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

1. McGill University reserves the right to mak

Publication Information

Published by

Enrolment Services
McGill University
3415 McTavish Street
Montreal, Quebec, H3A 0C8
Canada

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1 Welcome

To Graduate Students and Postdoctoral Fellows:

I am extremely pleased to welcome you to McGill University. Graduate and Postdoctoral Studies (GPS) collaborates with the Faculties and other administrative and academic units to provide strategic leadership and vision for graduate teaching, supervision, and research across our over 400 graduate programs. GPS also oversees quality assurance in admissions and registration, the disbursement of graduate fellowships, support for postdoctoral fellows, and facilitates graduate degree completion, including the examination of theses. GPS has partnered with Enrolment Services to manage the admission and registration of graduate students and postdoctoral fellows and to offer streamlined services in a one-stop location at *Service Point*.

McGill is a student-centred research institution that places singular importance upon the quality of graduate education and postdoctoral training. As Dean of Graduate and Postdoctoral Studies, I work closely with the Faculties, central administration, graduate students, professors, researchers, and postdoctoral fellows to provide a supportive, stimulating, and enriching academic environment for all graduate students and postdoctoral fellows.

McGill is one of Canada's most intensive research universities, ranked 21st by *QS World University Rankings*. We recognize that these successes come not only from our outstanding faculty members, but also from the quality of our graduate students and postdoctoral fellows—a community into which we are very happy to welcome you.

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

Josephine Nalbantoglu Ph.D.
Dean, Graduate and Postdoctoral Studies

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2.3 [redacted]

Graduate and Postdoctoral Studies (GPS) oversees all programs leading to graduate diplomas, certificates, and higher degrees, with the e

7 Fellowships, Awards and Assistantships

Please refer to the eCalendar's *University Regulations and Resources > Graduate and Postdoctoral Studies > Fellowships, Awards and Assistantships* for information and contact information regarding fellowships, awards, and assistantships in Graduate and Postdoctoral Studies.

8 Postdoctoral Research

Students must inform themselves of University rules and regulations and keep abreast of any changes that may occur. The *Postdoctoral Research* section of this publication contains important details required by postdoctoral scholars during their studies at McGill and should be periodically consulted, along with other sections and related publications.

8.1 Postdocs

Postdocs are recent graduates with a Ph.D. or equiv

iv. Postdocs with full responsibility for teaching a course should be compensated over and above their fellowship at the standard rate paid to lecturers by their department. This applies to all postdocs, except those for whom teaching is part of the award (e.g., Mellon grantees).

v.

vii. Some examples of the responsibilities of the University are:

- to register Postdocs;
- to provide an appeal mechanism in cases of conflict;
- to provide documented policies and procedures to Postdocs;
- to provide Postdocs with the necessary information on McGill University student services.

Approved by Senate, April 2000; revised May 2014

8.3 Vacation for Postdoctoral Fellows

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

Council of FGSR April 23, 1999

8.4 Leave of Absence for Postdoctoral Fellows

A leave of absence may be granted for maternity or parental reasons or for health reasons (see *University Regulations and Resources > Graduate Students > Leave of Absence Status*).

Such a leave must be requested on a term-by-term basis and may be granted for a period of up to 52 weeks. For a maternity or parental leave, the eligibility period of a maximum of 52 consecutive weeks is determined based on when the child is born; if the leave is interrupted for one or two terms, the eligibility period cannot be extended. Students and Postdocs must make a request for such a leave in writing to their department and submit a medical certificate. The department shall forward the request to Enrolment Services. See the procedure in *University Regulations and Resources > Graduate Students > Leave of Absence Status* at .

Students who have been granted such a leave will have to register for the term(s) in question and their registration will show as “leave of absence” on their record. No tuition fees will be charged for the duration of the authorized leave. Research supervisors are not obligated to remunerate students and Postdocs on leave. A summary table of various leave policies (paid or unpaid) for students and Postdocs paid from the Federal and Quebec Councils through fellowships or research grants is available at *www.mcgill.ca/gps/funding/awards* under "Leave Policies: Funding Council Leave Policies for Graduate Students and Postdoctoral Fellows."

8.5 Postdoctoral Research Trainee

Eligibility

If your situation does not conform to the Government of Quebec's definition of Postdoctoral Fellow, you may be eligible to attend McGill as a Postdoctoral Research Trainee. While at McGill, you can perform research only (you may not register for courses or engage in clinical practice). Medical specialists who will have clinical exposure and require a training card must register through Postgraduate Medical Education of the Faculty of Medicine—not Graduate and Postdoctoral Studies.

The category of Postdoctoral Research Trainee is for:

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 Government of Quebec's definition, but is a recipient of an external postdoctoral award from a recognized Canadian funding agency.

Category 3: An individual who holds a professional degree (or equivalent) in a regulated health profession (as defined under CIHR-eligible health profession) and is enrolled in a program of postgraduate medical education at another institution. The individual wishes to conduct the research stage or elective component of his/her program of study at McGill University under the supervision of a McGill professor. The individual will be engaged in full-time research with well-defined objectives, responsibilities, and methods of reporting. The application must be accompanied by a letter of permission from the home institution (signed by the Department Chair, Dean or equivalent) confirming registration in their program and stating the expected duration of the research stage. Individuals who are expecting to spend more than one year are encouraged to obtain formal training (master’s or Ph.D.) through application to a relevant graduate program.

Category 4: An individual with a regulated health professional degree (as defined under CIHR-eligible health profession), but not a Ph.D. or equivalent or medical specialty training, but who fulfils criteria for funding on a tri-council operating grant or by a CIHR fellowship (up to maximum of five years post-degree).

Note: Individuals who are not Canadian citizens or permanent residents must inquire about eligibility for a work permit.

11.1 [illegible]

11.1.1 [illegible]

Department of Atmospheric and Oceanic Sciences
Burnside Hall
805 Sherbrooke Street West, Room 945
Montreal QC H3A 0B9
Canada

Telephone: 514-398-3764
Fax: 514-398-6115
Email: *gradinfo@met*
Website: *w .mcgill.ca/met*

11.1.2 [illegible]

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;
- sea ice dynamics;
- 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 Enir onment*; *Arct* ; and *Qubec 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 11.1.5Master 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 that 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. students 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 11.1.6Master of Science (M.Sc.)Atmospheric and Oceanic Sciences (Thesis) Dvironment (45 credits)

The graduate option in Environment provides students with an appreciation for the role of science in informed decision-making in the environmental sector, and its influence on political, socio-economic, and ethical judgments. 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 Enir onment* (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 Sciences 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 or physical oceanography, such background is not necessary to succeed in the program. McGill offers the only program in Canada that 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 including research careers at government labs such as Environment Canada.

11.1.3 [illegible]

11.1.3.1 [illegible]

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 a strong background in meteorology, physical oceanography, or related disciplines such as mathematics, physics, and engineering. Many students will have an M.Sc. degree in one of these fields, although this is not a formal requirement. Students without a master's degree in atmospheric science (meteorology) or physical oceanography will 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 Student Affairs Coordinator, Department of Atmospheric and Oceanic Sciences; see the department's *website* for contact information.

