



**Faculty of Engineering, including the Schools of  
Architecture and Urban Planning (Graduate)  
Programs, Courses and University Regulations  
2013-2014**



This PDF excerpt of *Programs, Courses and University Regulations* is an archived snapshot of the web content on the date that appears in the footer of the PDF.

Archival copies are available at [www.mcgill.ca/study](http://www.mcgill.ca/study).

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

All contents copyright © 2013 by McGill University. All rights reserved, including the right to reproduce this publication, or portions thereof, in any form.

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

Not all courses are offered every year and changes can be made after publication. Always check the Minerva Class Schedule link at [https://horizon.mcgill.ca/pban1/bwckschd.p\\_disp\\_dyn\\_sched](https://horizon.mcgill.ca/pban1/bwckschd.p_disp_dyn_sched) for the most up-to-date information on whether a course is offered.

- 1 Dean's Welcome, page 9
- 2 Graduate and Postdoctoral Studies, page 9
  - 2.1 Administrative Officers, page 9
  - 2.2 Location, page 9
  - 2.3 General Statement Concerning Higher Degrees, page 10
- 3 Important Dates 2013–2014, page 10
- 4 Graduate Studies at a Glance, page 10
  - 4.1 Graduate and Postdoctoral Degrees Offered by Faculty, page 10
  - 4.2 Master's Degrees Available at McGill, page 12
    - 4.2.1 Master's Degree Programs and Specializations, page 13
  - 4.3 Doctoral Degrees Available at McGill, page 17
    - 4.3.1 Doctoral Degree Programs and Specializations, page 18
  - 4.4 Postdoctoral Research, page 20
  - 4.5 Graduate Diplomas and Graduate Certificates, page 20
- 5 Program Requirements, page 21
  - 5.1 Master's Degrees, page 21
  - 5.2 Doctoral Degrees, page 22
  - 5.3 Ad Personam Programs (Thesis Option Only), page 23
  - 5.4 Coursework for Graduate Programs, Diplomas, and Certificates, page 23
- 6 Graduate Admissions and Application Procedures, page 23
  - 6.1 Application for Admission, page 23
  - 6.2 Admission Requirements (Minimum Requirements to be Considered for Admission), page 24
  - 6.3 Application Procedures, page 24
    - 6.3.1 Document Checklist Terms, page 24
  - 6.4 Admission Tests, page 25
  - 6.5 Competency in English, page 25
  - 6.6 Admission to a Qualifying Program, page 26
  - 6.7 Admission to a Second Degree Program, page 26
  - 6.8 Admission to Two Degree Programs, page 26
  - 6.9 Admission to an Ad Personam Joint Program, page 26
  - 6.10 Reinstatement and Admission of Former Students, page 27
  - 6.11 Deferral of Admission, page 27
- 7 Fellowships, Awards, and Assistantships, page 27
- 8 Postdoctoral Research,

- 10 Information on Research Policies and Guidelines, Patents, Postdocs, Associates, Trainees, page 31
- 11 Academic Programs, page 31
  - 11.1 Architecture, page 32
    - 11.1.1 Location, page 32
    - 11.1.2 About Architecture, page 32
    - 11.1.3 Architecture Admission Requirements and Application Procedures, page 34
      - 11.1.3.1 Admission Requirements, page 34
      - 11.1.3.2 Application Procedures, page 34
      - 11.1.3.3 Application Deadlines, page 35
    - 11.1.4 Architecture Faculty, page 35
    - 11.1.5 Master of Architecture (M.Arch.); Professional (Non-Thesis) — Design Studio (45 credits) , page 36
    - 11.1.6 Master of Architecture (M.Arch.); Professional (Non-Thesis) — Design Studio-Directed Research (60 credits) , page 37
    - 11.1.7 Master of Architecture (M.Arch.); Post-professional (Non-Thesis) — Architectural History and Theory (45 credits) , page 39
    - 11.1.8 Master of Architecture (M.Arch.); Post-professional (Non-Thesis) — Cultural Mediations and Technology (45 credits) , page 39
    - 11.1.9 Master of Architecture (M.Arch.); Post-professional (Non-Thesis) — Urban Design and Housing (45 credits) , page 40
    - 11.1.10 Doctor of Philosophy (Ph.D.); Architecture (M.odgn and Housing (45

- 
- 11.3.4 Civil Engineering and Applied Mechanics Faculty, page 48
  - 11.3.5 Master of Engineering (M.Eng.); Civil Engineering (Thesis) (45 credits) , page 49
  - 11.3.6 Master of Science (M.Sc.); Civil Engineering (Thesis) (45 credits) , page 49
  - 11.3.7 Master of Engineering (M.Eng.); Civil Engineering (Non-Thesis) (45 credits) , page 50
  - 11.3.8 Master of Engineering (M.Eng.); Civil Engineering (Non-Thesis) — Environmental Engineering (45 credits) , page 50
  - 11.3.9 Doctor of Philosophy (Ph.D.); Civil Engineering , page 51
  - 11.4 Electrical and Computer Engineering, page 52
    - 11.4.1 Location, page 52
    - 11.4.2 About Electrical and Computer Engineering, page 52
    - 11.4.3 Electrical and Computer Engineering Admission Requirements and Application Procedures, page 53
      - 11.4.3.1 Admission Requirements, page 53
      - 11.4.3.2 Application Procedures, page 53
      - 11.4.3.3 Application Deadlines, page 54
    - 11.4.4 Electrical and Computer Engineering Faculty, page 54
    - 11.4.5 Master of Engineering (M.Eng.); Electrical Engineering (Thesis) (46 credits) , page 55
    - 11.4.6 Master of Engineering (M.Eng.); Electrical Engineering (Thesis) — Computational Science and Engineering (47 credits) , page 56
    - 11.4.7 Master of Engineering (M.Eng.); Electrical Engineering (Non-Thesis) (47 credits) , page 57
    - 11.4.8 Doctor of Philosophy (Ph.D.); Electrical Engineering , page 58
  - 11.5 Mechanical Engineering, page 58
    - 11.5.1 Location, page 58
    - 11.5.2 About Mechanical Engineering, page 58
    - 11.5.3 Mechanical Engineering Admission Requirements and Application Procedures, page 60
      - 11.5.3.1 Admission Requirements, page 60
      - 11.5.3.2 Application Procedures, page 61
      - 11.5.3.3 Application Deadlines, page 61
    - 11.5.4 Mechanical Engineering Faculty, page 61
    - 11.5.5 Master of Engineering (M.Eng.); Mechanical Engineering (Thesis) (45 credits) , page 62
    - 11.5.6 Master of Engineering (M.Eng.); Mechanical Engineering (Thesis) — Computational Science and Engineering (46 credits) , page 63
    - 11.5.7 Master of Engineering (M.Eng.); Mechanical Engineering (Non-Thesis) (45 credits) , page 64
    - 11.5.8 Master of Engineering (M.Eng.); Aerospace Engineering (Non-Thesis) (45 credits) , page 65
    - 11.5.9 Master of Management (M.M.); Manufacturing Management (Non-Thesis) (56 credits) , page 65
    - 11.5.10 Master of Science (M.Sc.); Mechanical Engineering (Thesis) (45 credits) , page 66
    - 11.5.11 Doctor of Philosophy (Ph.D.); Mechanical Engineering , page 67
  - 11.6 Mining and Materials Engineering, page 67
    - 11.6.1 Location, page 67
    - 11.6.2 About Mining and Materials Engineering, page 67
    - 11.6.3 Mining and Materials Engineering Admission Requirements and Application Procedures, page 68

- 
- 11.6.3.1 Admission Requirements, page 68
  - 11.6.3.2 Application Procedures, page 69
  - 11.6.3.3 Application Deadlines, page 69
  - 11.6.4 Mining and Materials Engineering Faculty, page 69
  - 11.6.5 Master of Engineering (M.Eng.); Mining and Materials Engineering (Thesis) (45 credits) , page 70
  - 11.6.6 Master of Science (M.Sc.); Mining and Materials Engineering (Thesis) (45 credits) , page 70
  - 11.6.7 Master of Engineering (M.Eng.); Mining and Materials Engineering (Non-Thesis) (45 credits) , page 71
  - 11.6.8 Master of Engineering (M.Eng.); Mining and Materials Engineering (Non-Thesis) — Environmental Engineering (45 credits) , page 71
  - 11.6.9 Doctor of Philosophy (Ph.D.); Mining and Materials Engineering , page 73
  - 11.6.10 Graduate Diploma in Mining Engineering (30 credits) , page 73
  - 11.7 Urban Planning, page 73
    - 11.7.1 Location, page 73
    - 11.7.2 About Urban Planning, page 73
    - 11.7.3 Urban Planning Admission Requirements and Application Procedures, page 75
      - 11.7.3.1 Admission Requirements, page 75
      - 11.7.3.2 Application Procedures, page 75
      - 11.7.3.3 Application Deadlines, page 75
    - 11.7.4 Urban Planning Faculty, page 75
    - 11.7.5 Master of Urban Planning (M.U.P.); Urban Planning (Non-Thesis) (66 credits) , page 76
    - 11.7.6 Master of Urban Planning (M.U.P.); Urban Planning (Non-Thesis) — Transportation Planning (66 credits) , page 77
    - 11.7.7 Master of Urban Planning (M.U.P.); Urban Planning (Non-Thesis) — Urban Design (66 credits) , page 78





## 2.3 General Statement Concerning Higher Degrees

Graduate and Postdoctoral Studies (GPS) oversees all programs leading to graduate diplomas, certificates, and higher degrees, with the exception of some programs in the School of Continuing Studies. It is responsible for admission policies, the supervision of graduate students' work, and for recommending to Senate those who may receive the degrees, diplomas, and certificates.

## 3 Important Dates 2013–2014

For all dates relating to the academic year, consult [www.mcgill.ca/importantdates](http://www.mcgill.ca/importantdates).

