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This publication provides guidance to prospects, applicants, students, faculty and staff.

1. McGill University reserves the right to make changes to the information contained in this online publication - including correcting errors, altering fees, schedules of admission, and credit requirements, and revising or cancelling particular courses or programs - without prior notice.
2. In the interpretation of academic regulations, the Senate is the final authority.
3. Students are responsible for informing themselves of the University's procedures, policies and regulations, and the specific requirements associated with the degree, diploma, or certificate sought.
4. All students registered at McGill University are considered to have agreed to act in accordance with the University procedures, policies and regulations.
5. Although advice is readily available on request, the responsibility of selecting the appropriate courses for graduation must ultimately rest with the student.
6. Not all courses are offered every year and changes can be made after publication. Always check the Minerva Class Schedule link at https://banweb.mcgill.ca/pban1/bwckschd.p_disp_dyn_sched for the most up-to-date information on whether a course is offered.
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Note: Throughout this publication, "you" refers to students newly admitted, readmitted or returning to McGill.

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1 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. Graduate and Postdoctoral Studies (GPS) provides strategic leadership and 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. GPS 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-centred 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.

McGill is ranked as one of Canada's most intensive research universities and among the world's top 25.

2.3 General Statement Concerning Higher Degrees

Graduate and Postdoctoral Studies (GPS) 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.

3 Important Dates 2011-2012

For all dates relating to the academic year, consult

Arts

: Political Science

section 11.9: Psychology

: Russian and Slavic Studies

: Social Studies of Medicine

: Social Work

: Sociology

Dentistry

: Dentistry

Desautels Faculty of Management

: Desautels Faculty of Management

Education

: Educational and Counselling Psychology

: Information Studies

: Integrated Studies in Education

: Kinesiology and Physical Education

Engineering

: Architecture

: Chemical Engineering

: Civil Engineering and Applied Mechanics

: Electrical and Computer Engineering

: Mechanical Engineering

: Mining and Materials Engineering

: Urban Planning

Law

: Law

McGill School of Environment

: Environment

Medicine

: Anatomy and Cell Biology

: Biochemistry

: Bioethics

: Biomedical Engineering

: Communication Sciences and Disorders

: Epidemiology and Biostatistics

Experimental Medicine, see *: Medicine, Experimental*

: Human Genetics

: Medical Physics

Medicine
: Microbiology and Immunology
: Neuroscience (Integrated Program in)
: Nursing
: Occupational Health
: Otolaryngology – Head and Neck Surgery
: Pathology
: Pharmacology and Therapeutics
: Physical and Occupational Therapy
: Physiology
: Psychiatry
: Surgical Research

Religious Studies
: Religious Studies

Schulich School of Music
: Schulich School of Music

Science
section 11.1: Atmospheric and Oceanic Sciences
section 11.2: Biology
section 11.3: Chemistry
section 11.4: Computer Science
section 11.5: Earth and Planetary Sciences
section 11.6: Geography
section 11.7: Mathematics and Statistics
section 11.8: Physics
section 11.9: Psychology

4.1 Graduate Diplomas and Certificates

Graduate diplomas and graduate certificates are programs of study under the academic supervision of Graduate and Postdoctoral Studies. 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)	Primary Care Nurse Practitioner
Epidemiology and Biostatistics	Professional Performance
Islamic Studies	Public Accountancy (C.A.)
Library and Information Studies	Registered Dietician Credentialing (R.D.)
Mining Engineering	School and Applied Child Psychology (post-Ph.D.)
Nursing	Surgical Health Care Research

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

Graduate Certificates are offered in:	
Assessing Driving Capabilities	Educational Leadership 2
Air and Space Law	Library and Information Studies
Bioresource Engineering (IWRM)	Post-M.B.A.
Biotechnology	Teaching English as a Second Language
Comparative Law	Theory in Primary Care
Educational Leadership 1	Theory in Neonatology

All graduate regulations apply to graduate diploma and certificate candidates.

4.2 Master's Degrees

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

The following master's degrees are offered (*see below for more information about sub-specializations*):	**Prerequisites:**
Master of Architecture (M.Arch)	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.
Master of Arts (M.A.)	Bachelor of Arts in the subject selected for graduate work. See appropriate unit.
Master of Business Administration (M.B.A.)	An undergraduate degree from an approved university. See Management.
Joint program: Master of Business Administration (M.B.A.) with integrated Bachelor of Civil Law (B.C.L.) / Bachelor of Laws (LL.B.)	See Management.
Concurrent Master of Business Administration with Doctor of Medicine / Master of Surgery (M.B.A. with M.D.,C.M.)	See Management.
Master of Manufacturing Management (M.M.M.)	See Management.
Master of Education (M.Ed.)	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 of Engineering (M.Eng.)	Bachelor of Engineering or equivalent, with specialization appropriate for the subject selected for graduate study. See appropriate department.
Master of Laws (LL.M.)	An acceptable degree in Law or equivalent qualifications. See Law.
Master of Library and Information Studies (M.L.I.S.)	At least a bachelor's degree from a recognized university. See Library and Information Studies.
Master of Management (M.M.)	See Management.
Master of Music 651 2concentrat of	Bachelor of Music or Bachelor of Arts with concentration in the area selected for graduate study. See Music.

Master of Architecture Degrees

M.Arch. programs offered:

- M.Arch. (professional degree) (Non-Thesis) in Design Studio and Design Studio – Directed Research
- M.Arch. (post-professional degree) (Non-Thesis); specializations in Architectural History and Theory, Cultural Mediations and Technology, Urban Design and Housing

Master of Arts Degrees

Programs leading to the degree of Master of Arts are of

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.

Master of Science Degrees

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

Agricultural Economics
Animal Science
Atmospheric and Oceanic Science; options in Computational Science and Engineering, and Environment
Biochemistry; options in Bioinformatics, and Chemical Biology
Biology; options in Bioinformatics, Environment, and Neotropical Environment
Bioresource Engineering; options in Environment, Integrated Water Resource Management (Non-Thesis), and Neotropical Environment
Cell Biology and Anatomy
Chemical Engineering
Chemistry; option in Chemical Biology
Civil Engineering and Applied Mechanics
Communication Sciences and Disorders
Computer Science (Thesis and Non-Thesis); options in Bioinformatics, and Computational Science and Engineering
Dental Science (Thesis and Non-Thesis); option in Oral and Maxillofacial Surgery
Earth and Planetary Sciences; option in Environment
Entomology; options in Environment, and Neotropical Environment
Epidemiology and Biostatistics (Thesis and Non-Thesis); option in Environment (Non-Thesis)
Food Science and Agricultural Chemistry (Thesis and Non-Thesis)
Geography; options in Environment, and Neotropical Environment
Genetic Counselling (Non-Thesis)
Human Genetics; option in Bioinformatics
Human Nutrition
Kinesiology and Physical Education (Thesis and Non-Thesis)
Mathematics and Statistics (Thesis and Non-Thesis); options in Bioinformatics, and Computational Science and Engineering
Mechanical Engineering
Medical Radiation Physics

Communication Sciences and Disorders
Human Nutrition
Nursing
Occupational Health
Occupational Therapy
Plant Science
Physical Therapy

Other degrees:

Master of Science, Applied (OT)
Master of Science, Applied (PT)

Master of Social Work Degrees

The M.S.W. degree (Thesis and Non-Thesis oT)

Biology; options in Bioinformatics, Developmental Biology, Environment, and Neotropical Environment
Biomedical Engineering; option in Bioinformatics
Bioresource Engineering; options in Environment, and Neotropical Environment
Chemical Engineering
Chemistry; option in Chemical Biology
Civil Engineering and Applied Mechanics
Classics
Communication Studies; option in Gender and Women's Studies
Communication Sciences and Disorders; option in Language Acquisition
Computer Science; option in Bioinformatics
Counselling Psychology
Earth and Planetary Sciences; option in Environment
Economics
Educational Psychology

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.

5.2 Doctoral Degrees

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 “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 approv

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 Graduate and Postdoctoral Studies. 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/students/thesis/guidelines*.

5.3 Ad Hoc Programs

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 by the *Ministère de l'Éducation, du Loisir et du Sport* (MELS) 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, Graduate and Postdoctoral Studies confirms an Advisory Committee (recommended

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 $100 in Canadian funds **must** accompany each application, otherwise **it cannot be submitted**. This sum must be paid by credit card and is non-refundable when submitting the online application form. Candidates for Special, 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 translation prepared by a licensed translator.** 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 dates for guaranteed consideration. Applicants should contact the department concerned, or see: *www.mcgill.ca/gradapplicants/programs*. International students are advised to apply well in advance of the date for guaranteed consideration as immigration procedures may be lengthy. Applications received after the prescribed dates for guaranteed consideration may or may not be considered, at the discretion of the department. Candidates will be notified of acceptance or refusal by Graduate and Postdoctoral Studies 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 or reconsideration.

6.2 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.

See *www.mcgill.ca/gradapplicants/apply/prepare/requirements/international-degree-equivalency* for information on mark/grade equivalencies and degree requirements from countries in Europe and around the world.

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 or reconsideration.

6.3 Admission Tests

Graduate Record Examination (GRE)

The Graduate Record Examination (GRE) (Educational Testing Service, Princeton, NJ 08540) consists of a relatively advanced test in the candidates' specialty, and a general test of their attainments in 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. Refer to *www.ets.org/gre* for further information. 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 toward 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.

