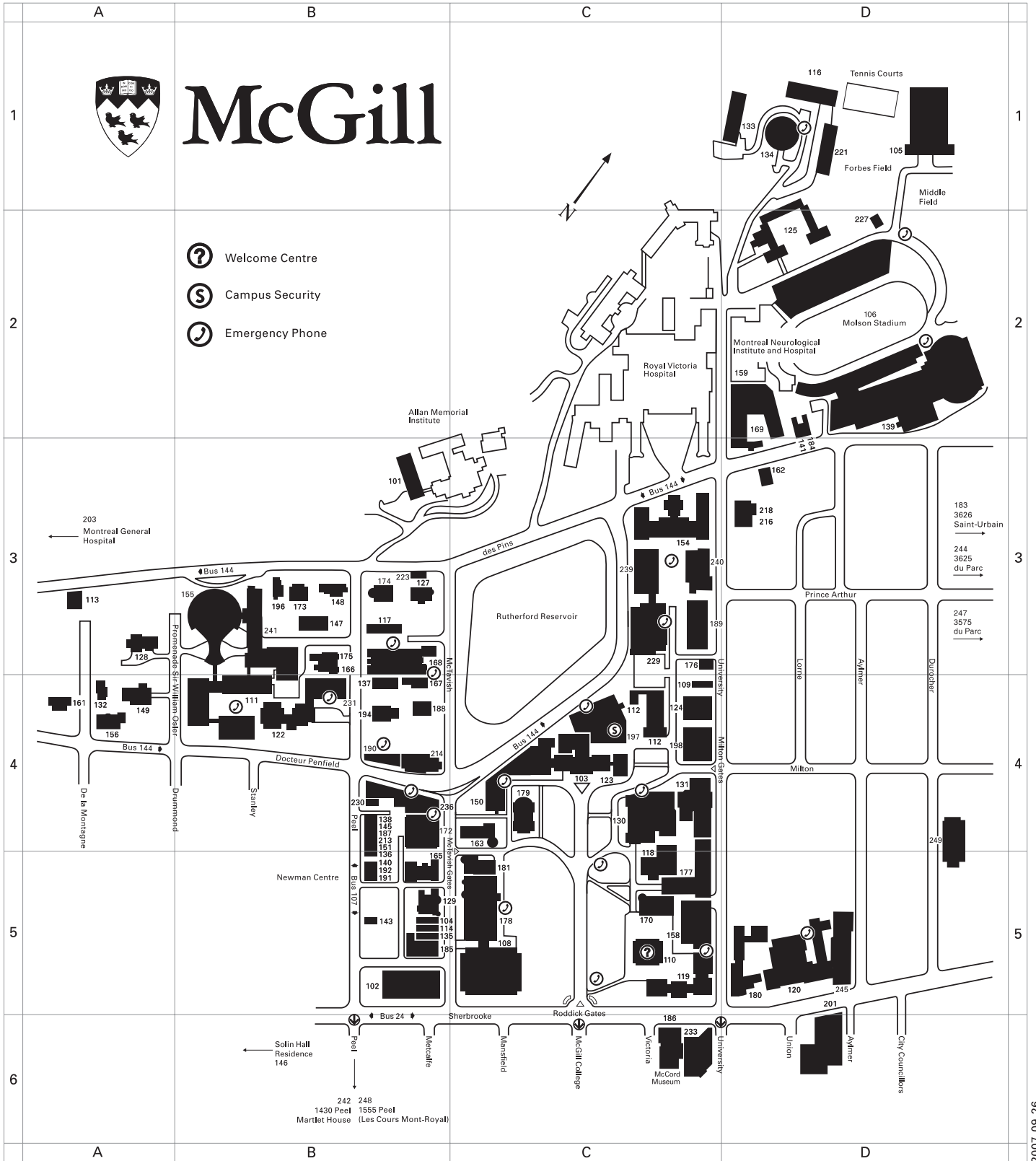
Italian Studies	285	Nutrition, Human	189
Jewish Studies	287	Occupational Health Sciences	382
Kinesiology	289	Oceanic and Atmospheric Sciences	138
Language Acquisition [Communication Sciences and Disorders]	174	Oral and Maxillofacial Surgery	186
Language Acquisition [Linguistics]	302	Otolaryngology	385
Language Acquisition [Psychology].	427	Parasitology	386
Law	293	Pathology	391
Law and M.B.A. [Law]	293	Performance [Music]	347
Law and M.S.W. [Law].	293	Pharmacology and Therapeutics	392
Law and M.S.W. [Social Work].	440	Philosophy	395
Law, Air and Space	293	Physical Education	289
Law, Comparative	293	Physics	405
Leadership [Education]	270	Physics, Medical Radiation	332
Linguistics	301	Physiology	409
Literacy Studies [Education].	270	Planetary and Earth Sciences	193
M.B.A./M.D. [Management]	309	Plant Science	413
M.D./M.B.A. [Management]	309	Political Science	417
Management – Joint Ph.D. in Administration.	318	Psychiatry	424
Management (M.B.A.)	304	Psychology	426
Management, International Masters Program in Practising (IMPM)	316	Psychosocial Oncology [Nursing].	380
Manufacturing Management [Management]	304	Psychosocial Oncology [Psychology]	429
Manufacturing Management [Mechanical Engineering].	325	Rehabilitation Sciences	400
Manufacturing Management, Master of (M.M.M.) [Management]	315	Religious Studies	431
Mathematics and Statistics	320	Renewable Resources [Natural Resource Sciences].	363
Mechanical Engineering	325	Russian and Slavic Studies	437