## 4 Graduate Studies at a Glance

### 4.1 Graduate and Postdoctoral Degrees Offered by Faculty

McGill University offers graduate and postdoctoral programs in the following units (organized by their administering home faculty):

Faculty of Agricultural and Environmental Sciences	Degrees Available
: <i>Agricultural Economics</i>	M.Sc.
: <i>Animal Science</i>	M.Sc., M.Sc.A., Ph.D.
: <i>Bioresource Engineering</i>	M.Sc., M.Sc.A., Ph.D., Graduate Certificate
: <i>Biotechnology</i>	M.Sc.A., Graduate Certificate
: <i>Dietetics and Human Nutrition</i>	M.Sc., M.Sc.A., Ph.D., Graduate Diploma
: <i>Food Science and Agricultural Chemistry</i>	M.Sc., Ph.D.
: <i>Natural Resource Sciences</i>	M.Sc., Ph.D.
: <i>Parasitology</i>	M.Sc., Ph.D.
: <i>Plant Science</i>	M.Sc., M.Sc.A., Ph.D., Graduate Certificate
Faculty of Arts	Degrees Available
: <i>Anthropology</i>	M.A., Ph.D.
: <i>Art History</i>	M.A., Ph.D.
Classics – see : <i>History and Classical Studies</i>	N/A
: <i>Communication Studies</i>	M.A., Ph.D.
: <i>East Asian Studies</i>	M.A., Ph.D.
: <i>Economics</i>	M.A., Ph.D.
: <i>English</i>	M.A., Ph.D.
: <i>French Language and Literature</i>	M.A., Ph.D.
: <i>Geography</i>	M.A., Ph.D.
: <i>History and Classical Studies</i>	M.A., Ph.D.
: <i>Institute for the Study of International Development</i>	N/A
: <i>Islamic Studies</i>	M.A., Ph.D.
: <i>Jewish Studies</i>	M.A.
: <i>Languages, Literatures, and Cultures</i>	M.A., Ph.D.

<b>Faculty of Arts</b>	<b>Degrees Available</b>
: <i>Linguistics</i>	M.A., Ph.D.
: <i>Mathematics and Statistics</i>	M.A., Ph.D.
: <i>Philosophy</i>	M.A., Ph.D.
: <i>Political Science</i>	M.A., Ph.D.
: <i>Psychology</i>	M.A., Ph.D.
: <i>Quebec Studies / Études sur le Québec</i>	N/A
: <i>Social Studies of Medicine</i>	N/A
: <i>Social Work</i>	M.S.W., Ph.D.
: <i>Sociology</i>	M.A., Ph.D.
<b>School of Dentistry</b>	<b>Degrees Available</b>
: <i>Dentistry</i>	M.Sc.
<b>Desautels Faculty of Management</b>	<b>Degrees Available</b>
	M.B.A., M.B.A. NE2th Int

**Faculty of Medicine****Degrees Available**

*: Medicine, Experimental*

M.Sc., Ph.D., Graduate Diploma

*: Medicine, Family (Option)*

N/A

*: Microbiology and Immunolo*

M.Sc., Ph.D.

Degree		Prerequisites
Master of Business Administration with integrated Bachelor of Civil Law / Bachelor of Laws	M.B.A. with B.C.L./LL.B.	See : <a href="#">M.B.A. Program</a> .
Master of Business Administration with Doctor of Medicine / Master of Surgery	M.B.A. with M.D.,C.M.	See : <a href="#">M.B.A. Program</a> .
Master of Education	M.Ed.	Bachelor's degree with specialization related to the subject chosen for graduate work, plus a Permanent Quebec Teaching Diploma or its equivalent for some of the above degrees. See appropriate department.
Master of Engineering	M.Eng.	Bachelor of Engineering or equivalent, with specialization appropriate for the subject selected for graduate study. See appropriate department.
Master of Laws	LL.M.	An acceptable degree in Law or equivalent qualifications. See : <a href="#">Law Admission Requirements and Application Procedures</a> .
Master of Library and Information Studies	M.L.I.S.	At least a bachelor's degree from a recognized university. See : <a href="#">Information Studies Admission Requirements and Application Procedures</a> .
Master of Management	M.M.	See : <a href="#">Master of Management Programs Admission Requirements and Application Procedures</a> .
Master of Manufacturing Management	M.M.M.	See : <a href="#">Master of Management Programs Admission Requirements and Application Procedures</a> .
Master of Music	M.Mus.	Bachelor of Music or Bachelor of Arts with concentration in the area selected for graduate study.  Applicants to the Performance program are required to pass auditions in their speciality.  See : <a href="#">Schulich School of Music</a> .
Master of Sacred Theology	S.T.M.	B.A. with specialization in religious studies or theology. See : <a href="#">Religious Studies Admission Requirements and Application Procedures</a> .
Master of Science	M.Sc.	Bachelor of Science in the subject selected for graduate work. See appropriate unit.
Master of Science, Applied	M.Sc.A.	A bachelor's degree in the subject selected for graduate work. See appropriate unit.
Master of Social Work	M.S.W.	Bachelor's degree in Social Work including courses in statistics and social science research methods. See : <a href="#">Social Work Admission Requirements and Application Procedures</a> .
Master of Social Work with Bachelor of Civil Law and Bachelor of Laws	M.S.W. with B.C.L. and LL.B.	See : <a href="#">Social Work Admission Requirements and Application Procedures</a> .
Master of Urban Planning	M.U.P.	Bachelor's degree in any one of the following: Anthropology, Architecture, Economics, Civil Engineering, Geography, Law, Management, Political Science, Social Work, Sociology, or Urban Planning, with adequate knowledge of quantitative techniques. See <a href="#">section 11.7.3: Urban Planning Admission Requirements and Application Procedures</a> .

#### 4.2.1 Master's Degree Programs and Specializations

The following list shows all of the programs and options available for each degree at McGill.

Program	Thesis/Non-Thesis	Options
<b>Master of Architecture (M.Arch.)</b>		
Professional	Non-Thesis	Design Studio, Design Studio – Directed Research
Post-professional	Non-Thesis	Architectural History and Theory, Cultural Mediations and Technology, Urban Design and Housing
<b>Master of Arts (M.A.)</b>		
Anthropology	Thesis, Non-Thesis	Development Studies, Environment, Gender and Women's Studies (Thesis)

Master of Arts (M.A.)		
Art History	Thesis	N/A
Classics	Thesis, Non-Thesis	N/A
Communication Studies	Thesis, Non-Thesis	Gender and Women's Studies (Thesis)
Counselling Psychology	Non-Thesis (Professional Internship), Non-Thesis (Project)	N/A
East Asian Studies	Thesis ( <i>Ad Hoc</i> )	N/A
Economics	Thesis, Non-Thesis	Development Studies, Social Statistics (Non-Thesis)
Educational Psychology	Thesis	Health Professions Education, Human Development, Learning Sciences, School/Applied Psychology
Education and Society	Thesis, Non-Thesis	Gender and Women's Studies, Mathematics and Science Education (Thesis) Gender and Women's Studies, Jewish Education (Non-Thesis)
Educational Leadership	Thesis, Non-Thesis (Coursework), Non-Thesis (Project)	Gender and Women's Studies (Thesis) Gender and Women's Studies (Non-Thesis (Project))
English	Thesis, Non-Thesis	N/A
French Language and Literature	Thesis, Non-Thesis	Gender and Women's Studies (Thesis)
Geography	Thesis	Development Studies, Environment, Gender and Women's Studies, Neotropical Environment, Social Statistics (Thesis)
German	Thesis, Non-Thesis	N/A
Hispanic Studies	Thesis, Non-Thesis	N/A
History	Thesis, Non-Thesis	Development Studies, European Studies, Gender and Women's Studies (Thesis) Development Studies, European Studies, Gender and Women's Studies (Non-Thesis)
History of Medicine	Non-Thesis	N/A
Islamic Studies	Thesis	Gender and Women's Studies (Thesis)
Italian	Thesis, Non-Thesis	N/A
Jewish Studies	Thesis, Non-Thesis	N/A
Kinesiology and Physical Education	Thesis, Non-Thesis	N/A
Linguistics	Non-Thesis	N/A
Mathematics and Statistics	Thesis, Non-Thesis	N/A
Medical Anthropology	Thesis	N/A
Music – Music Education	Thesis, Non-Thesis	N/A
Music – Music Technology	Thesis, Non-Thesis	N/A
Music – Musicology	Thesis, Non-Thesis	Gender and Women's Studies (Thesis)
Music – Theory	Thesis, Non-Thesis	Gender and Women's Studies (Thesis)
Philosophy	Thesis	Bioethics
Political Science	Thesis, Non-Thesis	Development Studies, European Studies (Thesis) Development Studies, European Studies, Gender and Women's Studies, Social Statistics (Non-Thesis)
Psychology	Thesis	N/A
Religious Studies	Thesis, Non-Thesis	Bioethics, Gender and Women's Studies (Thesis)
Russian	Thesis	N/A

**Master of Arts (M.A.)**

Second Language Education	Thesis, Non-Thesis	Gender and Women's Studies (Thesis)
Sociology	Thesis, Non-Thesis	Development Studies, Environment, Gender and Women's Studies, Medical Sociology, Neotropical Environment (Thesis) Development Studies, Gender and Women's Studies, Medical Sociology, Social Statistics (Non-Thesis)
Teaching and Learning	Non-Thesis	English or French Second Language, English Language Arts, Mathematics, Science and Technology, Social Sciences

**Master of Business Administration and Management Degrees (M.B.A., M.M., M.M.M.)**

M.B.A.	Non-Thesis	Finance, General Management, Global Strategy and Leadership, Marketing, Technology and Innovation (Non-Thesis)
M.B.A. with B.C.L. and LL.B.	Non-Thesis	Finance, General Management, Global Strategy and Leadership, Marketing, Technology and Innovation (Non-Thesis)
M.D./M.B.A.	Non-Thesis	N/A
M.B.A./Japan	Non-Thesis	Finance, General Management, Global Strategy and Leadership, Marketing, Technology and Innovation (Non-Thesis) N/A

**Master of Sacred Theology (S.T.M.)**

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

Religious Studies

Non-Thesis

N/A

**Master of Science (M.Sc.)**



**Master of Science (M.Sc.)**

Physics	Thesis	N/A
Physiology	Thesis	Bioinformatics Bioinformatics, En

**Degree****Prerequisites**

M.A. in Composition (D.Mus. in Composition) or a master's degree in

**Doctor of Philosophy (Ph.D.)**

Communication Studies	Gender and Women's Studies	Faculty of Arts
Computer Science	Bioinformatics	Faculty of Science
Counselling Psychology	N/A	Faculty of Education
Earth and Planetary Sciences	Environment	Faculty of Science
Economics	N/A	Faculty of Arts
Educational Psychology	Human Development, Learning Sciences	Faculty of Education
Educational Studies	Gender and Women's Studies, Language Acquisition, Mathematics and Science Education	Faculty of Education
Electrical Engineering	N/A	Faculty of Engineering
English	N/A	Faculty of Arts
Entomology	Environment, Neotropical Environment	Faculty of Agricultural and Environmental Sciences