11.1.3.2 [illegible]

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

See *: Application Procedures* for detailed application procedures.

11.1.3.2.1 [illegible]

The items and clarifications below are additional requirements set by this department:

- Acceptance by a research supervisor – required for Ph.D. program

11.1.3.3 [illegible]

The application deadlines listed here are set by the Atmospheric and Oceanic Sciences department and may be revised at any time. Applicants must verify all deadlines and documentation requirements well in advance on the appropriate McGill departmental website; please consult the list at *www.mcgill.ca/gradcont/admissions/program*.

Canadian	International	Special/Exchange/Visiting
Fall: Feb. 28	Fall: Feb. 28	Fall: Feb. 28
Winter: Sept. 15	Winter: Sept. 15	Winter: Sept. 15
Summer: N/A	Summer: N/A	Summer: N/A

Admission to graduate studies is competitive; accordingly, late and/or incomplete applications are considered only as time and space permit.

Note: Applications for Summer term admission will not be considered.

11.1.4 [illegible]

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 Steacie Professor of Meteorology*)

ATOC 512	(3)	Atmospheric and Oceanic Dynamics
ATOC 513	(3)	Waves and Stability
ATOC 515	(3)	Turbulence in Atmosphere and Oceans
ATOC 519*	(3)	Advances in Chemistry of Atmosphere
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 626	(3)	Atmospheric/Oceanic Remote Sensing
ATOC 646	(3)	Mesoscale Meteorology
CHEM 519*	(3)	Advances in Chemistry of Atmosphere

* Students may select either ATOC 519 or CHEM 519.

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 [illegible]

[illegible] (24 [illegible])

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.

[illegible] (6 [illegible])

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

[illegible] (15 [illegible])

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 519*	(3)	Advances in Chemistry of Atmosphere
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 626	(3)	Atmospheric/Oceanic Remote Sensing
ATOC 646	(3)	Mesoscale Meteorology
CHEM 519*	(3)	Advances in Chemistry of Atmosphere

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

* Students may select either ATOC 519 or CHEM 519.

3 credits of MSE courses chosen from the following:

ENVR 519	(3)	Global Environmental Politics
ENVR 544	(3)	Environmental Measurement and Modelling
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 [illegible]

[illegible]

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in a scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly expression and for publication in the public domain.

[illegible]

(1 credit)

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

[illegible]

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
ATOC 752D1	(.5)	Atmospheric, Oceanic and Climate Dynamics
ATOC 752D2	(.5)	Atmospheric, Oceanic and Climate Dynamics

And 6 credits from the Department of Atmospheric and Oceanic Sciences, at the 500 or 600 level, as approved by the Graduate Program Director.

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

The typical graduate student in this program has a strong background knowledge in cell and molecular biology, biochemistry, organismal biology, ecology, developmental biology, and statistics, often with special strengths in the area of proposed study. Given the continuing trend toward interdisciplinary work, 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.).

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 11.2.6Master of Science (M.Sc.); Biology (Thesis) Ð Environment (48 credits)

The Environment graduate concentration 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 concentration 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 concentration 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 concentration 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 disciplines.

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

The McGill-Smithsonian Tropical Research Institute (STRI) Neotropical Environment Option (NEO) is a research-based concentration 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

section 11.2.10 Doctor of Philosophy (Ph.D.); Biology Ð Environment

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 concentration 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. This concentration is available from a variety of faculties and departments.

section 11.2.11 Doctor of Philosophy (Ph.D.); Biology Ð Neotropical Environment

The McGill-Smithsonian Tropical Research Institute (STRI) Neotropical Environment Option (NEO) is a research-based concentration 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. 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 11.2.12 Doctor of Philosophy (Ph.D.); Biology Ð Bioinformatics

The goal of the Bioinformatics concentration is to train students to become researchers in the interdisciplinary field of Bioinformatics, which lies at the intersection of biological/medical sciences and mathematics/computer science/engineering. This work 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.

The Bioinformatics graduate concentration consists of a number of interdisciplinary courses, as well as a seminar designed to bring students from many backgrounds together and to provide a thorough overview of research in this field. The typical entering student will be affiliated with one of about fourteen different “home” departments in three different faculties, chosen based on his/her specific field of expertise, and will therefore meet the specific requirements for that department. The student will additionally be evaluated according to requirements specific to the Bioinformatics concentration. Students in this concentration will have access to five specialized courses that are open only to students within the Bioinformatics concentration. At the Ph.D. level students will be fluent in the concepts, language, approaches, and limitations of the field and will also have the capability of developing an independent bioinformatics research program.

11.2.3 [illegible]

11.2.3.1 [illegible]

Applicants must have a B.Sc. in a discipline relev

11.2.3.3 [redacted]

The application deadlines listed here are set by the Biology Department and may be revised at any time. Applicants must verify all deadlines and documentation requirements well in advance on the appropriate McGill departmental website; please consult the list at

Associate Professors

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

Gary Brouhard; M.S.E., Ph.D.(Mich.) (*Associat*) (*on sabbat*)

Thomas E. Bureau; B.Sc.(Calif.), Ph.D.(Texas)

Melania Cristescu; B.Sc., M.Sc.(Ovidius Univ. Constanta, Romania), Ph.D.(Guelph)

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

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

Fran ois F agotto; Ph.D.(Neuch tel) (*on sabbat*)

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

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

Fr d ric Guichard; B.Sc.(Montr .), Ph.D.(Laval)

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

Andrew Hendry; B.Sc.(Vic., BC), M.Sc., Ph.D.(Wash.) (*joint*) (*on sabbat*)

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

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

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

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

Simon Reader; B.A.(Colgate), Ph.D.(Yale) (*on sabbat*)

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) (*on sabbat*)

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

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

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

Assistant Professors

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

Michael Hendricks; B.A.(Bowd 29j1 0 0 1 112569.48 337(Y

Adjunct Pr ofessors

BELLUS Healt : Francesco Bellini

Cent e Nat herche Scient : Michel Loreau

IRCM: Fr d ric Charron, Da vid Hipfner, Artur Kania

NRC Lab: Malcolm S. Whiteway

STRI: Andr

[illegible] (39 [illegible])

BIOL 697	(13)	Master's Thesis Research 1
BIOL 698	(13)	Master's Thesis Research 2
BIOL 699	(13)	Master's Thesis Research 3

[illegible] (6 [illegible])

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

[illegible] (3 [illegible])

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 [illegible]; [illegible] (48 [illegible])

[illegible] (39 [illegible])

BIOL 697	(13)	Master's Thesis Research 1
BIOL 698	(13)	Master's Thesis Research 2
BIOL 699	(13)	Master's Thesis Research 3

[illegible] (3 [illegible])

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

[illegible] (6 [illegible])

6 credits from the following courses:

BINF 621	(3)	Bioinformatics: Molecular Biology
BMDE 652	(3)	Bioinformatics: Proteomics
BTEC 555	(3)	Structural Bioinformatics
COMP 618	(3)	Bioinformatics: Functional Genomics
PHGY 603	(3)	Systems Biology and Biophysics

11.2.9 [illegible] (PhD .); [illegible]

[illegible]

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in a scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly expression and for publication in the public domain.