Medical Anthropology [Anthropology]	125	Second Language Education	274
Medical Anthropology [SSOM]	439	Social Statistics [Economics]	200, 201
Medical Radiation Physics	332	Social Statistics [Geography]	245
Medical Sociology [Sociology]	445	Social Statistics [Political Science].	417
Medical Sociology [SSOM]	439	Social Statistics [Sociology]	445
Medicine, Clinical Research	334	Social Studies of Medicine [SSOM].	439
Medicine, Experimental	334	Social Work	440
Medicine, History of [History]	253	Social Work and Law [Social Work].	440
Medicine, History of [SSOM]	439	Sociology	445
Microbiology [Natural Resource Sciences]	363	Sociology, Medical [Sociology].	445
Microbiology and Immunology	339	Sociology, Medical [SSOM].	439
Mining and Materials Engineering	342	Sound Recording [Music]	347
Music	347	Spanish [Hispanic Studies]	251
Music, Computer Applications in	347	Surgical Research	452
Music Education	347	Urban Planning	455
Music Performance	351		
Music Technology	347		
Musicology	347		
Natural Resource Sciences	363		
Neotropical Environment [Biology]	149		
Neotropical Environment [Bioresource Engineering]	156		
Neotropical Environment [Geography]	246		
Neotropical Environment [Natural Resource Sciences, Entomology].	367, 368		
Neotropical Environment [Natural Resource Sciences, Renewable Resources]	367		
Neotropical Environment [Plant Science].	414		
Neotropical Environment [Political Science]	418		
Neotropical Environment [Sociology]	449		
Neurological Sciences	371		
Nursing	375		