F

**Doctor of Philosophy (Ph.D.)**

Physics	N/A	Faculty of Science
Physiology	Bioinformatics	Faculty of Medicine
Plant Science	Bioinformatics, Environment, Neotropical Environment	Faculty of Agricultural and Environmental Sciences
Political Science	Gender and Women's Studies	Faculty of Arts
Psychology	Language Acquisition, Psychosocial Oncology	Faculty of Arts, Faculty of Science
Rehabilitation Science	N/A	School of Physical and Occupational Therapy
Religious Studies	Gender and Women's Studies	Faculty of Religious Studies
Renewable Resources	Environment, Neotropical Environment	Faculty of Agricultural and Environmental Sciences
Russian	N/A	Faculty of Arts
School/Applied Child Psychology	N/A	Faculty of Education
Social Work	N/A	Faculty of Arts
	Environment, Gender and W	Faculty of Arts

## Graduate Certificates

Assessing Driving Capabilities

Air and Space Law

Educational Leadership 1

Educational Leadership 2

Library and Information Studies

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

#### **Research and Thesis – Master's Degrees**

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

#### **Language Requirements – Master's Degrees**

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

---

## **5.2 Doctoral Degrees**

### **Residence Requirements – Doctoral**

## Thesis – Doctoral

The thesis for the Ph.D. degree must display original scholarship expressed in good literate style and must be a distinct contribution to knowledge. **Formal notice of a thesis title and names of examiners must be submitted to the Thesis section of GPS on the *Nomination of Examiners* form in accordance with the dates on [www.mcgill.ca/importantdates](http://www.mcgill.ca/importantdates), at the same time as the thesis is submitted.** The list of examiners must be approved by the Department Chair, the supervisor and the student. The Thesis section of GPS should be notified of any subsequent change of title as early as possible. Guidelines and deadlines are available at [www.mcgill.ca/gps/thesis/guidelines](http://www.mcgill.ca/gps/thesis/guidelines).

Seven copies of the thesis must be provided by the candidate. O apGuide0ao

diplomas, letters of reference, and test scores, become the property of McGill University and will not be returned to the applicant or issuing institution under any circumstance.

A **non-refundable** fee of \$102.60 paid by credit card in Canadian funds **must** accompany the online application. The fee of \$102.60 covers up to two program choices per term. Candidates for Special, Visiting, and Qualifying status must also apply online and pay the application fee. Please note that application fees are subject to change.

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

Applications and uploaded supporting documents must be submitted according to individual department specifications and deadlines; see [www.mcgill.ca/gradapplicants/programs](http://www.mcgill.ca/gradapplicants/programs). International students are advised to apply well in advance of the application deadlines as immigration procedures may be lengthy. Admission to graduate studies at McGill is highly competitive; accordingly, late and/or incomplete applications are considered only as time and space permits.

The admission decision is based on the recommendation of the graduate department, verification by the Graduate Admissions Unit in Enrolment Services, as well as final approval from Graduate and Postdoctoral Studies. In some cases, the Graduate Admissions Committee may also contribute to the final admission decision. Official letters of admission are sent to applicants electronically by Enrolment Services.

---

## 6.2 Admission Requirements (Minimum Requirements to be Considered for Admission)



**Note:** The following admission requirements denote the minimum standard for applicants. Some graduate departments may require additional qualifications or a higher minimum CGPA; applicants are strongly urged to consult the department concerned regarding specific requirements.

Applicants should be graduates of a recognized university and hold a recognized bachelor's degree or its equivalent, as determined by McGill, in a subject closely related to the one selected for graduate work.

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

See [www.mcgill.ca/gradapplicants/apply/prepare/international/equivalency](http://www.mcgill.ca/gradapplicants/apply/prepare/international/equivalency) for information on grade equivalencies and degree requirements from countries in Europe and around the world. These equivalencies and requirements are provided for information only and are subject to change without notice.

---

## 6.3 Application Procedures

### Application Checklist

All supporting application documents and required supplemental materials must be uploaded directly to the McGill admissions processing system. See [www.mcgill.ca/gradapplicants/apply/ready#docs](http://www.mcgill.ca/gradapplicants/apply/ready#docs) for information and instructions.

1. **Online Application for Admission form:** [www.mcgill.ca/gradapplicants/apply/ready](http://www.mcgill.ca/gradapplicants/apply/ready).
2. **Application fee:**



**GRE:** Graduate Records Examination (see [section 6.4: Admission Tests](#))

**Interview:** a conversation between the applicant and a McGill representative, using a structured, standardized approach to allow for comparison and analysis of responses from all applicants interviewed; in person, via telephone, *Skype*, etc.

**Personal Statement:** an essay in which the applicant describes their reasons for applying to graduate studies and indicating qualifications, qualities, or circumstances the applicant feels to be significant; usually provides information about educational and professional goals and discusses the applicant's interest in the desired field of study.

**Portfolio:** a collection of the applicant's best work to date, selected by them, and intended to show their mastery of a given style or variety of styles; different samples of their artistic work.

**Recording:** an unedited recording (audio or video) of the applicant performing at least two contrasting pieces; minimum 20 minutes.

**Research Proposal:** a detailed description of the proposed program of research, including proposed Thesis Supervisor(s); describes the research background, significance, methodology, and references; may include expected results; may include a detailed curriculum vitae.

**TOEFL:** Test of English as a Foreign Language (see [section 6.5: Competency in English](#))

**Writing Sample:** a recent sample of the applicant's written work, on any topic (not necessarily within the desired field of graduate study) and not necessarily previously submitted for evaluation or publication.

**Written Work:** a sample of the applicant's written work, drawn from essays, papers or other work previously submitted for academic evaluation or publication, and falling within the desired field of graduate study.

---

## 6.4 Admission Tests

### Graduate Record Examination (GRE)

The Graduate Record Examination (GRE) (Educational Testing Service, Princeton, NJ 08540) 94 Tp(or5ub.52 5 1 67.52 56uc1 306.031 713.9840 0 1 218.18 b.52 5 1 6

## Competency in English

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

2. IELTS (International English Language T

---

## 6.10 Reinstatement and Admission of Former Students

Students who have not been registered for a period of less than two years and who have not officially withdrawn from the University by submitting a signed Withdrawal Form to Service Point are eligible to be considered for reinstatement into their program. The student's department must recommend, in writing, that the student be reinstated, stipulating any conditions for reinstatement that it deems appropriate. If the student's department chooses not to recommend reinstatement, the student may appeal to the Associate Dean (Graduate and Postdoctoral Studies). The decision of the Associate Dean (Graduate and Postdoctoral Studies) shall be final and not subject to further appeal.

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

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

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

*Revised – Council of February 9, 2004.*

---

6.11 The Office of Admission, University of North Carolina at Chapel Hill, 4821 North Campus Drive, Chapel Hill, NC 27517-1100, (919) 919-4821, www.admission.unc.edu

---

## 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 equivalent (i.e., Medical Specialist Diploma) engaged by a member of the University's academic staff, including Adjunct Professors, to assist him/her in research.

Postdocs must be appointed by their department and registered with Enrolment Services in order to have access to University facilities (library, computer, etc.).

---

### 8.2 Guidelines and Policy for Academic Units on Postdoctoral Education

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

#### 1. Definition and Status

i. Postdoctoral status will be recognized by the University in accordance with Quebec provincial regulations. Persons may only be registered with postdoctoral status for a period of up to five years from the date they were awarded a Ph.D. or equivalent degree. Time allocated to parental or health leave is added to this period of time. Leaves for other reasons, including vacation leave, do not extend the term. Postdocs must do research under the supervision of a McGill professor, including Adjunct Professors, who is a member of McGill's academic staff qualified in the discipline in which training is being provided and with the abilities to fulfil responsibilities as a supervisor of the research and as a mentor for career development. They are expected to be engaged primarily in research with minimal teaching or other responsibilities.

#### 2. Registration

i. Postdocs must be registered annually with the Uni

- i. Postdocs have the same pertinent rights as the ones granted to McGill students in the *Handbook on Student Rights and Responsibilities* (“Green Book”), available at [www.mcgill.ca/secretariat/policies/students](http://www.mcgill.ca/secretariat/policies/students).
- ii. Postdocs have full graduate student borrowing privileges in McGill libraries through their identity card.
- iii. As a rule, Postdocs who are Canadian citizens or who have Permanent Resident status may take courses for credit. Admission to such courses should be sought by submitting application documents directly to the appropriate program by the Postdoc. They must be admitted by the department offering the courses as Special Students. These Postdocs may only be enrolled as part-time students in non-degree granting programs. They will be charged fees for these courses.
- iv. Postdocs may be listed in the McGill directory. The Computing Centre will grant Postdocs email privileges on the same basis as graduate students upon presentation of a valid identity card.
- v. The Department of Athletics will grant Postdocs access to sports facilities upon presentation of their identity card. A fee will be charged on an annual or term basis.
- vi. Postdocs are mandatory members of the Post-Graduate Students’ Society (PGSS) and an annual association fee is automatically charged. PGSS fees are mandatory. Postdocs are permitted membership in the Faculty Club; an annual fee will be charged for this membership.
- vii. Postdocs are encouraged to participate in Professional Development Workshops provided by Graduate and Postdoctoral Studies and Teaching and Learning services. These sessions are usually free of charge.
- viii. Postdocs have access to the services provided by the Ombudsperson.
- ix. Postdocs may enrol as part-time students in the second language written and spoken English/French courses offered by the School of Continuing Studies/French Language Centre. Postdocs will be charged tuition for these courses. International Postdocs may be required to obtain a CAQ and a Study Permit.
- x. Access to student services and athletic services are available to the Postdoc on an opt-in basis. Fees are applicable.