Graduate Management Admissions Test (GMAT)

Applicants to graduate programs in Management must submit scores from the Graduate Management Admissions Test (GMAT). The test is a standardized assessment offered by the Graduate Management Admission Council to help business schools assess candidates for admission. For further information see *www.mba.com/mba/thegmat*.

6.4 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

4. Has lived and attended university, 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

Competency in English		
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) N.B. an institutional version of the TOEFL is not acceptable.	550	* The CBT is no longer being offered and CBT results are no longer considered valid, or being reported by ETS.

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 aw

6.8 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 Graduate and Postdoctoral Studies. 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 GPS.

6.9 Admission to an Ad Hoc Program (Thesis)

In exceptional cases, admission to an *Ad Hoc* program (Thesis) may be considered. Before Graduate and Postdoctoral Studies 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 coursework 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. A fuller description of the admission procedure is available from GPS.

6.10 Reinstatement and Admission of Former Students

Students who have not been registered for a period of less than two years and who have not officially withdrawn from the University by submitting a signed Withdrawal Form to Graduate and Postdoctoral Studies are eligible to be considered for reinstatement into their program. 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 GPS. Normally, GPS 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.

Procedure: Requirements for completion of the program will be evaluated. Some of these requirements may need to be redone or new ones may be added. Applicants must inquire about the fees that will be charged.

Revised – Council of February 9, 2004.

6.11 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.

7 Fellowships, Awards, and Assistantships

Graduate and Postdoctoral Studies
(Fellowships and Awards Section)
James Administration Building, Room 400
845 Sherbrooke Street West
Montreal, QC H3A 2T5
Telephone: 514-398-3990
Fax: 514-398-2626

Email: *graduate.fellowships@mcgill.ca*
Website: *www.mcgill.ca/gps/students* (under Fellowships and Awards)

Graduate Fellowships and Awards Calendar:

– to uphold and transmit to their Postdocs the highest professional standards of research and/or scholarship;

– to provide research guidance;

– to meet regularly with their 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 on Student Rights and Responsibilities* and the *General Information, Regulations and Research Guidelines* Calendar of Graduate and Postdoctoral Studies;

– to submit a complete file for registration to Graduate and Postdoctoral Studies;

– 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 Univ

Category 1: An individual who has completed requirements for the Doctoral degree or medical specialty, but the degree/certification has not yet been awarded. The individual will subsequently be eligible for registration as a Postdoctoral Fellow.

Category 2: An individual who is not eligible for Postdoctoral Registration according to the MELS definition, but is a recipient of an external postdoctoral award from a recognized Canadian funding agency.

Category 3: An individual who holds a professional de

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. Certain non-tenure track professors appointed in the Faculty of Medicine may be eligible to supervise or co-supervise graduate students with the approval of the unit and Graduate and Postdoctoral Studies. 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 toward 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 aw

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

9.2 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 *section 9.1: Guidelines and Regulations for Academic Units on Graduate Student Advising and Supervision* in bold print. Documents to record progress can be found on the GPS website: *www.mcgill.ca/gps/staff/forms*.

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 ev

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 Graduate and Postdoctoral Studies (GPS) 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 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.

1. **General Policy**

   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.

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 e

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 Graduate and Postdoctoral Studies 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.)

2. The request for a formal reread must be made by the student in writing to Graduate and Postdoctoral Studies 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.
3. Administration of the reread is handled by Graduate and Postdoctoral Studies, not by the department. GPS will contact the department to obtain the work to be reread, a list of potential readers, and details of the marking. The list of potential readers must be approved by the Department Chair or Graduate Program Director. The Chair or Director must, as well, vouch for the impartiality of these readers. All communication with the second reader is conducted by GPS.

   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.

4. 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.

All requests for a leave of absence for health reasons should be accompanied by the following:

- a duly completed *Leave of Absence/Non-Resident Request Form* available from *www.mcgill.ca/gps/staff/registration*;
- a written request from the student;
- a Minerva form to drop all courses for all relevant terms;
- a medical certificate.

To be acceptable, the medical certificate must contain a least the following items:

- the student's name, as well as complete contact information for the physician;
- a clear statement by the physician justifying the student's inability to perform his/her academic duties, with start and end dates;
- if the request is submitted during a term for which the leave is requested, a clear explanation as to why the health conditions in question did not prevent the normal performance of academic duties at the beginning of the semester.

No retroactive requests for leave of absence will be considered.

It remains the student's responsibility to verify their administrative situation, in particular, as it pertains to term and course registration.

9.7 Failure Policy

Please refer to *University Regulations and Resources* > *Graduate* > *Regulations* > *: Failure Policy* for information regarding the policy and procedures to follow in cases of failure.

Guideline on Hour

10.5 Guidelines for Research with Animal Subjects

Please refer to the guidelines for research involving animal subjects available at: *www.mcgill.ca/research/researchers/compliance/animal*.

10.6 Policy on Intellectual Property

Please refer to the Policy on Intellectual Property available at: *www.mcgill.ca/research/researchers/ip*.

10.7 Regulations Governing Conflicts of Interest

Please refer to the regulations governing conflicts of interest available at *www.mcgill.ca/secretariat/policies/conflictofi*

Fax: 514-398-6115
Email: *gradinfo@meteo.mcgill.ca*
Website: *www.mcgill.ca/meteo*

11.1.2 About Atmospheric and Oceanic Sciences

The Department of Atmospheric and Oceanic Sciences offers courses and research opportunities in atmospheric sciences and physical oceanography leading to the M.Sc. and Ph.D. degrees. Research programs borrow from fundamental fields such as mathematics, statistics, physics, chemistry, and computing to address a broad range of topics relating to weather and climate. Examples include atmospheric chemistry, climate dynamics, cloud and precipitation physics, dynamical oceanography and meteorology, geophysical turbulence, numerical modelling, numerical weather prediction, ocean carbon budgets, and sea ice dynamics, as well as synoptic, mesoscale, and radar and satellite meteorology.

Some faculty members have close ties with other departments, schools, and centres, including the Chemistry and Mathematics and Statistics departments, the McGill School of the Environment, the Global Environmental and Climate Change Centre (GEC3), ArcticNet, and Quebec Ocean. Facilities include the J. Stewart Marshall Radar Observatory, as well as state-of-the-art field and laboratory equipment for atmospheric chemistry. Graduate students have access to computers, ranging from desktop PCs to the massive parallel machines available to us through CLUMEQ and Compute Canada, and the IBM supercomputer at Environment Canada. In some cases, M.Sc. and Ph.D. research may include a field component. Most students also participate in national and international conferences.

Financial assistance in the form of research stipends and teaching assistantships is available for all qualified graduate students.

section 11.1.5: Master of Science (M.Sc.); Atmospheric and Oceanic Sciences (Thesis) (45 credits)

Our program applies mathematics, physics, computing, and sometimes chemistry to study the atmosphere and/or oceans. The ideal student would therefore have a strong quantitative background in one or more of these fields. Although some of our students have undergraduate knowledge of meteorology or physical oceanography, such background is not necessary to succeed in the program. McGill offers the only program in Canada which includes both atmospheric and oceanic sciences. Students benefit from a large professor to student ratio, access to state-of-the-art computing, remote sensing, and atmospheric chemistry laboratory equipment. The Department also has close ties with Environment Canada's numerical weather prediction centre in Dorval, Quebec. Most of our incoming M.Sc. student choose this (default) option. It allows considerable flexibility as to the choice of research topics, and gives students both a strong classroom knowledge of the subject as well as the opportunity to choose from a variety of thesis research projects. Students who do not choose to continue in academia find employment in a variety of areas and places, for example, working with Environment Canada as research associates or weather forecasters.

section 11.1.6: Master of Science (M.Sc.); Atmospheric and Oceanic Sciences (Thesis) — Environment (45 credits)

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 following the Environment option must first be accepted by the Department of Atmospheric and Oceanic Sciences, and then by the McGill School of Environment (MSE) before an offer of admission will be made by the University. Environment option students require either a single supervisor with a joint appointment in Atmospheric and Oceanic Sciences and the MSE, or co-supervisors, one each in Atmospheric and Oceanic and the MSE.

section 11.1.7: Doctor of Philosophy (Ph.D.); Atmospheric and Oceanic Sciences

Our program applies mathematics, physics, computing, and sometimes chemistry to study the atmosphere and or oceans. The ideal student would therefore have a strong quantitative background in one or more of these fields. Although some of our students have undergraduate knowledge of meteorology of physical oceanography, such background is not necessary to succeed in the program. McGill offers the only program in Canada which includes both atmospheric and oceanic sciences. Students benefit from a large professor to student ratio, access to state-of-the-art computing, remote sensing, and atmospheric chemistry laboratory equipment. The Department also has close ties with Environment Canada's numerical weather prediction centre in Dorval, Quebec. Students who do not choose to continue in academia find employment in a variety of areas and places, for example, working with Environment Canada as research associates or weather forecasters.

11.1.3 Atmospheric and Oceanic Sciences Admission Requirements and Application Procedures

11.1.3.1 Admission Requirements

Applicants for the M.Sc. program must meet the general requirements of Graduate and Postdoctoral Studies 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. 1 rather than the Ph.D. 2 level, and devote the first year of the program mainly to coursework.

Inquiries should be addressed directly to the Chair of Admissions, Department of Atmospheric and Oceanic Sciences.

11.1.3.2 Application Procedures

McGill's online application form for graduate program candidates is available at *www.mcgill.ca/gradapplicants/apply*.

Dates for Guaranteed Consideration

For dates for guaranteed consideration, please consult the following website: *www.mcgill.ca/gradapplicants/programs*. Then select the appropriate program.