177	C5	ADAMS Building	175	B3	PEEL, 3690
103	C4	ARTS Building	117	B3	PEEL, 3715
113	A3	BEATTY Hall	239	C3	PENFIELD, 740
241	B3	BELLINI Life Sciences Complex (under/en construction)	190	B4	PENFIELD, 1085
124	C4	BIRKS Building	165	B5	PETERSON Hall
185	B5	BOOKSTORE	184	D2	PINE, 515
102	B5	BRONFMAN Building	141	D2	PINE, 517
236	B4	BROWN Student Services Building	162	D3	PINE, 546
110	C5	BURNSIDE Hall	101	B3	PINE, 1033
139	D2	CURRIE Gymnasium	196	B3	PINE, 1140
128	A3	DAVIS House	120	D5	POLLACK Hall
123	C4	DAWSON Hall	158	C5	PULP AND PAPER Research Centre
122	B4	Chancellor DAY Hall	174	B3	PURVIS Hall
125	D2	DOUGLAS Hall	161	A4	RABINOVITCH House
169	D2	DUFF Medical Building	181	C5	REDPATH Hall
223	B3	DUGGAN Annex	178	C5	REDPATH Library Building
127	B3	DUGGAN House	179	C4	REDPATH Museum
168	B3	EDUCATION Building	180	D5	ROYAL VICTORIA COLLEGE Residence
129	B5	FACULTY CLUB	189	C3	RUTHERFORD Physics Building
197	C4	FERRIER Building	183	D3	SAINT-URBAIN, 3626
133	D1	GARDNER Hall	201	D6	SHERBROOKE, 550
231	B4	GELBER Law Library	233	C6	SHERBROOKE, 688
149	A3	HOSMER House	146	B6	SOLIN Hall (Lionel-Groulx Avenue)
132	A3	HOSMER Annex	111	B4	STEWART Biology Building
167	B4	HUGESSON House	154	C3	STRATHCONA Anatomy & Dentistry Building
112	C4	JAMES Administration Building	120	D5	STRATHCONA Music Building
112	C4	JAMES Annex	188	B4	THOMSON House
150	C4	LEACOCK Building	240	C3	TROTTIER Information Technology Building
119	C5	MAASS Chemistry Building	109	C4	UNIVERSITY, 3534
130	C4	MACDONALD Engineering Building	176	C3	UNIVERSITY, 3550
118	C5	MACDONALD-HARRINGTON Building	216	D3	UNIVERSITY, 3641
170	C5	MACDONALD STEWART Library Building	216	D3	UNIVERSITY, 3643
242	B6	MARTLET House	218	D3	UNIVERSITY, 3647
			172	B4	UNIVERSITY CENTRE
			198	C4	WILSON Hall
			229	C3	WONG Building
105	D1	McCONNELL Arena			
131	C4	McCONNELL Engineering Building			
221	D1	McCONNELL Hall			
186	C6	McCORD Museum			
155	B3	McINTYRE Medical Building			
108	C5	McLENNAN Library Building			
135	B5	McTAVISH, 3430			
114	B5	McTAVISH, 3434			
104	B5	McTAVISH, 3438			
147	B3	MEREDITH Annex			
173	B3	Charles MEREDITH House			
148	B3	Lady MEREDITH House			
116	D1	MOLSON Hall			
106	D2	MOLSON Stadium			
156	A4	de la MONTAGNE, 3605			
159	D2	MONTREAL NEUROLOGICAL INSTITUTE			
163	C4	MORRICE Hall			
134	D1	Bishop MOUNTAIN Hall			
103	C4	MOYSE Hall			
245	D5	MUSIC, New Building			
227	D2	OBSERVATORY			
247	D3	du PARC, 3575			
244	D3	du PARC, 3625			
248	B5	PEEL, 1555 (Les Cours Mont-Royal)			
143	B5	PEEL, 3437			
191	B5	PEEL, 3459			
192	B5	PEEL, 3463			
140	B5	PEEL, 3465			
136	B5	PEEL, 3475			
151	B4	PEEL, 3479			
213	B4	PEEL, 3483			
187	B4	PEEL, 3487			
145	B4	PEEL, 3491			
138	B4	PEEL, 3495			
230	B4	PEEL, 3505			
194	B4	PEEL, 3647			
137	B4	PEEL, 3661			
166	B3	PEEL, 3674			