## 5. Responsibilities

- i. Postdocs are subject to the responsibilities outlined in the *Handbook on Student Rights and Responsibilities* (“Green Book”), available at [www.mcgill.ca/secretariat/policies/students](http://www.mcgill.ca/secretariat/policies/students).
- ii. Each academic unit hosting Postdocs should clearly identify Postdocs’ needs and the means by which they will be met by the unit.
- iii. Each academic unit should assess the availability of research supervision facilities, office space, and research funding before recruiting Postdocs.
- iv. Some examples of responsibilities of the department are:
  - to verify the Postdoc’s eligibility period for registration;
  - to provide Postdocs with departmental policy and procedures that pertain to them;
  - to oversee the registration and appointment of Postdocs;
  - to assign departmental personnel (e.g., Postdoc coordinator and Graduate Program Director) the responsibility for Postdocs;
  - to oversee and sign off on the Letter of Agreement for Postdoctoral Education;
  - to ensure that each Postdoc has a supervisor, lab and/or office space, access to research operating costs and necessary equipment;
  - to include Postdocs in departmental career and placement opportunities;
  - to refer Postdocs to the appropriate University policies and personnel for the resolution of conflict that may arise between a Postdoc and a supervisor.
- v. Some examples of responsibilities of the supervisor are:
  - to uphold and transmit to their Postdocs the highest professional standards of research and/or scholarship;
  - to provide research guidance;
  - to meet regularly with their Postdocs;
  - to provide feedback on research submitted by the Postdocs;
  - to clarify expectations regarding intellectual property rights in accordance with the University’s policy;
  - to provide mentorship for career development;
  - to prepare, sign, and adhere to a Letter of Agreement for Postdoctoral Education.
- vi. Some examples of responsibilities of Postdocs are:
  - to inform themselves of and adhere to the University’s policies and/or regulations for Postdocs for leaves, for research, and for student conduct as outlined in the *Handbook on Student Rights and Responsibilities* and the Graduate and Postdoctoral Studies *University Regulations and Resources*;
  - to submit a complete file for registration to Enrolment Services;

- 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*

---

### **8.3 Vacation Policy for Graduate Students and Postdocs**

Graduate students and Postdocs should normally be entitled to vacation leave equivalent to unit to uni

- the individual must be engaged in full-time research;
- the individual must provide copies of official transcripts/diploma;
- the individual must have the approval of a McGill professor to supervise the research and of the Unit;
- the individual must have adequate proficiency in English, but is not required to provide official proof of English competency to Enrolment Services;
- the individual must comply with regulations and procedures governing research ethics and safety and obtain the necessary training;
- the individual will be provided access to McGill libraries, email, and required training in research ethics and safety. Any other University services must be purchased (e.g., access to athletic facilities);
- the individual must arrange for basic health insurance coverage prior to arrival at McGill and may be required to provide proof of coverage.

---

## 9 Graduate Studies Guidelines and Policies

Refer to *Programs, Courses and University Regulations > University Regulations and Resources > Graduate > : [Guidelines and Policies](#)* for information on the following:

- Guidelines and Regulations for Academic Units on Graduate Student Advising and Supervision
- Policy on Graduate Student Research Progress Tracking
- Ph.D. Comprehensives Policy
- Graduate Studies Reread Policy
- Failure Policy
- Guideline on Hours of Work

---

## 10 Information on Research Policies and Guidelines, Patents, Postdocs, Associates, Trainees

Refer to *Programs, Courses and University Regulations > University Regulations and Resources > Graduate > : [Research Policy and Guidelines, Patents, Postdocs, Associates, Trainees](#)* for information on the following:

- Policy on Research Ethics
  - Regulations on Research Policy
  - Policy on Research Integrity
  - Guidelines for Research Involving Human Subjects
  - Guidelines for Research with Animal Subjects
  - Policy on Intellectual Property
  - Regulations Governing Conflicts of Interest
  - Safety in Field Work
  - Office of Sponsored Research
  - Postdocs
  - Research Associates
-

---

## 11.1 Architecture

### 11.1.1 Location

School of Architecture  
Macdonald-Harrington Building  
815 Sherbrooke Street West  
Montreal, QC H3A 2K6  
Canada

Telephone: 514-398-6700

Fax: 514-398-7372

Website: [www.mcgill.ca/architecture](http://www.mcgill.ca/architecture)

### 11.1.2 About Architecture

M.Arch. (0 G0 g/Sc7 ssirrin) gNon-Thesis), (0 G0 g/ost-pSc7 ssirrin) gNon-Thesis), Ph.D.8.1 -0.054BT67.52 524.482 T09.90Arch. The f 0 G0 g/Sc7 ssirrin) requires th



*section 11.1.6: Master of Architecture (M.Arch.); Professional (Non-Thesis) — Design Studio-Directed Research (60 credits)*

in the application form. Complementary and elective courses are approved in consultation with the adviser. For further information regarding admission eligibility and requirements, please see: [www.mcgill.ca/architecture/programs/professional](http://www.mcgill.ca/architecture/programs/professional).

**Post-Professional Programs**

The Post-professional master's programs are open to applicants who have a professional degree in architecture. Students holding the McGill B.Arch. (former) or M.Arch. (Professional) (current) degree, or an equivalent professional qualification, with a CGPA of at least 3.0 on a 4.0-point scale, are eligible for admission to the post-professional programs. In special cases, applicants with a degree in a related field may be considered. The primary requirement for the M.Arch. (Post-professional) degree is 30 credits of coursework, to be completed in the first two terms, and a 15-credit research report (Cultural Mediations and Technology, Urban Design, and Housing) or 15-credit project (Architectural History and Theory) that is completed in the Summer term. The residence requirement for the M.Arch. (Post-professional) degree is three academic terms, making it possible for students to obtain their degree after 12 calendar months in the program.

*section 11.1.7: Master of Architecture (M.Arch.); Post-professional (Non-Thesis) — Architectural History and Theory (45 credits)*

Teaching and research in the History and Theory of Architecture program concentrates on the exploration and understanding of the complex connections between history, theory, design, and interdisciplinary concerns, particularly in the areas of philosophy and epistemology. This option is concerned with the reconciliation of ethics and poetics in architectural practice. The master's curriculum, which in most cases is also a required foundation year for a Ph.D. in the field, is simple in terms of course requirements, but demanding in terms of personal commitment to reading and writing. It is particularly suited to students with a professional background in architecture who want to explore and understand the complex connections between history

## 11.1.3 Architecture Admission Requirements and Application Procedures

### 11.1.3.1 Admission Requirements

#### M.Arch. (Professional) Program (Non-Thesis)

Applicants holding the McGill B.Sc.(Arch.) degree, or equivalent, with a cumulative grade point average (CGPA) of at least 3.0 on a scale of 4.0, are eligible to apply for admission.

#### M.Arch. (Post-professional) (Non-Thesis)

Applicants holding an accredited professional degree in architecture, or equivalent, with a cumulative grade point average (CGPA) of at least 3.0 on a scale of 4.0, are eligible to apply for admission. In special cases, candidates with a degree in a related field may be considered.

#### Ph.D.

Candidates with high standing in McGill's M.Arch. (Post-professional), or who hold an equivalent degree from another university, are eligible to apply to this program. Those who do not have an appropriate background in the chosen research area may be recommended for the M.Arch. (Post-professional) program. Candidates who have an adequate background at the post-professional master's level in the proposed area of research will be admitted to Ph.D. 2 with the stipulation of additional courses from the M.Arch. (Post-professional) curriculum, if necessary.

A working knowledge of a language or languages relevant to the area of research is required.

### 11.1.3.2 Application Procedures

McGill's online application form for graduate program candidates is available at [www.mcgill.ca/gradapplicants/apply](http://www.mcgill.ca/gradapplicants/apply).

See [section 6.3: Application Procedures](#) for detailed application procedures.

#### 11.1.3.2.1 Additional Requirements

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

##### Professional Master of Architecture:

- Summary of work experience (please use the following): [Work Experience Form](#) [.pdf]\*



**Note:** Your employer's signature is required along with the company business card. We do NOT require the Director's signature.

- Curriculum Vitae;
- Provide an indication of preference for either the Design Studio option (three-term, 45-credit) or the Design Studio Directed Research option (four-term, 60-credit);
- Applicants to the M.Arch. (Professional) Design Studio Directed Research option will need to provide a two-page (maximum) Research Statement indicating their general area of interest, their understanding of this area of study, faculty expertise, and research intention in terms of topic and project-based investigation. Specific references to expertise within the School are encouraged (e.g., History and Theory of Architecture; Cultural Landscape Studies; Affordable and Sustainable Housing; Computation and Fabrication; High-performance Visualization; Minimum Cost Housing; Gender, Sexuality and Space; Design and Health; Urban Design; Landscape Urbanism; Architectural Representation; Urban Agriculture; Vernacular Architecture; Reurbanization).
- Applicants to the M.Arch. (Professional) Design Studio option will need to provide a one-page (maximum) statement on the reasons for selecting this option.

##### Additional Requirements for McGill B.Sc.(Arch.) Graduates:

- A comprehensive portfolio (PDF format, max. 5 MB, due no later than **January 15**) that may include the following:
  - selected work from all previous design studios (please complete using one of the following): [Studio Project Description Form](#) [.pdf]\* or [Studio Project Description Form](#) [.doc]\*;
  - examples of project work from other courses;
  - examples of freehand drawing and sketching (from the Freehand Drawing courses, Sketching School, Summer courses, and independent travel and study);
  - examples of professional work: sketches, drawings, images of models, photographs of built work (professional work)

- A comprehensive portfolio (PDF format, max. 5 MB, due no later than **January 15**) that may include the following:
  - selected work from all previous design studios (please complete using one of the following): *Studio Project Description Form* [.pdf]\* or *Studio Project Description Form* [.doc]\*;
  - examples of project work from other courses;
  - examples of freehand drawing and sketching;
  - examples of professional work: sketches, drawings, images of models, photographs of built work (professional work includes work carried out while employed in architects' offices, as well as personal projects; please identify the architect(s) and your own roles in each project illustrated).

**Post-professional programs:**

**M.Arch. (Post-professional) and Ph.D.**

- Reference Letters – two confidential letters of reference must be sent directly by the referees. Once you have identified the referees on your application form, McGill will contact them to ask that they upload their reference in support of your application. Referees will be prompted electronically to use one of the following: *Confidential Report on Applicant Form* [.pdf]\* or *Renseignements confidentiels sur le candidat* [.pdf]\*.



**Note:** Any additional uploaded letters must be on university or company/business stationery.

- Master's applicants: a one-page statement of research objectives indicating the option chosen and the reasons for that choice. Applicants should include a clear description of their research topic, as well as a detailed description of the research plan and the form, Use o

**Professors**

Alberto Pé

Group B:

3 credits chosen from Group B.

ARCH 512	(3)	Architectural Modelling
ARCH 514	(4)	Community Design Workshop
ARCH 515	(3)	Sustainable Design
ARCH 520	(3)	Montreal: Urban Morphology
ARCH 521	(3)	Structure of Cities
ARCH 523	(3)	Significant Texts and Buildings
ARCH 526	(3)	Philosophy of Structure
ARCH 527	(3)	Civic Design
ARCH 528	(3)	History of Housing
ARCH 529	(3)	Housing Theory
ARCH 533	(3)	New Approaches to Architectural History
ARCH 534	(3)	Architectural Archives
ARCH 540	(3)	Selected Topics in Architecture 1
ARCH 541	(3)	Selected Topics in Architecture 2
ARCH 554	(2)	Mechanical Services
ARCH 622	(3)	Critical Writing
ARCH 626	(4)	Critical Design Strategies
ARCH 679	(3)	Writing in Architecture
ARCH 684	(4)	Contemporary Theory 1
ARCH 685	(4)	Contemporary Theory 2

Note: Courses taken are to be used to fulfil one group only.