Note: We are not willing to consider any applications to be admitted for the Summer term.

11.1.4 Atmospheric and Oceanic Sciences Faculty

Chair

J.R. Gyakum

Emeritus Professors

J.F. Derome, B.Sc., M.Sc.(McG.), Ph.D.(Mich.), F.R.S.C.

H.G. Leighton; B.Sc., M.Sc.(McG.), Ph.D.(Alta.)

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.R. Rogers; B.S.(Texas), S.M.(MIT), Ph.D.(NYU)

I. Zawadzki; B.Sc.(Buenos Aires), M.Sc., Ph.D.(McG.), F.R.S.C.

Professors

J.R. Gyakum; B.Sc.(Penn. St.), M.Sc., Ph.D.(MIT)

M.K. Yau; S.B., S.M., Sc.D.(MIT) (*NSERC/Hydro-Québec Industrial Research Chair in Short-term Forecasting of Precipitation*)

I. Zawadzki; B.Sc.(Buenos Aires), M.Sc., Ph.D.(McG.), F.R.S.C.

Associate Professors

P. Ariya; B.Sc., Ph.D.(York) (*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 M0.52 4fessors*

ATOC 691	(3)	Master's Thesis Literature Review
ATOC 692	(6)	Master's Thesis Research 1
ATOC 694	(3)	Master's Thesis Progress Report and Seminar
ATOC 699	(12)	Master's Thesis

Students registered in M.Sc. programs are expected to regularly attend both the student seminar series (ATOC 751D1/D2 or ATOC 752D1/D2) and the Department seminar series during the entire period of their enrolment in the program.

Complementary Courses (21 credits)

Must complete or have completed the following courses or equivalent:

ATOC 512	(3)	Atmospheric and Oceanic Dynamics
ATOC 513	(3)	Waves and Stability
ATOC 515	(3)	Turbulence in Atmosphere and Oceans
ATOC 521	(3)	Cloud Physics
ATOC 525	(3)	Atmospheric Radiation
ATOC 530	(3)	Paleoclimate Dynamics
ATOC 531	(3)	Dynamics of Current Climates
ATOC 540	(3)	Synoptic Meteorology 1
ATOC 541	(3)	Synoptic Meteorology 2
ATOC 568	(3)	Ocean Physics
ATOC 619*	(3)	Advanced Atmospheric Chemistry
ATOC 626	(3)	Atmospheric/Oceanic Remote Sensing
ATOC 646	(3)	Mesoscale Meteorology
ATOC 666	(3)	Topics In Ocean Circulation
CHEM 619*	(3)	Advanced Atmospheric Chemistry

* Students may select either ATOC 619 or CHEM 619.

Or other courses at the 500 level or higher recommended by the department's Graduate Program Director.

Students with a strong background in atmospheric or oceanic science, or a Diploma in Meteorology, will take at least the 7 credit minimum. Students with no previous background in atmospheric or oceanic science must take the 20 credit maximum.

11.1.6 Master of Science (M.Sc.); Atmospheric and Oceanic Sciences (Thesis) — Environment (45 credits)

Thesis Courses (24 credits)

ATOC 691	(3)	Master's Thesis Literature Review
ATOC 692	(6)	Master's Thesis Research 1
ATOC 694	(3)	Master's Thesis Progress Report and Seminar
ATOC 699	(12)	Master's Thesis

Students registered in M.Sc. programs are expected to regularly attend both the student seminar series (ATOC 751D1/D2 or ATOC 752D1/D2) and the Department seminar series during the entire period of their enrolment in the program.

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)

12 credits of Departmental courses chosen from the following:

ATOC 512	(3)	Atmospheric and Oceanic Dynamics
ATOC 513	(3)	Waves and Stability
ATOC 515	(3)	Turbulence in Atmosphere and Oceans
ATOC 521	(3)	Cloud Physics
ATOC 525	(3)	Atmospheric Radiation
ATOC 530	(3)	Paleoclimate Dynamics
ATOC 531	(3)	Dynamics of Current Climates
ATOC 540	(3)	Synoptic Meteorology 1
ATOC 541	(3)	Synoptic Meteorology 2
ATOC 568	(3)	Ocean Physics
ATOC 619*	(3)	Advanced Atmospheric Chemistry
ATOC 626	(3)	Atmospheric/Oceanic Remote Sensing
ATOC 646	(3)	Mesoscale Meteorology
ATOC 666	(3)	Topics In Ocean Circulation
CHEM 619*	(3)	Advanced Atmospheric Chemistry

or another course at the 500 level or higher recommended by the Department's Graduate Program Director.

* Students may select either ATOC 619 or CHEM 619.

3 credits of MSE courses chosen from the following:

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
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.

11.1.7 Doctor of Philosophy (Ph.D.); Atmospheric and Oceanic Sciences

Thesis

Required Courses

(1 credit)

ATOC 700	(1)	Ph.D. Proposal Seminar
ATOC 701	(0)	Ph.D. Comprehensive (General)

Complementary Courses (7 credits)

Students are required to take ATOC 751D1 and ATOC 751D2 OR ATOC 752D1 and ATOC 752D2.

1 credit from:

ATOC 751D1	(.5)	Seminar: Physical Meteorology
ATOC 751D2	(.5)	Seminar: Physical Meteorology
ATD2.	(.5)	Atmospheric, Oceanic and Climate Dynamics

section 11.2.5: Master of Science (M.Sc.); Biology (Thesis) (45 credits)

the program also accepts some students with a high scholastic standing who have completed a program in fields other than biology (medicine, engineering, chemistry, physics, etc.). Admission is based on an evaluation by the applicant's potential supervisor, who is the faculty member who will provide supervision and financial support for the student's research, and by the Biology Graduate Training Committee. Prospective graduate students are encouraged to contact faculty members with whom they wish to study before applying for admission.

Alumni have gone on to pursue a wide range of careers. Many go on to pursue postdoctoral research and later assume faculty positions, while others work as researchers in industry, wildlife biologists, forensic technologists, or science policy advisers, to name a few.

section 11.2.6: Master of Science (M.Sc.); Biology (Thesis) — Environment (48 credits)

The Environment graduate option offers students the opportunity to pursue environment-focused graduate research in the context of a range of different fields, including Anthropology, Atmospheric and Oceanic Sciences, Biology, Bioresource Engineering, Earth and Planetary Sciences, Entomology, Epidemiology, Experimental Medicine, Geography, Law, Microbiology, Plant Science, Parasitology, Philosophy, Renewable Resources, and Sociology. Through a program consisting of research, seminars and two courses, this option adds a layer of interdisciplinarity that challenges students to develop and defend their research and think in a broader context. Students graduating from the M.Sc. or Ph.D. program under the Environment option will therefore be able to understand and critically analyze an environmental problem from several perspectives (e.g., social, cultural, scientific, technological, ethical, economic, political, legislative) and at a local, national, regional, and/or international scale. In addition, they will be able to explore and critically assess analytic and institutional approaches for alleviating the selected environmental problem, and to effectively communicate research findings to both specialist and lay audiences. Coordinated and administered through the McGill School of Environment (MSE), the Environment option is aimed at students who wish to use interdisciplinary approaches in their graduate research on environmental issues and who wish to benefit from interactions that will occur as they interact with students from a wide range of different disciplines.

section 11.2.7: Master of Science (M.Sc.); Biology (Thesis) — Neotropical Environment (48 credits)

The McGill-Smithsonian Tropical Research Institute (STRI) Neotropical Environment Option (NEO) is a research-based option for M.Sc. or Ph.D. students in the departments of Anthropology, Biology, Bioresource Engineering, Geography, Natural Resource Sciences, Plant Science, and Political Science at McGill University. The NEO is aimed at students who wish to focus their graduate research on environmental issues relevant to the Neotropics and Latin American countries. The typical NEO student has a very strong interest in conservation because NEO courses focus on conservation issues. Students in the program have diverse backgrounds, including both Latin American and Canadian students, and must either speak Spanish or enrol in a Spanish course when they enter the program. NEO favours interdisciplinary approaches to research and learning through the participation of researchers from McGill and from STRI. Accordingly, each student will have two co-supervisors, one from McGill and one from STRI. Students will complete their research in Latin America and the NEO's core and complementary courses will be taught in Panama. Participation in the MSE-Panama Symposium presentation in Montreal is also required. Through this educational approach, NEO seeks to facilitate a broader understanding of tropical environmental issues and the development of skills relevant to working in the tropics.

section 11.2.10: Doctor of Philosophy (Ph.D.); Biology — Developmental Biology

to the Department of Biology, including the Montreal Neurological Institute, the Institut de Recherches Cliniques de Montréal (IRCM), and the Rosalind and Morris Goodman Cancer Centre. The synergies arising from this network enhance a unique training environment that provides students with outstanding theoretical and practical preparation for a future career in science. This Ph.D. program is distinguished from the graduate program in Biology because entering students will carry out three research “rotations” during their first semester, allowing them to experience a variety of research areas before choosing a supervisor for the remainder of their graduate work. Students enter directly from their undergraduate studies, and the primary criterion for admission to the program is a strong background in research at the undergraduate level. It is also expected that candidates will have a CGPA of 3.5 or better, although exceptions may be made for applicants with outstanding research experience. Students will also participate in courses, retreats, and symposia specific to the program.

section 11.2.11: Doctor of Philosophy (Ph.D.); Biology — Environment

The Environment graduate option offers students the opportunity to pursue environment-focused graduate research in the context of a range of different fields, including Anthropology, Atmospheric and Oceanic Sciences, Biology, Bioresource Engineering, Earth and Planetary Sciences, Entomology, Epidemiology, Experimental Medicine, Geography, Law, Microbiology, Plant Science, Parasitology, Philosophy, Renewable Resources, and Sociology. Through a program consisting of research, seminars and two courses, this option adds a layer of interdisciplinarity that challenges students to develop and defend their research and think in a broader context. Students graduating from the M.Sc. or Ph.D. program underfrom salind

Associate Professors

Ehab Abouheif; M.Sc.(C'dia), Ph.D.(Duke) (*on sabbatical*)

Thomas E. Bureau; B.Sc.(Calif.), Ph.D.(Texas) (*William Dawson Scholar*)

Joseph A. Dent; B.Sc.(Mich.), Ph.D.(Col.)