[illegible] (6 [illegible])

BIOL 700	(0)	Doctoral Qualifying Examination
BIOL 702	(6)	Ph.D. Seminar

[illegible] (6 [illegible])

Two 3-credit courses, or equivalent, at the 500, 600, or 700 level in Biology or other departments, and approved by the Supervisory Committee.

11.2.10 [illegible]

[illegible]

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in a scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly expression and for publication in the public domain.

[illegible]

BIOL 700	(0)	Doctoral Qualifying Examination
BIOL 702	(6)	Ph.D. Seminar
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

[illegible]

One course chosen from the following:

ENVR 519	(3)	Global Environmental Politics
ENVR 544	(3)	Environmental Measurement and Modelling
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 graduate course at the 500, 600, or 700 level recommended by the Advisory Committee and approved by the Environment Option Committee.

11.2.11 [illegible]

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

[illegible]

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in a scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly expression and for publication in the public domain.

[illegible]

BIOL 640	(3)	Tropical Biology and Conservation
BIOL 700	(0)	Doctoral Qualifying Examination
BIOL 702	(6)	Ph.D. Seminar
ENVR 610	(3)	Foundations of Environmental Policy

[illegible]

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.

11.3.3 [illegible]

11.3.3.1 [illegible]

The minimum academic standard for admission to research thesis degree programs is a minimum standing equivalent to a cumulative grade point average (CGPA) of 3.0 out of a possible 4.0 or a CGPA of 3.2/4.0 for the last two full-time academic years. Applicants from other institutions should have an academic background equivalent to that of a McGill graduate in the Chemistry Honours/Major programs. If possible, candidates should specify the field of research in which they are interested.

11.3.3.2 [illegible]

McGill's online application form for graduate program candidates is available at *w .mcgill.ca/gradapplicant* .

See *: Applicat ocedures* for detailed application procedures.

FINANCIAL ASSISTANCE

M.Sc. and Ph.D Degrees

Graduate students devote 12 hours per week (contact hours, plus grading of reports, etc.) during the academic session to their teaching duties. Financial assistance during the remainder of the year is pro

Emeritus Professors

R.H. Marchessault; B.Sc.(Montr.), Ph.D.(McG.), F.C.I.C., F.R.S.C.

M.A. Whitehead; B.Sc., Ph.D., D.Sc.(Lond.), F.C.I.C.

Professors

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

D.S. Bohle; B.A.(Reed), M.Phil., Ph.D.(Auck.)

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.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., F.R.S.C.

C.J. Li; B.Sc.(Zhengzhou), M.S.(Chin. Acad. Sci.), Ph.D.(McG.), F.R.S.C.

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

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.)

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

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.)

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

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

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)

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

N. Moitessier; M.Sc., Ph.D.(Nancy)

A. Moores; B.Sc., Ph.D.(cole Polytechnique, P aris)

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

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

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

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

Assistant Professors

T. Fri i ; B.Sc.(Zagreb), Ph.D.(Iowa)

J. P. Lumb; B.Sc.(Cornell), Ph.D.(Calif., Berk.)

T. Preston; B.Sc.(Tor.), M.Sc.(UWS), Ph.D.(Br. Col.)

Associate Members

J.A. Finch (*Mining, Met*)

P. Gr tter (*Phy cs*)

O.A. Mamer (*Univer st VH*)

R. Schirrmacher (*MNI*)

Adjunct Pr ofessors

Y. Guindon, C. Reber, I.

CHEM 698	(12)	M.Sc. Thesis Research 8

[illegible] e(5 [illegible]

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

[illegible] y[illegible] e(11 [illegible]

(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:

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
CHEM 655	(4)	Advanced NMR Spectroscopy
PHAR 503	(3)	Drug Discovery and Development 1
PHAR 504	(3)	Drug Discovery and Development 2
PHAR 562	(3)	Neuropharmacology
PHAR 563	(3)	Endocrine Pharmacology
PHAR 707	(3)	Topics in Pharmacology 6

The remaining credits may be graduate-level courses approved by the Department.

11.3.7 [illegible] y(PhD .); [illegible] y

[illegible]

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in a scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly expression and for publication in the public domain.

[illegible] e

CHEM 650	(1)	Seminars in Chemistry 1
CHEM 651	(1)	Seminars in Chemistry 2
CHEM 688	(3)	Assessment
CHEM 701	(0)	Comprehensive Examination 1
CHEM 702	(0)	Comprehensive Examination 2

[illegible]

Students entering the program with an M.Sc. degree will normally take three (3) graduate-level courses. Students entering without an M.Sc. degree will normally take five (5) graduate-level courses.

Students may be required to take advanced undergraduate courses if background deficient.

11.3.8 [illegible]

This program is currently not offered.

[illegible]

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in the scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly expression and for publication in the public domain.

[illegible]

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
CHEM 650	(1)	Seminars in Chemistry 1
CHEM 651	(1)	Seminars in Chemistry 2
CHEM 688	(3)	Assessment
CHEM 701	(0)	Comprehensive Examination 1
CHEM 702	(0)	Comprehensive Examination 2

[illegible]

Students entering the program with an M.Sc. degree will normally take three (3) graduate-level courses. Students entering without an M.Sc. degree will normally take five (5) graduate-level courses. At least three courses must be from the following list, including at least 3 credits from the first two courses listed below.

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
CHEM 655	(4)	Advanced NMR Spectroscopy

PHAR 503	(3)	Drug Discovery and Development 1
PHAR 504	(3)	Drug Discovery and Development 2

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

This program is designed for students who want to obtain broad knowledge of advanced topics in computer science but without the requirement of a thesis. It offers an excellent preparation for the job market, but is not recommended for students interested in eventually pursuing a Ph.D.

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, applicants should normally 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.

section 11.4.10 Doctor of Philosophy (Ph.D.); Computer Science Ð 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.

11.4.3

11.4.3.1

Master's (M.Sc.)

The minimum requirement for admission is a bachelor's degree (cumulative grade point average (CGPA) of 3.2 out of 4.0 or better, or equivalent) with the coursework in Computer Science as listed on our

The website supplements the information in this publication, and should be consulted by all graduate students.

Ph.D.

In order to apply to the Ph.D. program, applicants should hold an M.Sc. degree in Computer Science or a closely related area, from a well-recognized university. Students who hold a B.Sc. degree in Computer Science but have an exceptionally strong academic record may be admitted directly to the Ph.D. program, but they must initially apply to the M.Sc. program. Students who are in the M.Sc. program have the option to be fast-tracked into the Ph.D. program at the end of their first academic year, contingent on excellent performance as judged by the Ph.D. committee.