### **Elective Courses**

0-6 credits

A maximum of 6 credits may be completed outside the School of Architecture (500- or 600-level electives).

#### **11.1.6 Master of Architecture (M.Arch.); Professional (Non-Thesis) — Design Studio-Directed Research (60 credits)**

The Directed Research concentration is a four-term, 60-credit option, which is a modified version of the regular three-term 45-credit program. This is a self-directed project-based investigation that allows for a transition to a Ph.D. program through an intensive research component.

Candidates within this concentration option are assigned a faculty adviser and engage in project-based directed research. Complementary and elective courses

## Complementary Courses

(12-20 credits)

Group A:

6 credits chosen from the following courses:

ARCH 525	(3)	Seminar on Analysis and Theory
ARCH 531	(3)	Architectural Intentions Vitruvius - Renaissance
ARCH 532	(3)	Origins of Modern Architecture
ARCH 561	(3)	Affordable Housing Seminar 1
ARCH 562	(3)	Affordable Housing Seminar 2
ARCH 602	(4)	Urban Design Seminar 1
ARCH 604	(4)	Urban Design Seminar 2
ARCH 684	(4)	Contemporary Theory 1
ARCH 685	(4)	Contemporary Theory 2

Group B:

6 credits chosen from the following courses:

ARCH 512	(3)	Architectural Modelling
ARCH 514	(4)	Community Design Workshop
ARCH 515	(3)	Sustainable Design
ARCH 517	(3)	Sustainable Residential Development
ARCH 520	(3)	Montreal: Urban Morphology
ARCH 521	(3)	Structure of Cities
ARCH 523	(3)	Significant Texts and Buildings
ARCH 525	(3)	Seminar on Analysis and Theory
ARCH 526	(3)	Philosophy of Structure
ARCH 527	(3)	Civic Design
ARCH 528	(3)	History of Housing
ARCH 529	(3)	Housing Theory
ARCH 531	(3)	Architectural Intentions Vitruvius - Renaissance

ARCH 604	(4)	Urban Design Seminar 2
ARCH 622	(3)	Critical Writing
ARCH 627	(4)	Research Methods for Architects
ARCH 679	(3)	Writing in Architecture
ARCH 680	(3)	Field Sketching
ARCH 684	(4)	Contemporary Theory 1
ARCH 685	(4)	Contemporary Theory 2
ARCH 688	(3)	Directed Research 1
ARCH 689	(3)	Directed Research 2

ARCH 684	(4)	Contemporary Theory 1
ARCH 685	(4)	Contemporary Theory 2

**Complementary Courses (15 credits)**

15 credits of courses at the 500 level or higher, approved by an adviser.

**11.1.9 Master of Architecture (M.Arch.); Post-professional (Non-Thesis) — Urban Design and Housing (45 credits)**

The program consists of three semesters of coursework, to be completed in 12 months. Intensive weekly seminars held during the first two terms focus on urban design and housing theory and research methods. ARCH 603 Urban Design Studio is taken in tandem with ARCH 623 Project Preparation during the winter term, culminating in the Urban Design and Housing Research Report (ARCH 632).

**Research Report (15 credits)**

ARCH 632	(15)	Urban Design and Housing Research Report
----------	------	--

**Required Courses (21 credits)**

ARCH 602	(4)	Urban Design Seminar 1
ARCH 603	(6)	Urban Design Studio
ARCH 604	(4)	Urban Design Seminar 2
ARCH 623	(3)	Project Preparation
ARCH 627	(4)	Research Methods for Architects

**Complementary Courses (9 credits)**

ARCH 515	(3)	Sustainable Design
ARCH 517	(3)	Sustainable Residential Development
ARCH 520	(3)	Montreal: Urban Morphology
ARCH 521	(3)	Structure of Cities
ARCH 523	(3)	Significant Texts and Buildings
ARCH 526	(3)	Philosophy of Structure
ARCH 527	(3)	Civic Design
ARCH 528	(3)	History of Housing
ARCH 529	(3)	Housing Theory
ARCH 530	(3)	Architectural Intentions



ARCH 680	(3)	Field Sketching
URBP 501	(2)	Principles and Practice 1
URBP 504	(3)	Planning for Active Transportation
URBP 505	(3)	Geographic Information Systems
URBP 506	(3)	Environmental Policy and Planning
URBP 530	(3)	Urban Environmental Planning
URBP 536	(1)	Transportation Seminar 1
URBP 537	(1)	Transportation Seminar 2
URBP 538	(1)	Transportation Seminar 3
URBP 616	(3)	Selected Topics 1
URBP 617	(3)	Selected Topics 2
URBP 618	(3)	Selected Topics 3
URBP 619	(3)	Land Use and Transportation Planning
URBP 625	(2)	Principles and Practice 2
URBP 626	(2)	Principles and Practice 3
URBP 629	(3)	Cities in a Globalizing World

#### 11.1.10 Doctor of Philosophy (Ph.D.); Architecture

##### Thesis

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.

##### Required Courses

ARCH 700	(0)	Dissertation Proposal
ARCH 701	(0)	Comprehensive Oral Examination
ARCH 702	(0)	Progress Report 1
ARCH 703	(0)	Progress Report 2

---

## 11.2 Chemical Engineering

### 11.2.1 Location

Department of Chemical Engineering  
M.H. Wong Building  
3610 University Street  
Montreal, QC H3A 0C5  
Canada

Telephone: 514-398-4494

Fax: 514-398-6678

Email: [gradinfo.chemeng@mccgill.ca](mailto:gradinfo.chemeng@mccgill.ca)

Website: [www.mcgill.ca/chemeng](http://www.mcgill.ca/chemeng)

## 11.2.2 About Chemical Engineering

The Department of

***section 11.2.7: Master of Engineering (M.Eng.); Chemical Engineering (Non-Thesis) — Environmental Engineering (45 credits)***

under the supervision of a Faculty member (professor). Graduate students can specialize in environmental engineering through this program offered in collaboration with the McGill School of Environment.

***section 11.2.8: Doctor of Philosophy (Ph.D.); Chemical Engineering***

The Ph.D. is a research degree requiring few courses and an extensive thesis, conducted under the supervision of a Faculty member (professor), that makes a distinct contribution to knowledge. The Ph.D. program prepares candidates for a career in teaching, research and/or development and graduates are expected to have acquired autonomy in conducting research. McGill also offers various workshops that provide general, transitional, and professional skills development opportunities, preparing candidates for various career options following the Ph.D.

### Professor

A.D. Rey; B.Ch.E.(CCNY), Ph.D.(Calif.) (*James McGill Professor*)

### Associate Professors

D. Berk; B.Sc.(Bosphorus), M.E.Sc.(W. Ont.), Ph.D.(Calg.), P.Eng.

S. Coulombe; B.Sc., M.Sc.A.(Sher.), Ph.D.(McG.), Jr. Eng. (*CRC-Tier II*)

R.J. Hill; B.E.(Auck.), Ph.D.(C'nell) (*CRC-Tier II*)

R.L. Leask; B.A.Sc., M.A.Sc.(Wat.), Ph.D.(Tor.), P.Eng. (*William Dawson Scholar*)

M. Maric; B.Eng.Mgt.(McM.), Ph.D.(Minn.), P.Eng.

J.-L. Meunier; D.Eng.(E.P.F.L.), M.Sc., Ph.D.(I.N.R.S.), Eng.

S. Omanovic; B.Sc., Ph.D.(Zagreb)

P. Servio; B.A.Sc., Ph.D.(Br. Col.) (*CRC-Tier II*)

N. Tufenkji; B.Eng.(McG.), M.Sc., Ph.D.(Yale), Jr. Eng. (*CRC-Tier II*)

V. Yargeau; B.Ch.E., M.Sc.A., Ph.D.(Sher.), Eng.

### Assistant Professors

P.-L. Girard-Lauriault; B.Sc.(Montr.), Ph.D.(École Poly., Montr.)

J. Gostick; B.Eng.(Ryerson), M.A.Sc., Ph.D.(Wat.)

E. Jones; B.A.Sc.(Wat.), M.S., Ph.D.(Cal. Tech.) Jr. Eng. (*CRC-Tier II*)

A. Kietzig; Dipl.Ing.(TU Berlin), Ph.D.(Br. Col.)

## 11.2.5 Master of Engineering (M.Eng.); Chemical Engineering (Thesis) (45 credits)

### Thesis Courses (31 credits)

Thesis ProposalZagrYroposa63.52 411.99 T 2 .d3YE67 7916 464.04 Tm Id3YE6ch4.9D.(WW(12D.(ZagrYroposa63.52



**Soil and water quality management: (3 credits)**

BREE 533	(3)	Water Quality Management
CIVE 686	(4)	Site Remediation

**Environmental impact: (3 credits)**

GEOG 501	(3)	Modelling Environmental Systems
GEOG 551	(3)	Environmental Decisions

or an approved 500-, 600-, or 700-level alternative.

**Environmental policy: (3 credits)**

URBP 506	(3)	Environmental Policy and Planning
----------	-----	-----------------------------------

or an approved 500-, 600-, or 700-level alternative.

**Elective Courses (11 credits)**

CHEE 696	(6)	Extended Project
----------	-----	------------------

or another Engineering or non-Engineering 500-, 600-, or 700-level course subject to approval.

**11.2.8 Doctor of Philosophy (Ph.D.); Chemical Engineering**

**Thesis**

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.

**Required Courses**

CHEE 681	(1)	Laboratory Safety 1
CHEE 682	(1)	Laboratory Safety 2
CHEE 795	(0)	Ph.D. Thesis Proposal
CHEE 796	(0)	Ph.D. Proposal Defence
CHEE 797	(0)	Ph.D. Seminar

**Complementary Courses**

(6-12 credits)

6-8 credits of Chemical Engineering courses (two courses) at the 500, 600, or 700 level.

12 credits (three courses) from the following list must be taken during the M.Eng. and/or Ph.D. program:

CHEE 611	(4)	Heat and Mass Transfer
CHEE 621	(4)	Thermodynamics
CHEE 631	(4)	Foundations of Fluid Mechanics
CHEE 641	(4)	Chemical Reaction Engineering
CHEE 651	(4)	Advanced Biochemical Engineering
CHEE 662	(4)	Computational Methods
CHEE 672	(4)	Process Dynamics and Control

\* Note: 8 credits from the list, if taken during the Ph.D. program, can be used to meet the first coursework requirement of 6-8 credits of Chemical Engineering courses.