François Fagotto; Ph.D.(Neuchâtel)

Gregor Fussmann; Dipl.(Berlin), Ph.D.(Max Planck Institute)

Andrew Gonzalez; B.Sc.(Nott.), Ph.D.(Imperial Coll., Lond.)

Frédéric Guichard; B.Sc.(Montr.), Ph.D.(Laval)

Paul Harrison; B.Sc.(NUI), Ph.D.(Lond.) (*on sabbatical*)

Andrew Hendry; B.Sc.(Vic., BC), M.Sc., Ph.D.(Wash.) (*joint appt. with Redpath Museum*)

Rudiger Krahe; Dipl.(Alexander U.), Ph.D.(Humboldt) (*on sabbatical*)

Brian Leung; B.Sc.(Br. Col.), Ph.D.(Car.)

Robert L. Levine; B.Sc.(Brooklyn), M.Sc., Ph.D.(Yale)

Laura Nilson; B.A.(Colgate), Ph.D.(Yale)

Richard Roy; B.Sc.(Bishop's), Ph.D.(Laval)

Frieder Schoeck; Dipl.(Erhangen), Ph.D.(Max Planck Institute)

Jacalyn Vogel; M.Sc.(E. Ill.), Ph.D.(Kansas) (*Canadian Pacific Chair in Biotechnology*)

Tamara Western; B.Sc.(Dal.), Ph.D.(Br. Col.)

Monique Zetka; B.Sc., Ph.D.(Br. Col.)

Assistant Professors

Gary Brouhard; M.S.E., Ph.D.(Mich.)

David Dankort; B.Sc., Ph.D.(McM.)

Jonathan Davies; M.Sc.(Cape Town), Ph.D.(Imperial Coll., Lond.)

Irene Gregory-Eaves; B.Sc.(Vic., BC), M.Sc., Ph.D.(Qu.)

Nam-Sung Moon; B.Sc., Ph.D.(McG.)

Simon Reader; B.A.(Camb.), Ph.D.(Camb.)

Jon Sakata; B.A.(C'Nell), Ph.D.(Texas-Austin)

Alanna J. Watt; B.Sc.(C'dia), Ph.D.(Brandeis)

Sarah Woolley; B.Sc.(Duke), Ph.D.(Texas-Austin)

Hugo Zheng; M.Sc.(Helsinki), Ph.D.(Oxf. Brookes)

Associate Members

Anatomy and Cell Biology: Nathalie Lamarche, Craig Mandato

Anthropology: Colin Chapman

Biochemistry: Maxime Bouchard

Centre for Research in Neuroscience: Sal Carbonetto, Robert Dunn, Yong Rao, Donald Van Meyel

Dept. of Human Genetics, Chair: David Rosenboh.)

Thesis Courses (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

Required Courses (6 credits)

BIOL 640	(3)	Tropical Biology and Conservation
ENVR 610	(3)	Foundations of Environmental Policy

Elective Courses (3 credits)

3 credits, at the 500 level or higher, on environmental issues to be chosen in consultation with and approved by the student’s supervisor AND the Neotropical Environment Options Director.

11.2.8 Master of Science (M.Sc.); Biology (Thesis) — Bioinformatics (48 credits)

Thesis Courses (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

Required Courses (3 credits)

COMP 616D1	(1.5)	Bioinformatics Seminar
COMP 616D2	(1.5)	Bioinformatics Seminar

Complementary Courses (6 credits)

6 credits from the following courses:

BINF 621	(3)	Bioinformatics: Molecular Biology

or another graduate course at the 500, 600, or 700 level recommended by the advisory committee and approved by the Environment Option Committee.

11.2.12 Doctor of Philosophy (Ph.D.); Biology — Neotropical Environment

Participation in the MSE-Panama Symposium presentation in Montreal is also required.

Thesis

Required Courses (12 credits)2.12

11.3.2 About Chemistry

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 Thematic Group is engaged in a diverse range of research topics which span structural biology, enzymology, nucleic acid research, signalling pathways, single molecule biophysics, and 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 drug metabolism 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 involved in cellular adhesion and transport in membrane and zeolite channels; and cutting-edge microscopes 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 multi-pulse 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.

section 11.3.5: Master of Science, Applied (M.Sc.A.); Chemistry (Non-Thesis) (45 credits)

(*Not offered in 2011-2012*)

section 11.3.6

Professors

B.A. Arndtsen; B.A.(Car.), Ph.D.(Stan.)

D.S. Bohle; B.A.(Reed), 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.

D.G. Gray; B.Sc.(Belf.), M.Sc., Ph.D.(Manit.), F.C.I.C.

D.N. Harpp; A.B.(Middlebury), M.A.(Wesl.), Ph.D.(N. Carolina), 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.(Chin. Acad. Sci.), 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.)

H. Sleiman; B.Sc.(A.U.B.), Ph.D.(Stan.)

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)

K. Auclair; B.Sc.(UQAC), Ph.D.(Alta.)

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.(Virg.)

A. Kakkar; B.Sc., M.Sc.(Chan. U., India), Ph.D.(Wat.)

P. Kambhampati; B.A.(Car. Coll.), Ph.D.(Texas)

D. Perepichka; B.Sc.(Donetsk St. U, Ukraine), Ph.D.(Nat. Aca. Sci., Ukraine)

J.F. Power; B.Sc., Ph.D.(C'dia)

L. Reven; B.A.(Car.), Ph.D.(Ill.)

Y.S. Tsantrizos; B.Sc., M.Sc., Ph.D.(McG.)

P. Wiseman; B.Sc.(St. FX), Ph.D.(W. Ont.)

Assistant Professors

A.S. Blum; B.A.(Princ.), Ph.D.(Wash.)

M. Bourqui; B.Sc.(EPF Lausanne), Ph.D.(ETH Zürich)

G. Cosa; B.Sc.(Argentina), Ph.D.(Ott.)

A. Mittermaier; B.Sc.(Guelph), Ph.D.(Tor.)

A. Moores; B.Sc., Ph.D.(École Polytechnique, Paris)

B. Siwick; B.A.Sc. Eng. Sci., M.Sc., Ph.D.(Tor.)

Associate Members

J.A. Finch (

11.3.5 Master of Science, Applied (M.Sc.A.); Chemistry (Non-Thesis) (45 credits)

(Not offered in 2011-2012)

Research Project (15 credits)

CHEM 699	(15)	Project

Complementary Courses (30 credits)

15 credits, five 3-credit CHEM courses at the 500, 600, or 700 level.

15 credits, five 3-credit courses at the 500, 600, or 700 level selected in consultation with the Adviser.

11.3.6 Master of Science (M.Sc.); Chemistry (Thesis) (45 credits)

Thesis Courses

(24-31 credits)

At least 24 credits chosen from the following:

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

Required Courses

(5 credits)

CHEM 650	(1)	Seminars in Chemistry 1
CHEM 651	(1)	Seminars in Chemistry 2
CHEM 688	(3)	Assessment

Complementary Courses

(9-16 credits)

Students will normally take 9-16 credits of CHEM (or approved) courses at the 500 or 600 level.

11.3.7 Master of Science (M.Sc.); Chemistry (Thesis) — Chemical Biology (45 credits)

(Not offered in 2011-2012)

Thesis Courses (24 credits)

(minimum 24 credits)

At least 24 credits chosen from the following:

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

Required Courses (5 credits)

CHEM 650	(1)	Seminars in Chemistry 1
CHEM 651	(1)	Seminars in Chemistry 2
CHEM 688	(3)	Assessment

Complementary Courses (11 credits)

(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
BIOC 689	(1)	Seminars in Chemical Biology 2
BIOC 690	(1)	Seminars in Chemical Biology 4

Students will take at least three courses from the following list, including at least 3 credits from the first two courses listed below:

Note: Students can take either CHEM 503 or PHAR 503, CHEM 504 or PHAR 504.

BIOC 603	(3)	Genomics and Gene Expression
BIOC 604	(3)	Macromolecular Structure
CHEM 502	(3)	Advanced Bio-Organic Chemistry
CHEM 503	(3)	Drug Design and Development 1
CHEM 504	(3)	Drug Design and Development 2
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
	(4)	Advanced NMR Spectroscopy

Required Courses

CHEM 650	(1)	Seminars in Chemistry 1
CHEM 651CHEM 650	(1)	Seminars in Chemistry 2

PHAR 504	(3)	Drug Design and Development 2
PHAR 562	(3)	General Pharmacology 1
PHAR 563	(3)	General Pharmacology 2
PHAR 707	(3)	Topics in Pharmacology 6

The remaining credits may be 500-, 600-, or 700-level courses approved by the Department.