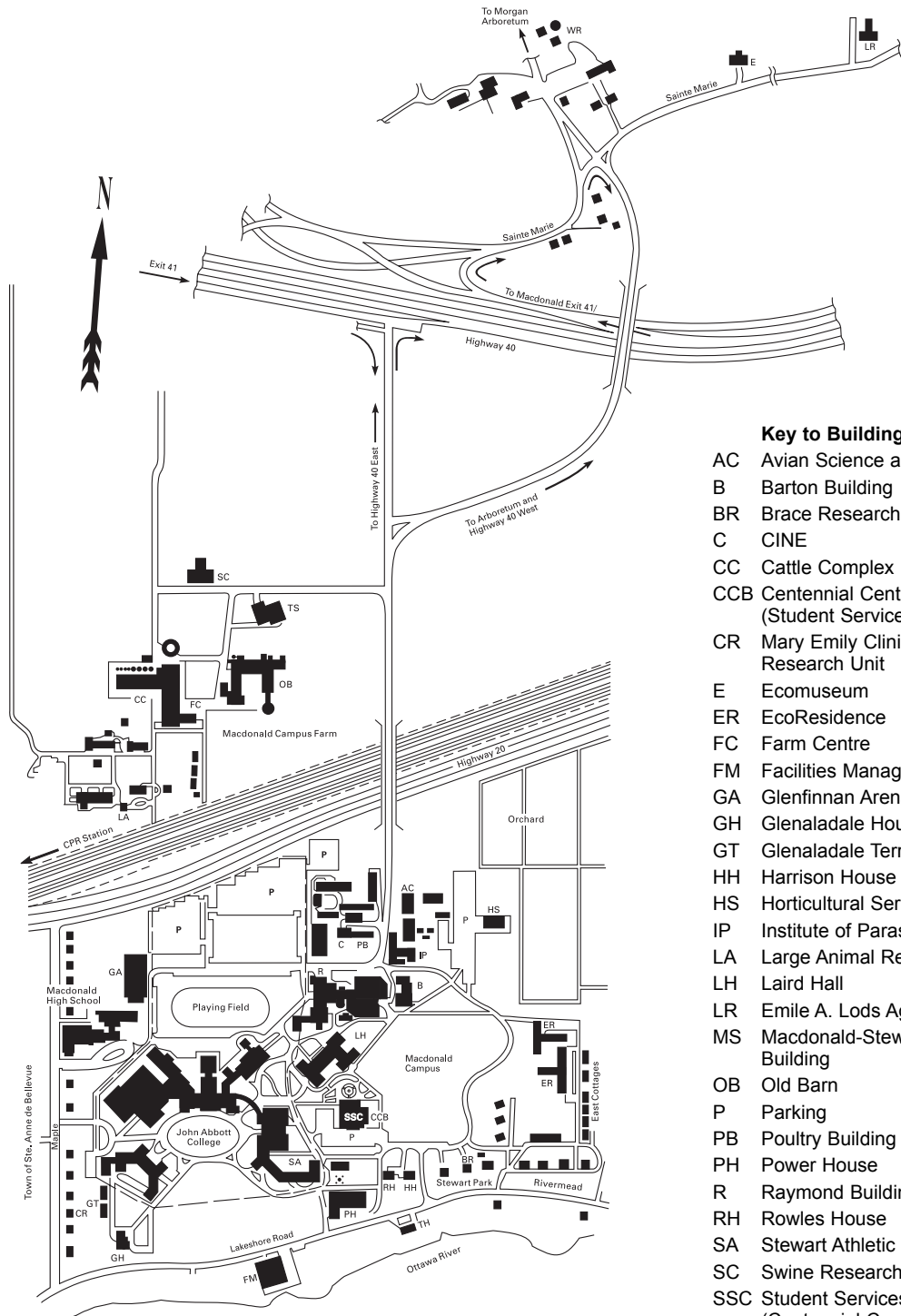


McGill

- Welcome Centre
- Campus Security
- Emergency Phone



► Macdonald Campus



Key to Buildings

- AC Avian Science and Conservation Centre
- B Barton Building
- BR Brace Research Unit
- C CINE
- CC Cattle Complex
- CCB Centennial Centre Building (Student Services)
- CR Mary Emily Clinical Research Unit
- E Ecomuseum
- ER EcoResidence
- FC Farm Centre
- FM Facilities Management
- GA Glenfinnan Arena
- GH Glenaladale House
- GT Glenaladale Terrace
- HH Harrison House
- HS Horticultural Services
- IP Institute of Parasitology
- LA Large Animal Research Unit
- LH Laird Hall
- LR Emile A. Lods Agronomy Research Centre
- MS Macdonald-Stewart Building
- OB Old Barn
- P Parking
- PB Poultry Building
- PH Power House
- R Raymond Building
- RH Rowles House
- SA Stewart Athletic Complex
- SC Swine Research Centre
- SSC Student Services (Centennial Centre Building)
- TH Tadjia Hall
- TS Technical Services Building
- WR Weather Radar

— NOTES —

— NOTES —