---

## 11.3 Civil Engineering and Applied Mechanics

### 11.3.1 Location

Department of Civil Engineering and Applied Mechanics  
Macdonald Engineering Building, Room 492  
817 Sherbrooke Street West  
Montreal, QC H3A 0C3  
Canada

Telephone: 514-398-6858

Fax: 514-398-7361

Email: [gradinfo.civil@mcgill.ca](mailto:gradinfo.civil@mcgill.ca)

Website: [www.mcgill.ca/civil](http://www.mcgill.ca/civil)

### 11.3.2 About Civil Engineering and Applied Mechanics

Advanced courses of instruction and laboratory facilities are available for Engineering graduate students who wish to proceed to the degrees of **M.Eng.**, **M.Sc.**, and **Ph.D.**

Graduate studies and research are at present being conducted in the fields of structures and structural mechanics; infrastructure rehabilitation; risk engineering; fluid mechanics and hydraulics; materials engineering; soil behaviour; soil mechanics and foundations; water resources engineering; environmental engineering; and transportation engineering.

#### **M.Eng. in Civil Engineering**

The master's degree can be pursued as a research degree (thesis) or as a coursework-based degree (project). The thesis degree is for those who wish to undertake research while the project degree is for those who wish to have a broader and more specialized training in civil engineering.

#### *section 11.3.5: Master of Engineering (M.Eng.); Civil Engineering (Thesis) (45 credits)*

Students obtain a deeper understanding of their area of specialty through courses selected with their supervisor. A two- to three-semester independent research project is undertaken in the field of structures and structural materials; infrastructure rehabilitation; risk engineering; fluid mechanics and hydraulics; materials engineering; soil behaviour; soil mechanics and foundations; water resources engineering; environmental engineering; and transportation engineering.

#### *section 11.3.6: Master of Science (M.Sc.); Civil Engineering (Thesis) (45 credits)*

Candidates with a bachelor's degree in a discipline other than Engineering, such as Science or Arts, may be accepted into an M.Sc. program in the Department. Such students would typically study in the fluid mechanics, water resources, environmental engineering, or transportation engineering areas, and would follow the thesis option program.

#### *section 11.3.7: Master of Engineering (M.Eng.); Civil Engineering (201-6116) (45 credits)*

This is primarily a coursework

### 11.3.3 Civil Engineering and Applied Mechanics Admission Requirements and Application Procedures

#### 11.3.3.1 Admission Requirements

The general rules of Graduate and Postdoctoral Studies apply and are detailed in [section 6: Graduate Admissions and Application Procedures](#). The minimum academic standard for admission is a cumulative grade point average (CGPA) of 3.0/4.0 in a recognized program. Alternatively, an equivalent grade point average of no less than 3.2/4.0 over the last two years of the program will be accepted.

Applicants to graduate studies whose mother tongue is not English, and who have **not** completed an undergraduate or graduate degree from a recognized foreign institution where English is the language of instruction or from a recognized Canadian institution (anglophone or francophone), must write the TOEFL (Test of English as a Foreign Language; preferably the Internet-based test) or the IELTS (International English Language Testing System). Ph.D. applicants must achieve a minimum overall score of 92 (or minimum 580 on the paper-based test), with a minimum score of 20 for each component (i.e., Writing, Reading, Speaking, Listening); or, achieve a minimum band score of 7 for the IELTS in order to apply. Master's applicants must achieve an overall minimum TOEFL score of 86 (or minimum 567 on the paper-based test), with a minimum score of 20 for each component; or, achieve a minimum band score of 6.5 for the IELTS in order to apply. Test results reach McGill approximately eight weeks after the test is taken; please note that it is the student's responsibility to make the necessary arrangements with the examining board to write the test in his/her country of residence. Full information about the test, and a registration form, may be obtained by consulting the TOEFL ([www.ets.org/toefl](http://www.ets.org/toefl)) or the IELTS ([www.ielts.org](http://www.ielts.org)) websites.

#### 11.3.3.2 Application Procedures

McGill's online application form for graduate program candidates is available at [for graduate program candidates](#) is a



**Associate Professors**

A.J. Boyd; B.Sc.Eng.(New Br.), M.A.Sc.(Tor.), Ph.D.(Br. Col.), P.Eng., F.A.C.I.

L. Chouinard; B.Eng., M.Eng.(Montr.), B.C.L.(McG.), Sc.D.(MIT), Eng.

S.J. Gaskin; B.Sc.(Eng.)(Qu.), Ph.D.(Cant.), Eng.

R. Gehr; B.Sc.(Eng.)(Witw.), M.A.Sc., Ph.D.(Tor.), P.Eng.

S. Ghoshal; B.C.E.(India), M.S.(Missouri), Ph.D.(Carn. Mell), P.Eng.

G. McClure; B.Eng.(Montr.), S.M.(MIT), Ph.D.(Montr.), Eng.

M.A. Meguid; B.Sc.(Cairo), M.Sc., Ph.D.(W. Ont.), P.Eng.

C. Rogers; B.A.Sc., M.A.Sc.(Wat.), Ph.D.(Syd.), P.Eng.

Y. Shao; B.Sc., M.S.(Tongji), Ph.D.(N'western), P.Eng.

**Assistant Professors**

N. Eluru; B.Sc.(Indian IT), M.Sc. Ph.D.(Texas-Austin)

D. Frigon; B.Sc., M.Sc.(McG.), Ph.D.(Ill.-Urbana-Champaign)

T. Gleeson; B.Sc.(Vic., BC), M.Sc.(S. Fraser), Ph.D.(Qu.)

M. Hatzopoulou; B.Sc., M.Sc.(Beirut), Ph.D.(Tor.)

D. Lignos; B.Sc.(Nat. Tech., Athens), M.Sc., Ph.D.(Stan.)

J. Liu; BE/ME(China), ME(Rensselaer Poly.), Ph.D.(Purd.)

L. Miranda-Moreno; B.Sc., M.Eng.(Mexico), Ph.D.(Wat.)

**Adjunct Professors**

S. Babarutsi, R. Edwards, J. Hadjinicolaou, J. Hawari, A. Keane, Z. Lounis, C. Manatakos, T.S. Nguyen, P. Rodrigue, S. Scola, W. Taylor, M. Villeneuve, J. Vrana

**11.3.5 Master of Engineering (M.Eng.); Civil Engineering (Thesis) (45 credits)****Thesis Courses (27 credits)**

CIVE 630	(3)	Thesis Research 1
CIVE 631	(3)	Thesis Research 2
CIVE 632	(3)	Thesis Research 3
CIVE 633	(6)	Thesis Research 4
CIVE 634	(6)	Thesis Research 5
CIVE 635	(6)	Thesis Research 6

**Required Course**

1 credit:

CIVE 662	(1)	Masters Research Seminar
----------	-----	--------------------------

**Complementary Courses (17 credits)**

(minimum 17 credits)

A minimum of five courses at the 500 or 600 level, with at least 8 credits at the 600 level.

**11.3.6 Master of Science (M.Sc.); Civil Engineering (Thesis) (45 credits)****Thesis Courses (27 credits)**

CIVE 630	(3)	Thesis Research 1
CIVE 631	(3)	Thesis Research 2
CIVE 632	(3)	Thesis Research 3
CIVE 633	(6)	Thesis Research 4
CIVE 634	(6)	Thesis Research 5
CIVE 635	(6)	Thesis Research 6

#### Required Course

1 credit:

CIVE 662	(1)	Masters Research Seminar
----------	-----	--------------------------

#### Complementary Courses (17 credits)

A minimum of five courses at the 500 or 600 level, with at least 8 credits at the 600 level.

### 11.3.7 Master of Engineering (M.Eng.); Civil Engineering (Non-Thesis) (45 credits)

#### Research Project

(5-15 credits)

Credit for the project may vary between 5 and 15 credits, depending on the amount of work involved. Project courses are chosen from the following:

CIVE 691	(1)	Research Project 1
CIVE 692	(2)	Research Project 2
CIVE 693	(3)	Research Project 3
CIVE 694	(4)	Research Project 4
CIVE 695	(5)	Research Project 5
CIVE 696	(6)	Research Project 6
CIVE 697	(7)	Research Project 7

#### Complementary Courses

(30-40 credits)

A minimum of 30 credits at the 500 or 600 level, with at least 8 credits at the 600 level.

### 11.3.8 Master of Engineering (M.Eng.); Civil Engineering (Non-Thesis) — Environmental Engineering (45 credits)

The program consists of a minimum of 45 credits, of which, depending on the student's home department, a minimum of 5 and a maximum of 15 may be allotted to the research project. The balance of 30 to 40 credits is earned by coursework. The Department also allows students to complete the program using a minimum of 45 credits of coursework only.

The Environmental Engineering option is administered by the Faculty of Engineering. Further information may be obtained from the Program Coordinator, Department of Civil Engineering and Applied Mechanics.

#### Research Project

(0 or 5-15 credits)

The program may include a project or, with Departmental approval, may be completed with courses only.

#### Required Courses (6 credits)

CHEE 591	(3)	Environmental Bioremediation
CIVE 615	(3)	Environmental Engineering Seminar

## Complementary Courses

(24-39 credits)

a minimum of 22 credits chosen from the following:

### Data analysis:

AEMA 611	(3)	Experimental Designs 1
CIVE 555	(3)	Environmental Data Analysis
PSYC 650	(3)	Advanced Statistics 1

### Toxicology:

OCCH 612	(3)	Principles of Toxicology
----------	-----	--------------------------

### Water pollution engineering:

CIVE 651	(4)	Theory: Water / Wastewater Treatment
CIVE 652	(4)	Biological Treatment: Wastewaters
CIVE 660	(4)	Chemical and Physical Treatment of Waters

### Air pollution engineering:

MECH 534	(3)	Air Pollution Engineering
----------	-----	---------------------------

### Soil and water quality management:

BREE 533	(3)	Water Quality Management
CIVE 686	(4)	Site Remediation

### Environmental impact:

GEOG 501	(3)	Modelling Environmental Systems
GEOG 551	(3)	Environmental Decisions

### Environmental policy

URBP 506	(3)	Environmental Policy and Planning
----------	-----	-----------------------------------

### Elective Courses

Also, 0-15 credits of graduate courses from an approved list of courses from the Faculties of Engineering, Agricultural and Environmental Sciences, Law, Management; Departments of Atmospheric and Oceanic Sciences, Biology, Chemistry, Earth and Planetary Sciences, Economics, Epidemiology and Biostatistics, Geography, Occupational Health, Political Science, Religious Studies, Sociology, and McGill School of Environment.