11.4 Computer Science

11.4.1 Location

School of Computer Science
McConnell Engineering, Room 318
3480 University Street
Montreal, QC H3A 2A7
Canada

Telephone: 514-398-7071 ext. 00074
Fax: 514-398-38m00074

section 11.4.9: Doctor of Philosophy (Ph.D.); Computer Science

The Ph.D. program trains students to become strong, independent researchers in the field of their choice. Our graduates take challenging positions in industry or take academic positions at universities and research labs. In order to apply to the Ph.D. program, normally applicants should hold a Master's degree in Computer Science or a closely related area, from a well-recognized university, but exceptional students can be admitted to the Ph.D. program directly without a master's degree.

Emeritus Professors
G.T. G.T

Associate Members

D.J. Levitin (*Psychology*)

D. Schlimm (*Philosophy*)

R. Sengupta (*Geography*)

B.F. Shepherd (*Mathematics & Statistics*)

T.R. Shultz (*Psychology*)

R. Sieber (*Geography*)

Adjunct Professors

P.J. Mosterman, T. Perkins, I. Rekleitis, G.O. Sabidussi, M. Tabaeh Izadi, P. Tesson

11.4.5 Master of Science (M.Sc.); Computer Science (Thesis) (45 credits)

Thesis Courses (24 credits)

24 credits selected from:

COMP 691	(2)	Thesis Research 1
COMP 696	(3)	Thesis Research 2
COMP 697	(4)	Thesis Research 3
COMP 698	(9)	Thesis Research 4
COMP 699	(15)	Thesis Research 5

Complementary Courses (21 credits)

At least 21 credits of 500-, 600-, or 700-level COMP courses, including at least 12 credits of 4-credit courses.

Note: Students with an appropriate background can substitute 3 credits by COMP 696 and 4 credits by COMP 697.

11.4.6 Master of Science (M.Sc.); Computer Science (Thesis) — Computational Science and Engineering (45 credits)

Thesis Courses (24 credits)

24 credits selected from:

COMP 691	(2)	Thesis Research 1
COMP 696	(3)	Thesis Research 2
COMP 697	(4)	Thesis Research 3
COMP 698	(9)	Thesis Research 4
COMP 699	(15)	Thesis Research 5

Required Courses

One credit selected as follow:

COMP 669D1	(.5)	Computational Science Engineering Seminar
COMP 669D2	(.5)	Computational Science Engineering 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.

Note: Students with an appropriate background can substitute 3 credits by COMP 696 and 4 credits by COMP 697, but still need to take 6-8 credits from List A and 6-8 credits from List B.

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: Application 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 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)	Program Analysis and Transformations
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

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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)	Fundamentals of Heat Transfer
MECH 654	(4)	Compt. Fluid Flow and Heat Transfer

11.4.7 Master of Science (M.Sc.); Computer Science (Thesis) — Bioinformatics (45 credits)

Thesis Courses (24 credits)

24 credits selected from:

COMP 691	(2)	Thesis Research 1
COMP 696	(3)	Thesis Research 2
COMP 697	(4)	Thesis Research 3
COMP 698	(9)	Thesis Research 4
COMP 699	(15)	Thesis Research 5

Required Courses (3 credits)

COMP 616D1	(1.5)	Bioinformatics Seminar
COMP 616D2	(1.5)	Bioinformatics Seminar

Complementary Courses (18 credits)

6 credits 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

12 credits of 4-credit courses chosen from 500-, 600-, or 700-level Computer Science courses in consultation with the candidate's supervisor.

Note: Students with an appropriate background can substitute 4 credits by COMP 697.

11.4.8 Master of Science (M.Sc.); Computer Science (Non-Thesis) (45 credits)

Research Project (15 credits)

15 credits selected as follows:

COMP 693	(3)	Research Project 1
COMP 694	(6)	Research Project 2
COMP 695	(6)	Research Project 3

Complementary Courses (30 credits)

30 credits of 500-, 600-, or 700-level COMP courses.

11.4.9 Doctor of Philosophy (Ph.D.); Computer Science

Required coursework: Students must take eight graduate courses, of which at least five are computer science courses. These courses should be chosen by the student in consultation with the supervisor (or co-supervisor) and the Progress Committee.

Thesis

Required Courses

COMP 700	(0)	Ph.D. Comprehensive Examination
COMP 701	(3)	Thesis Proposal and Area Examination

Complementary Courses

18-24 credits selected from:

Category A: Theory and Applications

COMP 506	(3)	Advanced Analysis of Algorithms
COMP 507	(3)	Computational Geometry
COMP 523	(3)	Language-based Security
COMP 524	(3)	Theoretical Foundations of Programming Languages
COMP 525	(3)	Formal Verification
COMP 531	(3)	Theory of Computation
COMP 540	(3)	Matrix Computations
COMP 547	(4)	Cryptography and Data Security
COMP 552	(4)	Combinatorial Optimization
COMP 554	(4)	Approximation Algorithms
COMP 560	(3)	Graph Algorithms and Applications
COMP 561	(4)	Computational Biology Methods and Research
COMP 563	(3)	Molecular Evolution Theory
COMP 564	(3)	Computational Gene Regulation
COMP 566	(3)	Discrete Optimization 1
COMP 567	(3)	Discrete Optimization 2
COMP 598	(3)	Topics in Computer Science 1
COMP 599	(3)	Topics in Computer Science 2
COMP 610	(4)	Information Structures 1
COMP 618	(3)	Bioinformatics: Functional Genomics
COMP 623	(4)	Concurrent Programming Languages
COMP 627	(4)	Theoretical Programming Languages
COMP 642	(4)	Numerical Estimation Methods
COMP 647	(4)	Advanced Cryptography
COMP 648	(4)	Motion Planning and Robotics
COMP 649	(4)	Quantum Cryptography
COMP 680	(4)	Mining Biological Sequences
COMP 690	(4)	Probabilistic Analysis of Algorithms
COMP 760	(4)	Advanced Topics Theory 1
COMP 761	(4)	Advanced Topics Theory 2

Category B: Systems and Applications

COMP 512	(4)	Distributed Systems
COMP 520	(4)	Compiler Design
COMP 521	(4)	Modern Computer Games
COMP 522	(4)	Modelling and Simulation
COMP 526	(3)	Probabilistic Reasoning and AI
COMP 529	(4)	Software Architecture
COMP 533	(3)	Object-Oriented Software Development
COMP 535	(3)	Computer Networks 1
COMP 557	(3)	Fundamentals of Computer Graphics
COMP 558	(3)	Fundamentals of Computer Vision
COMP 575	(3)	Fundamentals of Distributed Algorithms
COMP 577	(3)	Distributed Database Systems
COMP 598	(3)	Topics in Computer Science 1
COMP 599	(3)	Topics in Computer Science 2
COMP 612	(4)	Database Programming Principles
COMP 614	(4)	Distributed Data Management
COMP 617	(4)	Information Systems
COMP 621	(4)	Program Analysis and Transformations
COMP 644	(4)	Pattern Recognition
COMP 646	(4)	Computational Perception

Complementary Cour

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.

11.5.3 Earth and Planetary Sciences Admission Requirements and Application Procedures

11.5.3.1 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.

11.5.3.2 Application Procedures

Dates for Guaranteed Consideration

For dates for guaranteed consideration, please consult the following website: *www.mcgill.ca/gradapplicants/programs*. Then select the appropriate program.

Applicants who want to be considered for entrance awards, or requiring financial assistance, should apply before the dates for guaranteed consideration.

Assistant Professors

Eric Galbraith; B.Sc.(McG.), Ph.D.(Br. Col.)

Sarah Hall; B.A.(Hamilton), Ph.D.(Calif.-Santa Cruz)

Yajing Liu; B.Sc.(Peking), Ph.D.(Harv.)

Jeffrey McKenzie; B.Sc.(McG.), M.Sc., Ph.D.(Syrac.)

Christie Rowe; A.B.(Smith), Ph.D.(Calif.-Santa Cruz)

Vincent van Hinsberg; Propadeuse(Utrecht), Doctorandus(Utrecht), Ph.D.(Brist.)

Boswell Wing; A.B.(Harv 0 0 1 PPP 107.448 646.-3hns, Dg.52 Thing;

Complementary Courses (6 credits)

One 3-credit course at the 500, 600, or 700 level chosen with the approval of the supervisor or research director and GPS.

3 credits chosen from 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
ENVR 680	(3)	Topics in Environment 4

or another course at the 500, 600, or 700 level recommended by the advisory committee and approved by the Environment Option Committee.

11.5.7 Doctor of Philosophy (Ph.D.); Earth and Planetary Sciences

Highly qualified B.Sc. graduates may be admitted directly to the Ph.D. 1 year. Students with the M.Sc. degree are normally admitted to the Ph.D. 2 year. Students are required to take six graduate-level courses in the Ph.D. 1 year, and two courses plus a comprehensive oral examination in the Ph.D. 2 year.

Thesis

Required Courses

EPSC 666	(3)	Current Issues in Geosciences
EPSC 700	(0)	Preliminary Doctoral Examination

Complementary Courses

One to seven courses approved at the 500, 600, or 700 level selected in consultation with the student's supervisor and approved by the Academic Standing Committee.

11.5.8 Doctor of Philosophy (Ph.D.); Earth and Planetary Sciences — Environment

Thesis

Required Courses

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
EPSC 666	(3)	Current Issues in Geosciences
EPSC 700	(0)	Preliminary Doctoral Examination

Complementary Courses

One to five courses

One course chosen from 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
ENVR 680	(3)	Topics in Environment 4

or another course at the 500, 600, or 700 level recommended by the advisory committee with the student's supervisor and approved by the Academic Standing Committee.