11.4.3.2

McGill's online application form for graduate program candidates is available at

See

11.4.3.2.1

The items and clarifications below are additional requirements set by this department:

- Curriculum Vitae – required for Ph.D. program
- Statement of Purpose – required for both M.Sc. and Ph.D. programs
- (GRE General Test) – required for de

Scholarship Deadlines January 1 for applicants who wish to be considered for scholarship awards; otherwise, March 1 for admission to the Fall term.

11.4.4 [illegible]

Director

Gregory Dudek

Emeritus Professors

R. De Mori; Ph.D.(Politecnico Torino)

T.H. Merrett; B.Sc.(Qu.), D.Phil.(Oxf.)

M.M. Newborn; B.E.E.(Rensselaer Poly.), Ph.D.(Ohio St.), F.A.C.M.

C. Paige; B.Sc., B.Eng.(Syd.), Ph.D.(Lond.)

G.F.G. Ratzer; B.Sc.(Glas.), M.Sc.(McG.)

G.T. Toussaint; B.Sc.(Tulsa), Ph.D.(Br. Col.)

Post-Retirement

D. Avis; B.Sc.(Wat.), Ph.D.(Stan.)

C. Tropper; B.Sc.(McG.), Ph.D.(Brooklyn Poly.)

Professors

L. Devroye; M.S.(Louvain), Ph.D.(Texas) (*James McGill Professor*)

G. Dudek; B.Sc.(Qu.), M.Sc., Ph.D.(Tor.) (*James McGill Professor*)

L. Hendren; B.Sc., M.Sc.(Qu.), Ph.D.(Cornell), F.R.S.C. (*Canada Research Chair*)

P. Panangaden; M.Sc.(IIT, Kanpur), M.S.(Chic.), Ph.D.(Wisc.)

B. Reed; B.Sc., Ph.D.(McG.) (*Canada Research Chair*)

K. Siddiqi; B.Sc.(Lafayette), M.Sc., Ph.D.(Brown) (*William Dawson Chair*)

D. Th rien; B.Sc.(Montr.), M.Sc., Ph.D.(Wat.) (*James McGill Professor*)

Associate Professors

M. Blanchette; B.Sc., M.Sc.(Montr.), Ph.D.(Wash.)

X.W. Chang; B.Sc., M.Sc.(Nanjing), Ph.D.(McG.)

C. Cr peau; B.Sc., M.Sc.(Montr.), Ph.D.(MIT)

N. Friedman; B.A.(W. Ont.), Ph.D.(Tor.)

M.T. Hallett; B.Sc.(Qu.), Ph.D.(Vic., BC)

H. Hatami; B.Sc.(Sharif), M.Sc., Ph.D.(Tor.)

B. Kemme; B.Sc., M.Sc.(Erlangen-Nuremberg, Germany), Ph.D.(ETH, Zurich)

J. Kienzle; Eng.Dip., Ph.D.(Swiss Fed. IT)

P. Kry; B.Sc.(Wat.), M.Sc., Ph.D.(Br. Col.)

M. Langer; B.Sc.(McG.), M.Sc.(Tor.), Ph.D.(McG.)

X. Liu; B.Sc., M.Sc.(Tsinghua), Ph.D.(Ill.)

M. Maheswaran; B.Sc.(U. Peradeniya), M.Sc., Ph.D.(Purdue)

B. Pientka; B.Sc., M.Sc.(Tech. U. of Darmstadt, Germany), Ph.D.(Carn. Mell)

J. Pineau; B.Sc.(Wat.), M.Sc., Ph.D.(Carn. Mell)

D. Precup; B.Sc.(Tech. U. of Cluj-Napoca), M.Sc., Ph.D.(Mass.)

M. Robillard; B.Eng.(cole Poly ., Montr.), M.Sc., Ph.D.(Br. Col.)

Associate Professors

C. Verbrugge; B.A.(Qu.), Ph.D.(McG.)

A. Vetta; B.Sc., M.Sc.(LSE), Ph.D.(MIT)

Assistant Professors

Y. Cai; B.S.(Peking), M.S., Ph.D.(MIT)

J. Cheung; B.Sc.(Br. Col.), M.Sc., Ph.D.(Tor.)

COMP 691	(3)	Thesis Research 1
COMP 696	(3)	Thesis Research 2
COMP 697	(4)	Thesis Research 3
COMP 698	(10)	Thesis Research 4
COMP 699	(12)	Thesis Research 5

[illegible] (3 [illegible]

[illegible]

(minimum 20 credits)

At least 6 courses whereby at least two courses must be from List A, at least 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.

COMP 767	(4)	Advanced Topics: Applications 2

Note: Each year the Ph.D. Committee will determine which category COMP 598 and COMP 599 belong to according to the subjects taught in those courses.

- the nature of processes concentrating metals in hydrothermal mineral deposits;
- experimental studies of the controls of viscosity in magmas and the mechanisms of volcanic eruption;
- the fate of carbon and trace metals in marine sediments;
- the nature of changes in atmospheric chemistry in the early and late Precambrian;
- mechanisms of faulting;
- the evolution of topography during orogenesis;
- wetland hydrogeology;
- interactions between the cryosphere, solid Earth, and climate systems;
- planetary-scale ocean biogeochemistry (e.g., ocean acidification) and its relationship to global warming.

There is a very substantial interdisciplinary basis to much of the research.

Facilities in the Department include low-temperature and pressure to high-temperature and pressure experimental laboratories, a stable-isotope mass spectrometer, laser

ocean redox, severe climatic fluctuations (including snowball Earth), and the origin and diversification of animals; recovery of the geochemical memory of large-scale Earth system processes (e.g., microbial control of the global S cycle; anthropogenic manipulation of atmospheric OH abundances); investigations of microbial biogeochemistry under an anoxic Archean atmosphere, to constrain mass fluxes in the Phanerozoic geologic sulfur cycle, and to track processes that control the pollution-cleansing oxidants (OH, O3) in the modern atmosphere.

Volcanology

Petrology and geochemistry of intermediate and felsic magmas; understanding physical processes and forecasting eruptions at active subduction-zone volcanoes; geochemistry of volcanic gases, their use for eruption prediction, and their impact on the atmosphere.

section 11.5.5Master of Science (M.Sc.); Earth and Planetary Sciences (Thesis) (45 credits)

The nature of graduate research in the Department of Earth and Planetary Sciences is highly variable. As a result, students may enter the graduate program with backgrounds in earth sciences, chemistry, or physics, depending on their research interests and the supervisor with whom they wish to work. Students pursuing an M.Sc. are required to take four courses, but their major project is an M.Sc. thesis that typically results in a journal publication. Research for the thesis typically begins in the first year of residence and is completed, together with the written results, in the second year of residence.