## 11.3.9 Doctor of Philosophy (Ph.D.); Civil Engineering

### Thesis

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.

CIVE 701	(0)	Ph.D. Comprehensive Preliminary Oral Exam
----------	-----	---



## Teaching



## Associate Professors

Tal Arbel; M.Eng., Ph.D.(McG.)

Jan Bajcsy; B.Sc.(Harv.), M.Eng., Ph.D.(Princ.)

Benoit Boulet; B.Sc.(Laval), M.Eng.(McG.), Ph.D.(Tor.) (*William Dawson Scholar*)

Mark Coates; B.Eng.(Adel.), Ph.D.(Camb.)

Vamsy Chodavarapu; B.Eng.(Osmania), M.S., Ph.D.(NYU)

Jeremy R. Cooperstock; A.Sc.(Br. Col.), M.Sc., Ph.D.(Tor.)

Mourad El-Gamal; B.Sc.(Cairo), M.Sc.(Nashville), Ph.D.(McG.) (*William Dawson Scholar*)

Dennis Giannacopoulos; M.Eng., Ph.D.(McG.)

Warren Gross; B.A.Sc.(Wat.), M.A.Sc., Ph.D.(Tor.)

Roni KhaOlukag/F1 8,1 Tf1 0 0D

.FTj1 0 0 1 74.8903562.56 Tm(.abrice Labeau;M.S., Ph.D.(NLou)Tj1 0 0 1 118.68 562.56 Tm(.ain).SteTj1 0 0 1 820.67563.926Tm(.)Tj1 0 0 1 14.099.563.926Tm(.e

.Milica PpouTj1 0 0 1 1190.22 144.80 Tm(.vich B.Sc.(Caolo), M.Sc., Ph.D.(TN'western)

ECSE 693	(4)	Thesis Research 3
ECSE 694	(4)	Thesis Research 4
ECSE 695	(4)	Thesis Research 5
ECSE 696	(4)	Thesis Research 6
ECSE 697	(4)	Thesis Research 7

Students who choose the thesis option must register for all 28 credits during the three terms of residency.

### Complementary Courses

(18 credits minimum)

At least six 500-, 600-, or 700-level courses, normally with a minimum of four ECSE 500- or 600-level courses.\*

\* Under special circumstances, and subject to Departmental approval, students may be allowed to take more than two non-Departmental courses; a letter of recommendation from their supervisor outlining the reason for such an action is required.

Under no circumstances will more than three non-Departmental courses be permitted.

## 11.4.6 Master of Engineering (M.Eng.); Electrical Engineering (Thesis) — Computational Science and Engineering (47 credits)

Program under review for 2013-2014 - may not be offered.

### Thesis Courses (28 credits)

ECSE 691	(4)	Thesis Research 1
ECSE 692	(4)	Thesis Research 2
ECSE 693	(4)	Thesis Research 3
ECSE 694	(4)	Thesis Research 4
ECSE 695	(4)	Thesis Research 5
ECSE 696	(4)	Thesis Research 6
ECSE 697	(4)	Thesis Research 7

### Required Course (1 credit)

ECSE 670D1	(.5)	Computational Science Engineering Seminar
ECSE 670D2	(.5)	Computational Science Engineering Seminar

### Complementary Courses (18 credits)

(minimum 18 credits)

Six courses at the graduate level (500 or above) are required (minimum 18 credits), with a grade of B- or better. Two courses (minimum 6 credits) from List A, and two courses (minimum 6 credits) from List B. At least two of the courses taken from Lists A and B must be from outside the Department of Electrical and Computer Engineering.

#### List A: Scientific Computer Courses

CIVE 602	(4)	Finite Element Analysis
COMP 522	(4)	Modelling and Simulation
COMP 540	(3)	Matrix Computations
COMP 566	(3)	Discrete Optimization 1
MATH 578	(4)	Numerical Analysis 1
MATH 579	(4)	Numerical Differential Equations

#### List B: Applications and Specializ



ATOC 512	(3)	Atmospheric and Oceanic Dynamics
ATOC 513	(3)	Waves and Stability
ATOC 515	(3)	Turbulence in Atmosphere and Oceans
CIVE 514	(3)	Structural Mechanics
CIVE 572	(3)	Computational Hydraulics
CIVE 603	(4)	Structural Dynamics
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
9E4yu6		Advanced Computational Aerodynamics



facilities. Professors within the Department collaborate widely with professors in other units, often through research centres including the Centre for Intelligent Machines (CIM); the McGill Institute for Advanced Materials (MIAM); and the Montreal Neurological Institute and Hospital (MNI). The research interests within the Department are very broad and fall largely within the following five areas:

- aerodynamics, fluids, and thermal engineering
- mechanics of materials and structures
- dynamics and control
- design and manufacturing
- bioengineering

Within these areas, specific topics of research are given in the following:

#### **Aerodynamics, fluids, and thermal engineering**

Experimental fluid mechanics and aerodynamics, aeroelasticity, and aeroacoustics; theoretical fluid mechanics; turbulence; mixing in turbulent flows; fluid flow control; fluid-structure interactions; computational fluid dynamics, multidisciplinary optimization, and computer flow visualization; heat transfer; combustion, shock wave physics, energetic materials, high-speed reacting flows, hypersonic propulsion, and alternative fuels.

#### **Mechanics of materials and structures**

Composite materials: structural design, analysis, manufacturing, and processing; micro/nano mechanics; MEMS/NEMS; adaptronic structures; thermomechanics, wave propagation, and computational mechanics.

#### **Dynamics and control**

Multibody systems, legged and wheeled vehicles, compliant mechanisms, and kinematic geometry; tethered systems, lighter-than-air craft, and underwater vehicles; spacecraft dynamics and space robotics; modelling and simulation; fluid-structure interactions, nonlinear and chaotic dynamics; dynamics of bladed assemblies.

#### **Design and manufacturing**

Design theory and methodology, design optimization; biomimetics; machine tools and systems, manufacturing processes, and management and control; micro/nano machining; wear and comminution processes.

#### **Bioengineering**

Biomechanics, biomaterials, blood and respiratory flows, mechanics of soft tissues, cardiovascular devices, image processing for medical diagnostics, voice production.

#### **Programs Offered**

The Department offers programs of study leading to the M.Eng., M.Sc., and Ph.D. degrees in Mechanical Engineering. Both M.Eng. (Thesis) and M.Eng. (Non-Thesis) programs are offered.

There are several options for completing master's degrees that do not involve the completion of a thesis. The M.Eng. (Non-Thesis) program has more extensive course requirements and will appeal to students who desire to gain both a broad understanding of subjects within Mechanical Engineering as well as in-depth information in a specific area. Two other non-thesis master's degree options are described below.

#### ***section 11.5.5: Master of Engineering (M.Eng.); Mechanical Engineering (Thesis) (45 credits)***

The M.Eng. (Thesis) program requires the completion of 16 credits of technical complementary courses, a seminar course, and a thesis. The thesis involves advanced research supervised by one or more professors who are internationally known in their field. This program prepares students for either an industrial or academic career. For more information, contact the Department of Mechanical Engineering at 393.041.289.

*section 11.5.8: Master of Engineering (M.Eng.); Aerospace Engineering (Non-Thesis) (45 credits)*

aeronautics and space technology. This program is offered to students who wish to specialize in these disciplines. The industry's participation is a special feature of this program. The universities and the participating industries, with the cooperation of the Centre of Aerospace Manpower Activities in Quebec (CAMAQ), have formed a Coordinating Committee, CIMGAS, to arrange for industrial internships and case study courses for the students and to implement specific program developments to meet the needs of the industry.

The M.Eng. (Aerospace) program requires a minimum of 45 credits, including an "Industrial Stage" (i.e., engineering work in an aerospace industry) of four months. Enrolment is limited to the number of industrial stages av

### **11.5.3.2 Application Procedures**

McGill's online application form for graduate program candidates is available at [www.mcgill.ca/gradapplicants/apply](http://www.mcgill.ca/gradapplicants/apply).

See [section 6.3: Application Procedures](#) for detailed application procedures.

Please consult [www.mcgill.ca/mecheng/grad](http://www.mcgill.ca/mecheng/grad) for further details on required application documents.

#### **11.5.3.2.1 Additional Requirements**

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

- two official Referee Reports
- Personal Statement – one page
- an updated list of publications
- list of extra-curricular activities
- Curriculum Vitae
- proof of French proficiency (for Aerospace program only)

### **11.5.3.3 Application Deadlines**

## Professors

M. Amabili; M.Sc.(Ancona), Ph.D.(Bologna), F.A.S.M.E. (*Canada Research Chair*)

J. Angeles; B.Sc., M.Sc.(UNAM Mexico), Ph.D.(Stan.), Eng., F.A.S.M.E., F.C.S.M.E., F.C.A.E., F.R.S.C. (*James McGill Professor*)

B.R. Balig

MECH 691*	(3)	M.Eng. Thesis Literature Review
MECH 692	(4)	M.Eng. Thesis Research Proposal
MECH 693	(3)	M.Eng. Thesis Progress Report 1
MECH 694	(6)	M.Eng. Thesis Progress Report 2
MECH 695	(12)	M.Eng. Thesis

\* Note: MECH 691 must be taken in the first term of the student's program.

**Required Courses**

1 credit:

MECH 609	(1)	Seminar
----------	-----	---------

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)	Theory of Elasticity
MECH 642	(4)	Advanced Dynamics
MECH 650	(4)	Fundamentals of Heat Transfer
MECH 654	(4)	Compt. Fluid Flow and Heat Transfer

#### 11.5.7 Master of Engineering (M.Eng.); Mechanical Engineering (Non-Thesis) (45 credits)

##### Research Project (13 credits)

MECH 603	(9)	M. Eng. Project 1
MECH 604	(3)	M. Eng. Project 2
MECH 609	(1)	Seminar

Note: Industrial liaison is encouraged in these courses taken near the end of the program.

##### Required Courses (16 credits)

MECH 605	(4)	Applied Mathematics 1
MECH 610	(4)	Fundamentals of Fluid Dynamics



MECH 632	(4)	Theory of Elasticity
MECH 642	(4)	Advanced Dynamics

**Complementary Courses (16 credits)**

A minimum of 16 credits (500, 600, or 700 level) from the Faculty of Engineering may be selected by the student, based on interest and the choice of area of concentration. Courses at the graduate level from other faculties may also be taken, with prior approval from the student's project supervisor and the Graduate Program Director. A maximum of 3 credits of FACC courses at the 500, 600, or 700 level may be credited toward the degree.