Zero to four courses at the 500, 600, or 700 level selected in consultation with the student's supervisor and approved by the Academic Standing Committee.

11.6 Geography

11.6.1 Location

Department of Geography
Burnside Hall
805 Sherbrooke Street West, Room 705
Montreal, QC H3A 2K6
Canada

Telephone: 514-398-4111
Fax: 514-398-7437
Email: *grad.geog@mcgill.ca*
Website: *www.geog.mcgill.ca*

11.6.2 About Geography

The Department of Geography offers a research and thesis-based graduate program leading to a Master of Arts (M.A.), Master of Science (M.Sc.), and a doctorate (Ph.D.). In its scope, our program includes the opportunity to conduct field-based studies in both the natural (i.e., biophysical) and the social sciences. Thematic areas of study include Political, Urban, Economic and Health Geography, Environment and Human Dev

Master’s degrees in both the physical (M.Sc.) and social (M.A.) sciences are offered by Geography. The core of both programs for all students is field-based research supervised by a faculty member culminating in a thesis. The core program consists of the thesis component (30 credits) and required (3) and complementary (12) graduate (500- or 600-level) courses.

Geography also offers in association with other McGill departments and programs a number of M.A. and M.Sc. options that students may choose to follow. 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 adviser.

Master of Arts (M.A.) Programs in Geography

Faculty of Arts > Academic Programs > Geography > : Master of Arts (M.A.); Geography (Thesis) (45 credits)

Master’s degrees in both the physical (M.Sc.) and social (M.A.) sciences are offered by Geography. The core of both programs for all students is field-based research supervised by a faculty member culminating in a thesis. The core program consists of the thesis component (30 credits) and required (3) and complementary (12) graduate (500- or 600-level) courses. Geography also offers in association with other McGill departments and programs a number of M.A. and M.Sc. options that students may choose to follow.

Faculty of Arts > Academic Programs > Geography > : Master of Arts (M.A.); Geography (Thesis) — Environment (45 credits)

The Environment Option is offered in association with the McGill School of Environment and is composed of a thesis component (24 credits), required Geography and Environment courses (9), and complementary Geography and Environment (12) courses. 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. Students who 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.

Faculty of Arts > Academic Programs > Geography > : Master of Arts (M.A.); Geography (Thesis) — Neotropical Environment (45 credits)

The McGill-STRI Neotropical Environment Option (NEO) is a research-based option for master's or Ph.D. students offered in association with several University departments, the McGill School of Environment, and the Smithsonian Tropical Research Institute (STRI-Panama). The option includes thesis (30 credits), required courses in Geography, Environment, and Biology (9), and complementary courses (6) chosen from Geography, Agriculture Sciences, Biology, Sociology, Environment, and Political Science. NEO is aimed at students who wish to focus their graduate research on environmental issues relevant to the Neotropics and Latin American countries. NEO favors interdisciplinary approaches to research and learning through the participation of researchers from McGill and from STRI. Students will complete their research in Latin America and NEO's core and complementary courses will be taught in Panama. NEO's educational approach seeks to facilitate a broader understanding of tropical environmental issues and the development of skills relevant to working in the tropics.

Faculty of Arts > Academic Programs > Geography > : Master of Arts (M.A.); Geography (Thesis) — Development Studies (45 credits)

The Development Studies Option (DSO) is cross-disciplinary in scope within existing Master’s programs in Geography, Anthropology, History, Political Science, Economics, and Sociology. Its components include the thesis (30 credits) and required (6) International Development and Geography courses and complementary (9) courses from the participating departments. 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.

Faculty of Arts > Academic Programs > Geography > : Master of Arts (M.A.); Geography (Thesis) — Gender and Women's Studies (45 credits)

This is an interdisciplinary program for Geography students wishing to focus on gender and women’s studies and issues in feminist research and methods. Included within it are a thesis (30 credits) topically on gender and women’s studies, required (6), and complementary (9) courses from Geography and Women’s Studies.

Faculty of Arts > Academic Programs > Geography > : Master of Arts (M.A.); Geography (Thesis) — Social Statistics (45 credits)

The Social Statistics Option focuses on applications of quantitative methods in social science and is composed of the thesis (30 credits), required Geography (6) courses and complementary Geography, Sociology, Economics, and Political Science (9) courses. 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 adviser, 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 Graduate and Postdoctoral Studies admission requirements.

Master of Science (M.Sc.) Programs in Geography

Faculty of Science > Academic Programs > Geography > section 11.6.5: Master of Science (M.Sc.); Geography (Thesis) (45 credits)

Master’s degrees in both the physical (M.Sc.) and social (M.A.) sciences are offered by Geography. The core of both programs for all students is field-based research supervised by a faculty member culminating in a thesis. The core program consists of the thesis component (30 credits) and required (3) and

complementary (12) graduate (500- or 600-le

Attention is directed to the Graduate and Postdoctoral Studies admission regulations outlined in the *Admission* section of the *Graduate and Postdoctoral Studies General Information, Regulations and Research Guidelines* available at *www.mcgill.ca/study*.

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 the 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 coursework 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.

11.6.3.2 Application Procedures

Applicants will be considered upon receipt of:

1. application form;
2. official transcripts;
3. **two** letters of reference for master's; **three** for Ph.D.;
4. $100 application fee;
5. statement of proposed research;
6. official TOEFL or IELTS score (when necessary).

Dates for Guaranteed Consideration

For dates for guaranteed consideration, please consult the following website: *www.mcgill.ca/gradapplicants/programs*. Then select the appropriate program.

McGill's online application form for graduate program candidates is available at *www.mcgill.ca/gradapplicants/apply*.

11.6.4 Geography Faculty

Chair

T. R. Moore (*as of September 2011*)

Graduate Program Director

George Wenzel

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.(Manit.), Ph.D.(McG.)

Associate Professors

G.L. Chmura; M.Sc.(Rhode Is.), Ph.D.(Louis. St.)

O.T. Coomes; M.A.(Tor.), Ph.D.(Wisc. 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.)

W.H. Pollard; M.A.(Guelph), Ph.D.(Ott.)

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
GEOG 631	(3)	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. GEOG 696 can count among these complementary credits for students with an appropriate background.

3 credits, one course chosen from the following:

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
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.

11.6.7 Master of Science (M.Sc.); Geography (Thesis) — Neotropical Environment (45 credits)

Participation in the MSE-Panama Symposium presentation in Montreal is also required.

Thesis Courses (30 credits)

GEOG 698	(6)	Thesis Proposal
GEOG 699	(24)	Thesis Research

Required Courses (9 credits)

BIOL 640	(3)	Tropical Biology and Conservation

Foundations of Environmental Polic8o645 credits 0 1 281.355resenpa380.765 l61.213B th1 0 0 1 70./F0 8m(8o6)Tj1 0 c

el or higher selected according to guipa380.765 l61.213B th1 0 024.47)GEOG 631

11.6.8 Doctor of Philosophy (Ph.D.); Geography

The doctoral degree in Geography includes the successful completion of the comprehensive examination, a thesis based on original research and coursework chosen in collaboration with the student's supervisor and/or research committee. The main elements of the Ph.D. are the thesis and comprehensive examination, a required Methods of Geographical Research course (3 credits), and a minimum of two complementary courses (6 credits). The Ph.D. in Geography also includes several options.

Thesis

Required Courses

GEOG 631	(3)	Methods of Geographical Research
GEOG 700	(0)	Comprehensive Examination 1
GEOG 701	(0)	Comprehensive Examination 2
GEOG 702	(0)	Comprehensive Examination 3

Complementary Courses

Two courses at the 500, 600, or 700 level selected according to guidelines of the Department.

Doctor of Philosophy (Ph.D.); Geography — En

Faculty of Science > Academic Programs > Mathematics and Statistics > section 11.7.7: Master of Science (M.Sc.); Mathematics and Statistics (Thesis) — Computational Science and Engineering (47 credits)

CSE is a rapidly growing multidisciplinary area with connections to the sciences, engineering, mathematics and computer science. CSE focuses on the development of problem-solving methodologies and robust tools for the solution of scientific and engineering problems. Please visit our website for more information: *www.cs.mcgill.ca/prospective-students/graduate/msc_cse_option*

Faculty of Science > Academic Programs > Mathematics and Statistics > section 11.7.8: Master of Science (M.Sc.); Mathematics and Statistics (Non-Thesis) (45 credits)

The Department of Mathematics and Statistics offers programs with concentrations in applied mathematics, pure mathematics, and statistics leading to the Master's degree (M.Sc.).The Non-Thesis option requires a project (16 credits) and eight approved courses of 3 or more credits each for a total of at least 29 credits.

section 11.7.9: Doctor of Philosophy (Ph.D.); Mathematics and Statistics

The Department offers a course of studies leading to the Ph.D. degree. It differs substantially from the master’s programs in that the student must write a thesis which makes an original contribution to knowledge. The thesis topic is chosen by the student in consultation with the research supervisor. The thesis must be examined and approved by an internal examiner (normally the research supervisor), an external examiner and the Oral Examination Committee. The student must make an oral defense of the thesis before that Committee. In addition, the student has to pass comprehensive examinations.

section 11.7.10: Doctor of Philosophy (Ph.D.); Mathematics and Statistics — Bioinformatics

Bioinformatics research lies at the intersection of biological/medical sciences and mathematics/computer science/engineering. The intention of the Bioinformatics option is to train students to become researchers in this interdisciplinary field. This includes the development of strategies for experimental design, the construction of tools to analyze datasets, the application of modelling techniques, the creation of tools for manipulating Bioinformatics data, the integration of biological databases, and the use of algorithms and statistics. Students successfully completing the Bioinformatics option at the Ph.D. level will be fluent in the concepts, language, approaches, and limitations of the field and have the capability of dev

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/graduate/application*.