Students graduating from the program typically proceed to a Ph.D. or work in the mineral exploration or petroleum industries. Excellent students admitted into the M.Sc. program can be “fast-tracked” from the M.Sc. into the Ph.D. program at the end of the first year if suitable progress has been demonstrated. Such students are required to take a minimum of 18 credits of coursework and a comprehensive oral examination in the Ph.D. 2 year.

section 11.5.6Master of Science (M.Sc.); Earth and Planetary Sciences (Thesis) – Environment (48 credits)

The graduate option in Environment provides students with an appreciation for the role of science in informed decision-making in the environmental sector, and its influence on political, socio-economic, and ethical judgments. The option also provides a forum whereby graduate students bring their disciplinary perspectives together and enrich each other's learning through structured courses, formal seminars, and informal discussions and networking. Students that hav

ork.with a Ph.D. backgrounds in earth sciences, chemistry , or ph ysics, depending on their research interests

ork

11.5.3.3 [illegible]

The application deadlines listed here are set by the Department of Earth and Planetary Sciences and may be revised at any time. Applicants must verify all deadlines and documentation requirements well in advance on the appropriate McGill departmental website; please consult the list at *w .mcgill.ca/gs cont ad at ogram*.

Canadian	International	Special/Exchange/Visiting
Fall: Feb. 1	Fall: Feb. 1	Fall: Feb. 1
Winter: Sept. 15	Winter: Sept. 15	Winter: Sept. 15
Summer: N/A	Summer: N/A	Summer: N/A

Admission to graduate studies is competitive; accordingly, late and/or incomplete applications are considered only as time and space permit.

11.5.4 [illegible]

Chair

Alfonso Mucci

Emeritus Professors

Jafar Arkani-Hamed; B.Eng.(Tehran), Ph.D.(MIT)

Donald Francis; B.Sc.(McG.), M.Sc.(Br. Col.), Ph.D.(MIT)

Andrew J. Hynes; B.Sc.(Tor.), Ph.D.(Cant.)

Wallace H. MacLean; B.Geol.Eng.(Colo. Sch. of Mines), M.Sc.(A.), Ph.D.(McG.)

Robert F. Martin; B.Sc.(Ott.), M.S.(Penn. St.), Ph.D.(Stan.)

Colin W. Stearn; B.Sc.(McM.), M.S., Ph.D.(Yale), F.R.S.C.

Professors

Don Baker; A.B.(Chic.), Ph.D.(Penn. St.)

Olivia G. Jensen; B.Sc., M.Sc., Ph.D.(Br. Col.)

Alfonso Mucci; B.Sc., M.Sc.(Montr.), Ph.D.(Miami)

John Stix; A.B.(Dart.), M.Sc., Ph.D.(Tor.)

A.E. (Willy) Williams-Jones; B.Sc., M.Sc.(Natal), Ph.D.(Qu.) (*William E. Logan Profes r of Geolo gy*)

Associate Professors

Galen Halverson; B.A.(Mont.), M.A., Ph.D.(Harv.) (*T.H. Clark Chair in Sediment et olem Geolo gy*)

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

Jeanne Paquette; B.Sc., M.Sc.(McG.), Ph.D.(Stonybrook)

Boswell Wing; A.B.(Harv.), M.A., Ph.D.(Johns Hop.) (*Dawson Pr ofes r of Geolo gy*)

Assistant Professors

Kim Berlo; Propadeuse, Doctorandus(Utrecht), Ph.D.(Brist.)

Natalya Gomez; B.Sc., M.Sc.(Tor.), Ph.D.(Harv.)

Rebecca Harrington; B.S., M.S., Ph.D.(Calif.-LA)

James Kirkpatrick; B.Sc., M.Sc.(Leeds), Ph.D.(Glas.)

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

Christie Ro

Adjunct Professors

E. Galbraith, H. Short, B. Sundby

Retired Professor

R. Hesse

11.5.5 [illegible]; [illegible] (45 [illegible])

[illegible] (33 [illegible])

EPSC 697	(9)	Thesis Preparation 1
EPSC 698	(12)	Thesis Preparation 2
EPSC 699	(12)	Thesis Preparation 3

[illegible] (12 [illegible])

Four 3-credit 500-, 600-, or 700-level EPSC courses chosen with the approval of the supervisor or the research director and GPS.

11.5.6 [illegible]; [illegible] (48 [illegible])

[illegible] (33 [illegible])

EPSC 697	(9)	Thesis Preparation 1
EPSC 698	(12)	Thesis Preparation 2
EPSC 699	(12)	Thesis Preparation 3

[illegible] (9 [illegible])

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

[illegible] (6 [illegible])

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 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 En

* Students are required to take four graduate-level courses in the Ph.D. 1 year, and two courses plus a comprehensive oral examination in the Ph.D. 2 year.

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in a scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research advances knowledge1 053641.3so

11.6 Geography

11.6.1 Contact Information

Department of Geography
Burnside Hall
805 Sherbrooke Street West, Room 705
Montreal QC H3A 0B9
Canada

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

11.6.2 Introduction to Geography

The Department of Geography offers research and thesis-based graduate programs leading to a Master of Arts (M.A.), a Master of Science (M.Sc.), or 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 Development;
- Geographic Information Systems and Remote Sensing;
- Land Surface Processes;
- Earth Systems Science;
- Environmental Management.

Geography houses the Hitschfield Geographic Information Centre, maintains the *McGill High Arctic Research Station* (Axel Heiburg Island, Nunavut Territory) and the *McGill Sub-Arctic Research Station* (Schefferville, Quebec), and has strong ties with McGill's *School of Environment*. Faculty and students conduct research in fields as diverse as climate change impacts, periglacial geomorphology, and forest resource history in regions ranging from the Arctic to Southeast Asia and Latin America.

Being both a natural and a social science, geography provides a unique opportunity to obtain a broad exposure to modes of analyzing the many environmental and situational problems of contemporary society. Because of this, a geography degree is a fantastic opportunity to obtain a career in one of a diverse range of fields. Our students have gone on to become United Nations field researchers in Laos, environmental consultants in Toronto, science teachers in the U.S., geography professors in many parts of the world, UNHCR volunteers in Malaysia, and policy analysts, as well as health and social policy researchers in Montreal…the list goes on! If you're on Facebook, look for *McGill Geography Alumni* or visit to learn more about the advantages of having a geography degree from McGill!

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, required, and complementary 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.

McGill Northern Research Stations

The *McGill Sub-Arctic Research Station* is located in Schefferville, in the centre of Quebec-Labrador. Facilities exist for research in most areas of physical and some areas of human geography in the subarctic.

McGill University also operates a *field station* at Expedition Fiord on Axel Heiberg Island in the High Arctic. Facilities are limited to a small lab, dorm building, and cookhouse. Research activities focus on the glacial and geological. For additional information on these stations, contact the Scientific Director, *Wayne Pollard*, Department of Geography.

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

Detailed program requirements for the following M.A. programs are found in *Faculty of Graduate > 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, required, and complementary graduate

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

courses in Geography, Environment, and Biology; and complementary courses 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 favours 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.