All information is to be submitted directly to the Graduate Program Coordinator in the Department of Mathematics and Statistics.

Dates for Guaranteed Consideration

For dates for guaranteed consideration, please consult the following website: *www.mcgill.ca/gradapplicants/programs*. Then select the appropriate program.

McGill's online application form for graduate program candidates is available at *www.mcgill.ca/gradapplicants/apply*.

11.7.4 Mathematics and Statistics Faculty

Chair

Jacques Hurtubise

Graduate Program Director

Pengfei Guan

Emeritus Professors

Michael Barr; A.B., Ph.D.(Penn.) (*Peter Redpath Emeritus Professor of Pure Mathematics*)

William G. Brown; B.A.(Tor.), M.A.(Col.), Ph.D.(Tor.)

Marta Bunge; M.A., Ph.D.(Penn.)

Jal R. Choksi; B.A.(Cant.), Ph.D.(Manc.)

Kohur N. GowriSankaran; B.A., M.A.(Madr.), Ph.D.(Bom.)

Joachim Lambek; M.Sc., Ph.D.(McG.), F.R.S.C. (*Peter Redpath Emeritus Professor of Pure Mathematics*)

Michael Makkai; M.A., Ph.D.(Bud.) (*Peter Redpath 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.(Manit.), M.A.(Minn.), Ph.D.(Tor.)

Karl Peter Russell; Vor.Dip.(Hamburg), Ph.D.(Calif.)

Georg Schmidt; B.Sc.(Natal), M.Sc.(S. Af.), Ph.D.(Stan.)

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.)

Henri Darmon; B.Sc.(McG.), Ph.D.(Harv.), F.R.S.C. (*James McGill Professor*)

Stephen W. Drury; M.A., Ph.D.(Cant.)

Christian Genest; BSp.Sc.(UQAC), M.Sc.(Vermont), Ph.D.(Br. Col.)

Eyal Z. Goren; B.A., M.S., Ph.D.(Hebrew)

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.

Dmitry Jakobson; B.Sc.(MIT), Ph.D.(Princ.) (*William Dawson Scholar*)

Vojkan Jaksic; B.S.(Belgrade), Ph.D.(Calif. 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.)

Professors

Charles Roth; M.Sc.(McG.), Ph.D.(Hebrew)

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*)

Daniel T. Wise; B.A.(Yeshiva), Ph.D.(Princ.)

David Wolfson; B.Sc., M.Sc.(Natal), Ph.D.(Purd.)

Jian-Ju Xu; B.Sc., M.Sc.(Beijing), M.Sc., Ph.D.(Rensselaer Poly.)

Assistant Professors

Louigi Addario-Berry; B.Sc., M.Sc., Ph.D.(McG.)

Jayce Getz; A.B.(Harv.), Ph.D.(Wisc.)

Abbas Khalili; Ph.D.(Wat.)

Jean-Christophe Nave; B.Sc., Ph.D.(Calif., Santa Barbara)

Johanna Neslehova; B.Sc., M.Sc.(Hamburg), Ph.D.(Oldenburg)

Gantumur Tsogtgerel; Ph.D.(Utrecht)

Johannes Walcher; Dip, Ph.D.(ETH Zurich)

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*)

Rustum Choksi; B.Sc.(Tor.) S.M., Ph.D.(Brown)

Antony R. Humphries; B.A., M.A.(Camb.), Ph.D.(Bath)

Wilbur Jonsson; M.Sc.(Manit.), Dr.Rer.Nat.(Tübingen)

Ivo Klemes; B.Sc.(Tor.), Ph.D.(Calif. Tech.)

James G. Loveys; B.A.(St. Mary's), M.Sc., Ph.D.(S. Fraser)

Neville G.F. Sancho; B.Sc., Ph.D.(Belf.)

Robert Seiringer; Dip, Ph.D.(Vienna)

Russell Steele; B.S., M.S.(Carn. Mell), Ph.D.(Wash.)

Alain Vandal; B.Sc., M.Sc.(McG.), Ph.D.(Auck.)

Adrian Vetta; B.Sc., M.Sc.(LSE), Ph.D.(MIT) (*joint appt. with Computer Science*)

Associate Members

Xiao-Wen Chang (*Computer Science*), Luc P. Devroye (*Computer Science*), Pierre R.L. Dutilleul (*Plant Science*), Eliot Fried (*Mechanical Engineering*), Leon Glass (*Physiology*), George Haller (*Engineering*), 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*), George Alexander Whitmore (*Management*), Christina Wolfson (*Epidemiology & Biostatistics*)

Adjunct Professors

Vasek Chvatal; Ph.D.(Wat.)

Donald A. Dawson; B.Sc., M.Sc.(McG.), Ph.D.(MIT)

Martin Gander; M.S.(ETH Zurich), M.S., Ph.D.(Stan.)

Andrew Granville; B.A., CASM(Camb.), Ph.D.(Qu.)

Adrian Iovita; B.S.(Bucharest), Ph.D.(Boston)

Ming Mei; B.Sc., M.Sc.(Jiangxi Normal Uni.), Ph.D.(Kanazawa)

Adjunct Professors

Alexei Miasnikov; M.Sc.(Novosibirsk), Ph.D., Dr. of Sc.(Lenin.)

M. Ram Murty; B.Sc.(Car.), Ph.D.(MIT), F.R.S.C.

Vladimir Remeslennikov; M.Sc.(Perm, Russia), Ph.D.(Novosibirsk)

Robert A. Seely; B.Sc.(McG.), Ph.D.(Cant.)

Faculty Lecturers

José A. Correa; M.Sc.(Wat.), Ph.D.(Car.)

H. Hahn; Ph.D.(Ill.-Urbana-Champaign)

Axel Hundemer; M.Sc., Ph.D.(Munich)

Armel Djivede Kelome; M.Sc.(Benin), M.Sc.(McG.), Ph.D.(Georgia Tech.)

11.7.5 Master of Science (M.Sc.); Mathematics and Statistics (Thesis) (45 credits)

Thesis Courses (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

Complementary Courses (21 credits)

At least six approved graduate courses, at the 500, 600, or 700 level, of 3 or more credits each.

11.7.6 Master of Science (M.Sc.); Mathematics and Statistics (Thesis) — Bioinformatics (48 credits)

Thesis Courses (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

Required Course (3 credits)

COMP 616D1	(1.5)	Bioinformatics Seminar
COMP 616D2	(1.5)	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 lev

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)	Geometry in Mechanics
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)	Fundamentals of Heat Transfer
MECH 654	(4)	Compt. Fluid Flow and Heat Transfer

11.7.8 Master of Science (M.Sc.); Mathematics and Statistics (Non-Thesis) (45 credits)

Research Project (16 credits)

MATH 640	(8)	Project 1
MATH 641	(8)	Project 2

Complementary Courses (29 credits)

At least eight approved graduate courses, at the 500, 600, or 700 level, of 3 or more credits each.

11.7.9 Doctor of Philosophy (Ph.D.); Mathematics and Statistics

Thesis

Required Courses

MATH 700	(0)	Ph.D. Preliminary Examination Part A
MATH 701	(0)	Ph.D. Preliminary Examination Part B

Complementary Courses

Twelve approved graduate courses, at the 500, 600, or 700 level, of 3 or more credits each.

11.7.10 Doctor of Philosophy (Ph.D.); Mathematics and Statistics — Bioinformatics

Thesis

Required Courses (3 credits)

COMP 616D1	(1.5)	Bioinformatics Seminar
COMP 616D2	(1.5)	Bioinformatics Seminar
MATH 700	(0)	Ph.D. Preliminary Examination Part A
MATH 701	(0)	Ph.D. Preliminary Examination Part B

Complementary Courses (6 credits)

(3-6 credits)

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

Departmental researchers enjo

Director of Graduate Studies

S. Jeon

Emeritus Professors

S. Das Gupta; B.Sc., M.Sc.(Calc.), Ph.D.(McM.) (*Macdonald Emeritus Professor of Physics*)

N.B. DeTakacsy; B.Sc., M.Sc.(Montr.), Ph.D.(McG.)

C.S. Lam; B.Sc.(McG.), Ph.D.(MIT)

M.P. Langleben; B.Sc., M.Sc., Ph.D.(McG.), F.R.S.C.

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 Professors

J. Barrette; M.Sc., Ph.D.(Montr.)

J.E. Crawford; B.A., M.A.(Tor.), Ph.D.(McG.)

R. Harris; B.A.(Oxf.), Ph.D.(Sus.)

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. Brandenberger; Dip.(ETH), A.M., Ph.D.(Harv.) (*Canada Research Chair*)

J. Cline; B.S.(Harvey Mudd), M.Sc., Ph.D.(Cal. Tech.)

F. Corriveau; 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*)

V. Kaspi; B.Sc.(McG.), M.A., Ph.D.(Princ.), F.R.S.C. (*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*)

Associate 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)

G. Gervais; B.Sc.(Sher.), M.Sc.(McM.), Ph.D.(N'western)

M. Hilke; B.Sc., M.Sc., Ph.D.(Geneva)

G. Holder; B.Sc., M.Sc.(Qu.), Ph.D.(Chic.) (*Canada Research Chair*)

S. Jeon; B.Sc.(Seoul National), M.Sc., Ph.D.(Wash.)

Associate Professors

G. Moore; B.S.(Harvey Mudd), Ph.D.(Princ.)

S. Robertson; B.Sc.(Calg.), M.Sc., Ph.D.(Vic., BC)

R. Rutledge; B.Sc.(USC), Ph.D.(MIT)

B. Vachon; B.Sc.(McG.), Ph.D.(Vic., BC) (*Canada Research Chair*)

A. Warburton; B.Sc.(Vic., BC), M.Sc., Ph.D.(Tor.)

P. Wiseman; B.Sc.(St. FX), Ph.D.(W. Ont.) (

Students must also successfully complete all the other normal requirements of Graduate and Postdoctoral Studies.

11.8.6 Doctor of Philosophy (Ph.D.); Physics

Thesis

Required Courses

Candidates must successfully complete two 3-credit graduate courses at the 600 level or above; one of these courses should be in the candidate's area of specialization. If the candidate completed two or more courses at the 600 level as part of the McGill Physics M.Sc. program, then one of these courses may be used as a substitute for one of the required courses. In all cases, candidates must also pass the Ph.D. preliminary examination (PHYS 700).

PHYS 700	(0)	Preliminary Ph.D. Examination

11.9 Psychology

11.9.1 Location

Stewart Biological Sciences Building, Room W8/33A
1205 Dr. Penfield Avenue
Montreal, QC H3A 1B1
Canada

Telephone: 514-398-6124 / 514-398-6100
Fax: 514-398-4896
Email: *gradsec@ego.psych.mcgill.ca*
Website: *www.psych.mcgill.ca*

11.9.2 About Psychology

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. Coursework 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.

M.A. and M.Sc. degrees may be awarded in Experimental Psychology, but only as a stage - students undergo formal evaluation in the Ph.D. program.

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.

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,

Faculty of Science > Academic Programs > Psychology > section 11.9.5: Master of Science (M.Sc.); Psychology (Thesis) (45 credits)

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.

section 11.9.6: Doctor of Philosophy (Ph.D.); Psychology

Please contact the Department for more information about this program.

section 11.9.7: Doctor of Philosophy (Ph.D.); Psychology — Language Acquisition

This unique interdisciplinary program focuses on the scientific exploration of language acquisition by different kinds of learners in diverse contexts. Students in the Language Acquisition Program are introduced to theoretical and methodological issues on language acquisition from the perspectives of cognitive neuroscience, theoretical linguistics, psycholinguistics, education, communication sciences and disorders, and neuropsychology.

section 11.9.8: Doctor of Philosophy (Ph.D.); Psychology — Psychosocial Oncology

The Department of Oncology, in conjunction with the School of Nursing, the Department of Psychology and the School of Social Work, has developed the cross-disciplinary Psychosocial Oncology Option (PSOO). This option is open to doctoral students in the School of Nursing and in the Department of Psychology who are interested in broadening their knowledge of psychosocial issues in oncology.

11.9.3 Psychology Admission Requirements and Application Procedures

11.9.3.1 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 (undergraduate level) 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.

11.9.3.2 Application Procedures

Dates for Guaranteed Consideration

For dates for guaranteed consideration, please consult the following website: *www.mcgill.ca/gradapplicants/programs*. Then select the appropriate program.

Please take note that we no longer distribute paper applications. The following items must be submitted to apply to our program:

1. **web application**, available at *www.mcgill.ca/gradapplicants/apply*;
2. application fee of CAD$100, by credit card only;
3. a completed Psychology **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. Graduate Record Examination (GRE) – official reports and a photocopy of scores on the General and Subject GRE. Applicants with little or no background in psychology are not required to submit scores on the subject component of the GRE. We highly recommend to all other students to submit scores on the subject component of the GRE. If you did not take the GRE subject test and are accepted into the program, you may be asked to take it in April. 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.

Supporting documents are submitted directly to the Department of Psychology:

Graduate Admissions

Department of Psychology
McGill University
1205 Dr. Penfield Avenue
Montreal, QC H3A 1B1
Canada

Applicants should note that the deadline for many scholarships and fellowships is about four months earlier than the application dates for guaranteed consideration and that applications for scholarships and fellowships should be submitted through their home university.

11.9.4 Psychology Faculty

Chair

David Zuroff

Emeritus Professors

A.S. Bregman; M.A.(Tor.), Ph.D.(Yale)

D. Donderi; B.A., B.Sc.(Chic.), Ph.D.(C'nell)

V. Douglas; B.A.(Qu.), M.A., M.S.W., Ph.D.(Mich.)

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.(Leedr0 11 81.693 728.56 cG.) (

Associate Professors

A.G. Baker; B.A.(Br. Col.), M.A., Ph.D.(Dal.)

E.S. Balaban; B.A.(Mich. St.), Ph.D.(Rockefeller)

H. Hwang; B.A.(Chung-Ang), Ph.D.(McG.)

B. Knauper; Dr. phil.(Germany, Mannheim)

D.J. Levitin; A.B.(Stan.), M.S., Ph.D.(Ore.) (*Bell Professor of Psychology and E-Commerce*)

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*)

K. Onishi; B.A.(Brown), M.A., Ph.D.(Ill.)

M. Pompeiana; M.D., Ph.D.(Pisa)

Z. Rosber

11.9.5 Master of Science (M.Sc.); Psychology (Thesis) (45 credits)

Thesis Courses (27 credits)

PSYC 690	(15)	Masters Research 1
PSYC 699	(12)	Masters Research 2

Required Courses (18 credits)

PSYC 601	(6)	Master's Comprehensive
PSYC 650	(3)	Advanced Statistics 1
PSYC 651	(3)	Advanced Statistics 2
PSYC 660D1	(3)	Psychology Theory
PSYC 660D2	(3)	Psychology Theory

11.9.6 Doctor of Philosophy (Ph.D.); Psychology

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.

Ph.D. students in Clinical Psychology must fulfil 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.

Thesis

Required Course (6 credits)

PSYC 701	(6)	Doctoral Comprehensive Examination

One graduate seminar each term during Year 2 and Year 3 chosen from seminar courses PSYC 710 to PSYC 758.

Note: The Department of Psychology does not ordinarily require an examination in a foreign language. However, all students planning on practicing clinical psychology in the province of Quebec will be examined based on their proficiency in French before being admitted to the professional association.

Note: If the student has a non-McGill Master's degree then the following courses are also required:

PSYC 650	(3)	Advanced Statistics 1
PSYC 651	(3)	Advanced Statistics 2
PSYC 660D1	(3)	Psychology Theory
PSYC 660D2	(3)	Psychology Theory

11.9.7 Doctor of Philosophy (Ph.D.); Psychology — Language Acquisition

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.

Thesis

Required Courses (14 credits)

EDSL 711	(2)	Language Acquisition Issues 3
LING 0 1rC08c3	(2)	Language Acquisition Issues 2

PSYC 709	(2)	Language Acquisition Issues 1
SCSD 712	(2)	Language Acquisition Issues 4

One graduate seminar each term during Year 2 and Year 3 chosen from seminar courses PSYC 710 to PSYC 758.

Note: The Department of Psychology does not ordinarily require an examination in a foreign language however, all students planning on practicing clinical psychology in the province of Quebec will be examined based on their proficiency in French before being admitted to the professional association.

Note: If the student has a non-McGill Master's degree then the following courses are also required:

PSYC 650	(3)	Advanced Statistics 1
PSYC 651	(3)	Advanced Statistics 2
PSYC 660D1	(3)	Psychology Theory
PSYC 660D2	(3)	Psychology Theory

Complementary Courses (9 credits)

One graduate-level course in statistics, such as:

EDPE 676	(3)	Intermediate Statistics
EDPE 682	(3)	Univariate/Multivariate Analysis
PSYC 650	(3)	Advanced Statistics 1
PSYC 651	(3)	Advanced Statistics 2

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.

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 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

11.9.8 Doctor of Philosophy (Ph.D.); Psychology — Psychosocial Oncology

The Ph.D. thesis topic must be germane to psychosocial oncology and approved by the PSO coordinating committee.

Thesis

Required Courses (12 credits)

NUR2 705	(3)	Palliative Care
NUR2 783	(3)	Psychosocial Oncology Research
PSYC 701	(6)	Doctoral Comprehensive Examination

One graduate seminar each term during Year 2 and Year 3 chosen from seminar courses PSYC 710 to PSYC 758.

Note: The Department of Psychology does not ordinarily require an examination in a foreign language, however, all students planning on practicing clinical psychology in the province of Quebec will be examined based on their proficiency in French before being admitted to the professional association.

Note: If the student has a non-McGill Master's then the following courses are also required:

PSYC 650	(3)	Advanced Statistics 1
PSYC 651	(3)	Advanced Statistics 2
PSYC 660D1	(3)	Psychology Theory
PSYC 660D2	(3)	Psychology Theory

Complementary Course (3 credits)

One of the following courses:

PSYC 507	(3)	Emotions, Stress, and Illness
PSYC 753	(3)	Health Psychology Seminar 1
SWRK 609	(3)	Understanding Social Care
SWRK 668	(3)	Living with Illness, Loss and Bereavement

11.10 Redpath Museum

11.10.1 Location

Redpath Museum
859 Sherbrooke Street West
Montreal, QC H3A 2K6
Canada

Telephone: 514-398-4086
Fax: 514-398-3185
Website: *www.mcgill.ca/redpath*

11.10.2 About Redpath Museum

The Redpath Museum is an institution with extensive collections of ancient and modern org