Ph.D. Programs in Geography

: 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, and a minimum of two complementary courses.

: Doctor of Philosophy (Ph.D.); Geography Ð Environment

The Environment option consists of the thesis and comprehensive examination; required courses from Geography and Environment; and complementary courses in Environment or other fields recommended by the research committee and approved by the Environment Option Committee. The graduate option in Environment provides students with an appreciation for the role of science in informed decision-making in the environmental sector, and its influence on political, socio-economic, and ethical judgments. 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.

: Doctor of Philosophy (Ph.D.); Geography Ð Gender and Women©s Studies

This doctoral option is an interdisciplinary program for students who meet the degree requirements in Geography and who wish to earn 9 credits of approved coursework on gender and women's studies and issues in feminist research and methods. It includes a thesis centrally related to gender and/or women's studies; the comprehensive examination; required courses in Geography and Women's Studies; and complementary courses, one of which must pertain to gender and/or women's issues.

: Doctor of Philosophy (Ph.D.); Geography Ð Neotropical Environment

The McGill-STRI Neotropical Environment Option (NEO) is a research-based option for Ph.D. students offered in association with several university departments, the *McGill School of Environment*, and the *Smithsonian Tropical Research Institute* (STRI-Panama) and includes the thesis; comprehensive examination; required courses in Geography, Environment and Biology; and complementary courses 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 favours 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.

11.6.3 [illegible]

11.6.3.1 [illegible]

M.A. and M.Sc. Degrees

Applicants not satisfying the conditions in *: Graduate Admissions and Application Procedures*, 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 ha

Associate Professors

T.C. Meredith; M.Sc., Dip.Cons.(Lond.), Ph.D.(Cant.)

N. Oswin; M.A.(Dal.), Ph.D.(Br. Col.)

R. Sengupta; M.Sc., Ph.D.(Ill.) (*joint* *hool of Enir onment*)

R. Sieber; M.P.A.(W. Mich.), Ph.D.(Rutg.) (*joint* *hool of Enir onment*)

I.B. Strachan; B.Sc.(Tor.), M.Sc., Ph.D.(Qu.) (*crosp* *al Reson ce Sciences*)

J. Unruh; M.S.(Wisc.), Ph.D.(Ariz.)

Assistant Professors

K. Manaugh; Ph.D.(McG.)

S. Moser; Ph.D.(Sing.)

B. Robinson; Ph.D.(Wisc. Mad.)

Adjunct Professors

C. Blodeau, G. Leblanc, E. Levac, D. Matthews, F. Pendea, M. Peros, N. Ramankutty, J. Rhemtulla, O. Sonnentag

11.6.5 [illegible]

[illegible]

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

[illegible]

GEOG 696	(3)	Methods of Geographical Research

[illegible]

12 credits, four 3-credit courses at the 500 level or above selected according to guidelines of the Department. GEOG 696 can count among these complementary credits for students with an appropriate background.

11.6.6 [illegible]

The Environment Option is offered in association with the McGill School of Environment and is composed of a thesis componh McGill Scr 6ponhu(The En)Tj1 0cj111.

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 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 [illegible]

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

[illegible]

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

[illegible]

BIOL 640	(3)	Tropical Biology and Conservation
ENVR 610	(3)	Foundations of Environmental Policy
GEOG 631	(3)	Methods of Geographical Research

[illegible]

3 credits, one Geography graduate course. GEOG 696 can count among these complementary credits for students with an appropriate background.

[illegible]

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

11.6.8 [illegible]

The doctoral degree in Geography includes the successful completion of the comprehensive examination, a thesis based on original research and coursew

GEOG 701	(0)	Comprehensive Examination 2
GEOG 702	(0)	Comprehensive Examination 3

[illegible]

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

11.6.9 [illegible]

The option consists of the thesis and comprehensive examination, required courses (9 credits) from Geography and Environment and complementary courses (9 credits) in Environment or other fields recommended by the research committee and approved by the Environment Option Committee.

[illegible]

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in a scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research adv

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in a scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly expression and for publication in the public domain.

[illegible] s

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
WMST 601	(3)	Feminist Theories and Methods
WMST 602	(3)	Feminist Research Symposium

[illegible] s

Two substantive courses.

One of these two courses must be taken within the Department of Geography at the 500 level or above; one of the two courses must be on gender/women's issues at the 500, 600, or 700 level.

11.6.11 [illegible]

The Neotropical Option is offered in association with several University departments, the McGill School of Environment, and the Smithsonian Tropical Research Institute (STRI-Panama) and includes the thesis, comprehensive examination, required courses (9 credits) in Geography, Environment and Biology, and complementary courses (3 credits) chosen from Geography, Agriculture Sciences, Biology, Sociology, Environment, and Political Science.

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

[illegible]

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in a scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly expression and for publication in the public domain.

[illegible] s

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

[illegible] s

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.

Montreal QC H3A 0B9
Canada

Telephone: 514-398-3800
Fax: 514-398-3899
Email: grad.mathstat@mcgill.ca
Website: www.math.mcgill.ca

11.7.2 About Mathematics and Statistics

The Department of Mathematics and Statistics offers programs that can be focused on applied mathematics, pure mathematics, and statistics leading to master's degrees (M.A. or M.Sc.), with program options in Bioinformatics and in Computational Science and Engineering (CSE). Research groups are:

- Algebra Category;
- Theory and Logic;
- Geometric Group Theory;
- Algebraic Geometry;
- Discrete Mathematics;
- Mathematical Physics;
- Analysis and its Applications;
- Differential Geometry;
- Number Theory;
- Applied Mathematics;
- Differential Equations;
- Probability and Statistics.

In the basic master's programs, students must choose between the thesis option, and the non-thesis option which requires a project. The Bioinformatics and CSE options require a thesis. In addition to the Ph.D. program in Mathematics and Statistics, there is a Ph.D. option in Bioinformatics.

The Department website provides extensive information on the Department and its activities, including the research activities and research interests of individual faculty members. It also provides detailed supplementary information concerning our programs, admissions, funding of graduate students, thesis requirements, advice concerning the choice of courses, etc.

Students are urged to consult the Institut des Sciences Mathematiques (ISM) website, which coordinates intermediate and advanced-level graduate courses among Montreal and Quebec universities. A list of courses available under the ISM auspices can be obtained from the ISM website. The ISM also offers fellowships and promotes a variety of joint academic activities greatly enhancing the mathematical environment in Montreal and in the province of Quebec.

Master of Arts (M.A.) Programs in Mathematics and Statistics

Detailed program requirements for the following M.A. programs are found in Faculty of Arts > Graduate > Academic Programs > Mathematics and Statistics

: Master of Arts (M.A.); Mathematics and Statistics (Thesis) (45 credits) · 7atRG 46n the Tm (In the basic 1 Tm (s progIn the reditix))Ty enh

11.7.3.2.1 [illegible]

The items and clarifications below are additional requirements set by this department:

- Personal Statement – In the personal statement, the applicants should clearly explain their choice of preferred research group(s) and preferred area(s) of research, as well as providing relevant information that will not be reflected on their transcripts
- Research Proposal (optional) – If applicants have a specific research problem of interest that they want to pursue, they may discuss the details in the research proposal
- Applicants in pure and applied mathematics should provide a GRE score report, if available

For more details, please consult *w .mat adat* .

11.7.3.3 [illegible]

The application deadlines listed here are set by the Department of Mathematics and Statistics and may be revised at any time. Applicants must verify all deadlines and documentation requirements well in advance on the appropriate McGill departmental website; please consult the list at *w .mcgill.ca/gs cont adat ogram*.

Canadian	International	Special/Exchange/Visiting
Fall: Jan. 15	Fall: Jan. 15	Fall: Same as Canadian/International
Winter: Sept. 15	Winter: Sept. 15	Winter: Same as Canadian/International
Summer: N/A	Summer: N/A	Summer: N/A

Admission to graduate studies is competitive; accordingly, late and/or incomplete applications are considered only as time and space permit.

11.7.4 [illegible]

Chair

David A. Stephens

Graduate Program Director

Russell Steele

Emeritus Professors

Michael Barr; A.B., Ph.D.(Penn.) (*Pet ofesr of Pu e Mat*)

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

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

Ian Connell; B.Sc., M.Sc.(Manit.), Ph.D.(McG.)

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

Paul Koosis; B.A., Ph.D.(Calif., Berk.)

Michael Makkai; M.A., Ph.D.(Bud.) (*Pet ofesr of Pu e Mat*)

Sherwin Maslowe; B.Sc.(Wayne St.), M.Sc., Ph.D.(Calif.)

Arak M. Mathai; M.Sc.(Kerala), M.A., 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.)

Sanjo Zlobec; M.Sc.(Zagreb), Ph.D.(N'western)

Professors

William J. Anderson; B.Eng., Ph.D.(McG.)

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

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

Professors

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

Christian Genest; B.Sp.Sc.(UQAC), M.Sc.(UQAM), Ph.D.(Br. Col.) (*Canada Research*

Associate Members

Leon Glass (*Physiology*)

James A. Hanley (*Epidemiology and Biostatistics*)

Hamed Hatami (*Computer Science*)

Lawrence Joseph (*Epidemiology and Biostatistics*)

Anmar Khadra (*Physiology*)

Michael Mackey (*Physiology*)

Erica E.M. Moodie (*Epidemiology and Biostatistics*)

Christopher Conway Paige (*Computer Science*)

Prakash Panangaden (*Computer Science*)

Robert W. Platt (*Epidemiology and Biostatistics*)

James O. Ramsay (*Psychology*)

George Alexander Whitmore (*Management*)

Christina Wolfson (*Epidemiology and Biostatistics*)

Adjunct Professors

Vasek Chvatal; Ph.D.(Wat.)

Martin J. 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)

Olga Kharlampovich; M.A.(Ural St.), Ph.D.(Leningrad St.), Dr.Sc.(Steklov Inst.)

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

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

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

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

Alain C. Vandal; B.Sc., M.Sc.(McG.), Ph.D.(ETH Zurich)

Faculty Lecturers

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

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

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

11.7.5 [illegible]; [illegible] (45 credits)

[illegible] (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

[illegible] (21 credits)

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

11.7.6 — BioinfThonal M.Sc.);ticsEngineeringits (48)

(24)

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

(3)

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

(21) 21 credits84tlCF21 395.004forma15appro1 151.873 52728 Tm395.004formav1 151.873 52732.289395.004forma1 c 0 rediat and 500 or

COMP 540	(3)	Matrix Computations
COMP 566	(3)	Discrete Optimization 1
MATH 578	(4)	Numerical Analysis 1
MATH 579	(4)	Numerical Differential Equations

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
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 761	(4)	Advanced 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 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)	Advanced Mechanics of Materials
MECH 642	(4)	Advanced Dynamics
MECH 650	(4)	Fundamentals of Heat Transfer
MECH 654	(4)	Compt. Fluid Flow and Heat Transfer

11.7.8

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

[illegible]

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

11.7.9 [illegible]

[illegible]

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in a scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly expression and for publication in the public domain.

[illegible]

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

[illegible]

Minimum 21 credits of approved graduate courses, with at least two courses at the 600-level or above.

baryogenesis, superstring cosmology, theory of cosmological perturbations, black hole physics, supergravity, three dimensional gravity, and various topics related to the physics and mathematics of superstring theory. The high-energy theorists have close connections to the nuclear theory group, the astrophysics group, the high-energy experimentalists, and to members of the Mathematics Department.

Experiment : The experimental high-energy physics group is engaged in a number of experiments at the research frontiers of the field, both in subatomic physics and in high-energy astrophysics. These include:

Experiment *Electron-positron collisions*: a group works on the BaBar experiment at *SLAC* and the Belle-2 experiment at the *KEK* laboratory in Japan, with specific interest in CKM matrix elements and physics beyond the Standard Model through studies of rare decays, and on R&D for a future International Linear Collider, with interest in calorimeter development.

- Hadron-hadron collisions: A group is involved in major contributions to the energy frontier at *CERN*'s LHC, with work on the High Level Trigger for the ATLAS experiment. Work also focuses on searches for new physics phenomena, precision physics of known Standard Model processes, development of the ATLAS experiment's trigger system, and direct contribution to the upgrade of the ATLAS detector.

ma

section 11.8.5Master of Science (M.Sc.); Physics (Thesis) (45 credits)

McGill graduates have gone on to successful careers in academia and industry as well as in government. Our former students teach in colleges and universities world-wide and others have research positions in governmental and industrial laboratories. Still others work in the financial sector or as entrepreneurs making good use of the analytic and quantitative problem-solving skills acquired during their education as physicists. Consult the Department for more information about this program.

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

McGill graduates have gone on to successful careers in academia and industry as well as in government. Our former students teach in colleges and universities world-wide and others have research positions in governmental and industrial laboratories. Still others work in the financial sector or as entrepreneurs making good use of the analytic and quantitative problem-solving skills acquired during their education as physicists. Consult the Department for more information about this program.

11.8.3 [illegible]

11.8.3.1 [illegible]

M.Sc.

The normal requirement is a B.Sc. in Physics or equivalent, with high standing.

Ph.D.

The normal requirement is an M.Sc. in Physics or equivalent. On the recommendation of the Departmental Graduate Committee, fast-tracking from the M.Sc. program into the Ph.D. program may be granted after one year, if:

- the student has fulfilled the M.Sc. coursework requirements, or;
- the Committee determines that the student qualifies based on the student's academic record.

All students who transfer to the Ph.D. program are required to fulfil Ph.D. coursework requirements in addition to the courses taken as an M.Sc. candidate.

11.8.3.2 [illegible]

McGill's online application form for graduate program candidates is available at *w*

11.8.4 Pi F y

Associate Professors

K. Dasgupta; M.Sc., Ph.D.(TIFR)

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

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

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

A. Maloney; B.S., M.S.(Stan.), Ph.D.(Harv.) (*William Dawson Scholar*)

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

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

B. Siwick; B.Sc., M.Sc., Ph.D.(Tor.) (*Canada Research Chair*) (*joint*)

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

J. Walcher; Dip., Ph.D.(ETH) (*joint*)

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

T. Webb; B.Sc.(Tor.), M.Sc.(McM.), Ph.D.(Tor.)

Assistant Professors

L. Childress; Ph.D.(Harv.)

B. Coish; Ph.D.(Basel)

D. Cooke; Ph.D.(Alta.)

P

11.8.5 [illegible]

[illegible]

PHYS 690	(24)	M.Sc. Thesis
PHYS 692	(6)	Thesis Project

[illegible]

12 credits at the 500, 600, or 700 level.

3 credits at the 600 or 700 level:

Students with an appropriate background may request Departmental permission to substitute up to 6 credits chosen from the following courses:

PHYS 691	(3)	Thesis Preparation
PHYS 693	(3)	M.Sc. Research

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

11.8.6 [illegible]

[illegible]

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous w

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 step to the Ph.D.—students undergo formal evaluation beginning with the submission of their master's requirements (thesis or fast-track paper) to enter Ph.D. 2.

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 hospital, clinical, or educational settings). 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;
- 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 and Hospital, Allan Memorial Institute, Douglas Mental Health University Institute, Jewish General Hospital, Montreal Children's Hospital, and the Montreal General Hospital, to permit graduate students to undertake research in a hospital setting. (Note that some MUHC-affiliated hospitals and institutes are scheduled to move to the new Glen site in June 2015; further information is available on the *MUHC website*.)

Students interested in neuroscience may apply to graduate programs in the Integrated Program in Neuroscience (IPN) department and work with an IPN supervisor from the Department of Psychology. For information about programs offered by the IPN department, see *Faculty > Graduate > Academic Programs > Neuroscience (Integrated Program)* and *www.mcgill.ca/ipn*.

For inquiries about all programs and financial aid, and for application forms, contact the *Graduate Program Coordinator*, Department of Psychology.

Ph.D. Option in Language Acquisition (LAP)

Information about this option is available from the Department and at *www.psych.mcgill.ca/lap/*.

Ph.D. Option in Psychosocial Oncology (PSO)

A cross-disciplinary option in Psychosocial Oncology is offered within the existing Ph.D. program in Psychology. Information about this option is available from the Department and at *www.medicine.mcgill.ca/oncology/programs/programs_psychosocialoncology.asp*.

Faculty of Arts > Graduate > Academic Programs > Psychology > : Master of Arts (M.A.); 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.

Faculty of Science > Graduate > 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.

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

Please contact the Department for more information about this program.

: Doctor of Philosophy (Ph.D.); Psychology Ð 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.

: Doctor of Philosophy (Ph.D.); Psychology Ð Psychosocial Oncology

The Department of Oncology, in conjunction with the Ingram 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 Ingram School of Nursing and in the Department of Psychology who are interested in broadening their knowledge of psychosocial issues in oncology.

11.9.3 [illegible]

11.9.3.1 [illegible]

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 twelv1v

Graduate Program Director

D. Titone

Associate Professors

G. O'Driscoll; B.A.(Welles.), Ph.D.(Harv.) (*William Dawson Scholar*) (*on sabbatical*)

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

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

Assistant Professors

J. Bartz; B.A.(C'dia), M.A., Ph.D.(McG.)

J. Britt; B.A.(Colo.), Ph.D(Balt.)

M. Dirks; B.A.(McM.), M.S., M.Phil., Ph.D.(Yale) (*on sabbatical*)

F. Gu; B.Sc.(Sing.), M.Sc., Ph.D.(Kansas)

L. Human; B.A., M.A., Ph.D.(Br. Col.)

J. Ristic; B.A., M.A., Ph.D.(Br. Col.) (*William Dawson Scholar*) (*on sabbatical*)

S. Sheldon; B.Sc.(Alta.), M.A., Ph.D.(Tor.)

D. Vachon; B.Sc.(Tor.), M.Sc., Ph.D.(Purd.)

A. Weinberg; B.A.(Wesl.), M.A., Ph.D.,(Stony Brook)

H.-T. Yu; B.S.(Taiwan), M.S., M.A., Ph.D.(Ill.-Urbana-Champaign)

Lecturer

P. Carvajal

Associate Members

Anesthesia: T. Coderre

Douglas Mental Health University Institute Research Centre: S. King, N. Rajah, H. Steiger

Jewish General Hospital: B Thombs, P. Zelkowitz

McGill Vision Research Centre: C. Baker, R. Hess, F.A.A. Kingdom, K. Mullen

Montreal Neurological Institute: J. Armony, A. Dagher, L.K. Fellows, D. Guitton, M. Jones-Gotman, M. Lepage, B. Milner, E. Ruthazer, W. Sossin,

PSYC 699	(12)	Masters Research 2

[illegible] (18 [illegible]

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 [illegible] [illegible] (PhD .); [illegible]

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.

[illegible]

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to kno

LING 710	(2)	Language Acquisition Issues 2
PSYC 701	(6)	Doctoral Comprehensive Examination
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 practising 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

[illegible]

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
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
PSYC 734	(3)	Developmental Psychology and Language
PSYC 736	(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

Website: *w .mcgill.ca/redpt*

11.10.2 [illegible]

The Redpath Museum is a unique interdisciplinary unit within the Faculty of Science offering graduate training in research devoted to biodiversity, ecology, conservation biology, and evolutionary biology, leading to M.Sc. and Ph.D. degrees. It is an institution with extensive collections of ancient and modern organisms, minerals, and ethnological artifacts. Research and teaching are centred on collections-based study, object-oriented investigation, and fieldwork.

11.10.3 [illegible] d

11.10.3.1 [illegible]

The Redpath Museum does not have its own graduate programs. All graduate students of the professors in the Redpath Museum have affiliations with either Biology, Earth and Planetary Sciences, Anthropology, Natural Resource Sciences, or Education. Admission requirements are subject to those home departments' regulations.

11.10.3.2 [illegible] d

Students in the Redpath Museum may enrol in McGill's Department of *[illegible]ct : Biology* or other units, including the Department of *[illegible]ct : Eart and Planet*, the Department of *: Ant oplo gy*, the Department of *: Nat al Reson ce Sciences*, or the *Facl*t. Anyone interested should contact the unit concerned.

11.10.3.3 [illegible]

For more information, please contact the Graduate Program Coordinator in the department you are interested in.

11.10.4 [illegible] g

Dir ector

Hans C.E. Larsson

Emeritus Professor

Robert L. Carroll; B.Sc.(Mich.), Ph.D.(Harv.), F.R.S.C., F.L.S.

Professors

David M. Green; B.Sc.(Br

Harv