**11.5.8 Master of Engineering (M.Eng.); Aerospace Engineering (Non-Thesis) (45 credits)**

The M.Eng. Aerospace Degree is offered to the students who wish to specialize in the general area of aerospace engineering. This degree is given in conjunction with Concordia Univers M.Eng.

MGCR 651	(4)	Managing Resources
MGCR 652	(4)	Value Creation

**Group B**

MGCR 611	(2)	Financial Accounting
MGCR 612	(2)	Organizational Behaviour
MGCR 616	(2)	Marketing
MGCR 641	(2)	Elements of Modern Finance 1

**General Business & Management**

6 credits from the following:

Ma& Controlnance 1wing:

### **Complementary Courses (16 credits)**

A minimum of 16 credits (500, 600, or 700 level), at least 8 of which must be from within the Faculty of Engineering. FACC courses will not count toward the complementary course credits.

#### **11.5.11 Doctor of Philosophy (Ph.D.); Mechanical Engineering**

Candidates normally register for the M.Eng. degree in the first instance. However, in exceptional cases where the research work is proceeding very satisfactorily, or where the equivalent of the M.Eng. degree has been completed at another university, candidates may be permitted to proceed directly to the Ph.D. degree without submitting a master's thesis as long as they have satisfied the course requirements for the M.Eng. degree.

#### **Thesis**

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.

#### **Required Courses**

MECH 700	(0)	Ph.D. Literature Review
MECH 701	(0)	Ph.D. Thesis Proposal
MECH 702	(0)	Ph.D. Comprehensive Preliminary Oral Examination

---

**section 11.6.5: Master of Engineering (M.Eng.); Mining and Materials Engineering (Thesis) (45 credits)**

The M.Eng. (Thesis) degree is open to graduates holding the B.Eng. degree or its equivalent in Materials Engineering, Mining Engineering, or other related engineering fields.

**section 11.6.6: Master of Science (M.Sc.); Mining and Materials Engineering (Thesis) (45 credits)**

The M.Sc. (Thesis) degree is open to graduates holding the B.Sc. degree in Chemistry, Materials Science, Physics, Geology, or related fields.

**Direct Transfer from a Master's to a Ph.D.** – Students enrolled in a master's program (thesis) may transfer into the Ph.D. program without obtaining a master's degree if they have satisfied the following:

1. they have a minimum CGPA of 3.3 for the last two full-time undergraduate years;
2. they have been in the master's program for less than 15 months;
3. they have passed with the minimum CGPA of 3.6 at least three of the required master's courses, and given one seminar with a minimum grade of A-;
4. they have obtained a letter of recommendation from their supervisor.

**Direct Entry from B.Eng. to Ph.D.**

Exceptional B.Eng. graduates may be admitted directly to the Ph.D. program. The Ph.D. 1 students admitted through this process are required to complete at least four graduate-level courses.

**M.Eng. (Project) Degrees****section 11.6.7: Master of Engineering (M.Eng.); Mining and Materials Engineering (Non-Thesis) (45 credits)**

The Master of Engineering (Project) program (Materials option) is primarily designed to train people with appropriate engineering or scientific backgrounds to allow them to work effectively in the metals and materials industries. The Master of Engineering (Project) program (Mining option) is primarily designed for graduates from mining engineering programs who have received adequate academic training in modern mining technology, mineral economics, computer programming, and probabilities and statistics.

**section 11.6.8: Master of Engineering (M.Eng.); Mining and Materials Engineering (Non-Thesis) — Environmental Engineering (45 credits)**

This interdepartmental graduate program leads to a master's degree in Environmental Engineering. The objective of the program is to train environmental professionals at an advanced level. The program is designed for individuals with an undergraduate degree in engineering. This non-thesis degree falls within the M.Eng. and M.Sc. programs, which are offered in the Departments of Bioresource, Chemical, Civil, and Mining and Materials Engineering. The Environmental Engineering program emphasizes interdisciplinary fundamental knowledge, practical perspectives, and awareness of environmental issues through a wide range of technical and non-technical courses offered by collaborating departments and faculties at the University. Students are strongly encouraged to consult with the Graduate Program Director prior to enrolling in the program.

**section 11.6.9: Doctor of Philosophy (Ph.D.); Mining and Materials Engineering**

Please consult the Department for more information about the Ph.D.

**section 11.6.10: Graduate Diploma in Mining Engineering (30 credits)**

This program normally requires one academic year of full-time study to complete. Candidates are required to take an integrated group of courses based on their academic background.

**11.6.3 Mining and Materials Engineering Admission Requirements and Application Procedures****11.6.3.1 Admission Requirements**

The Graduate Diploma in Mining Engineering is open to graduates with suitable academic standing in any branch of engineering or science. It is designed to provide a sound technical mining engineering background to candidates intending to work in the minerals industry.

The M.Eng. (Thesis) degree is open to graduates holding the B.Eng. degree or its equivalent in Materials Engineering, Mining Engineering, or other related engineering fields.

The M.Sc. (Thesis) degree is open to graduates holding the B.Sc. degree in Chemistry, Materials Science, Physics, Geology, or related fields.

The Master of Engineering (Project) program (Materials option) is primarily designed to train people with appropriate engineering or scientific backgrounds to allow them to work effectively in the metals and materials industries. Industrial experience is favourably viewed for entrance into the program, but is not considered a necessity.

The Master of Engineering (Project) program (Mining option) is primarily designed for graduates from mining engineering programs who have received adequate academic training in modern mining technology, mineral economics, computer programming, and probabilities and statistics. Students without this academic training must follow a Qualifying term. Industrial experience is favourably viewed for entrance into the program, but is not considered a necessity.

The Master of Engineering (Project) program (Environmental Engineering option) is also offered.

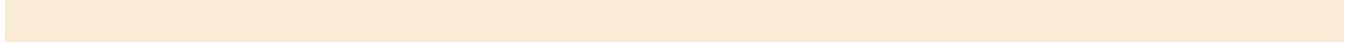
Ph.D. degree applicants may either be “directly transferred” from the M.Eng. or M.Sc. program (see below) or hold an acceptable master's degree in Materials Engineering, Mining Engineering, or other related fields, or under exceptional circumstances may be admitted directly from the bachelor's degree. In the latter case they are admitted to Ph.D. 1 as opposed to those holding a master's degree that are admitted to Ph.D. 2.

### **11.6.3.2 Application Procedures**

McGill's online application form for graduate program candidates is available at [www.mcgill.ca/gradapplicants/apply](http://www.mcgill.ca/gradapplicants/apply).

See [section 6.3: Application Procedures](#) for detailed application procedures.

### **11.6.3.3 Application Deadlines**



#### **Assistant Professors**

Kirk Bevan; Ph.D.(Purd.)

Marta Cerruti; B.Sc., Ph.D., Laurea in Chemistry(Torino)

In-Ho Jung; B.Sc., M.Sc.(POSTECH), Ph.D.(École Poly., Montr.) (*Gerald Hatch Faculty Fellow*) (*William Dawson Scholar*)

Nathaniel Quitarano; B.S.(Calif., Berk.), Ph.D.(MIT)

Jun Song; M.Sc., Ph.D.(Princ.)

Kristian Waters; M.Eng., M.Sc.(UMIST), Ph.D.(Birm.)

#### **Post-Retirement Professor**

Michel L. Bilodeau; B.A.Sc.(Montr.), M.Sc.(A.), Ph.D.(McG.), Eng.

#### **Adjunct Professors**

Mostafa Benzaazoua, Marc Betournay, Martin Bureau, Robin A.L. Drew, Daryoush Emadi, Elhachmi Essadiqi, Carlton Fuerst, Mory Ghomshei, Bryn Harris, Ahmad Hemami, Wynand Kleingeld, Eric Lifshin, Arun Mujumdar, Jan Nettet, Jacques Ouellet, Joe Stachulak, Michel Trudeau, Karim Zaghib

#### **Lecturer**

Florence Paray; B.Eng.(CSP), M.Eng., Ph.D.(McG.)

### **11.6.5 Master of Engineering (M.Eng.); Mining and Materials Engineering (Thesis) (45 credits)**

MIME 694	(6)	Thesis Research 5
MIME 695	(3)	Thesis Research 6

**Required Seminar (6 credits)**

One of the following:

Note: MIME 672D1 and MIME 672D2 should be taken concurrently.

MIME 670	(6)	Research Seminar 1
MIME 672D1	(3)	Rock Mechanics Seminar
MIME 672D2	(3)	Rock Mechanics Seminar
MIME 673	(6)	Mining Engineering Seminar

**Required Courses (12 credits)**

Four 3-credit courses at the graduate level or the equivalent.

**11.6.7 Master of Engineering (M.Eng.); Mining and Materials Engineering (Non-Thesis) (45 credits)**

Students registered in this program specialize either in Mining Engineering or Materials Engineering.

**Research Project**

(6-15 credits)

MIME 628	(6)	Mineral Engineering Project 1
MIME 629	(6)	Mineral Engineering Project 2
MIME 634	(3)	Mineral Engineering Project 3

**Required Courses (6 credits)**

One of the following courses:

MIME 670	(6)	Research Seminar 1
MIME 673	(6)	Mining Engineering Seminar

**Complementary Courses**

(24-33 credits)

12 credits of 500-, 600-, or 700-level MIME courses.

12 to 21 credits of 500-, 600-, or 700-level courses from within or, subject to Departmental approval, outside the Department.

**11.6.8 Master of Engineering (M.Eng.); Mining and Materials Engineering (Non-Thesis) — Environmental Engineering (45 credits)**

Students are strongly encouraged to consult with the Graduate Program Director prior to enrolling in this program.

**Research Project (6 credits)**

MIME 628	(6)	Mineral Engineering Project 1
----------	-----	-------------------------------

**Required Courses (6 credits)**

CHEE 591	(3)	Environmental Bioremediation
CIVE 615	(3)	Environmental Engineering Seminar

### **Complementary Courses (22 credits)**

(minimum 22 credits)

#### **Data Analysis Course**

One of the following courses:

AEMA 611	(3)	Experimental Designs 1
CIVE 555	(3)	Environmental Data Analysis
PSYC 650	(3)	Advanced Statistics 1

#### **Toxicology Course**

One of the following courses:

OCCH 612	(3)	Principles of Toxicology
OCCH 616	(3)	Occupational Hygiene

#### **Water Pollution Engineering Course**

One of the following courses:

CIVE 651	(4)	Theory: Water / Wastewater Treatment
CIVE 652	(4)	Biological Treatment: Wastewaters
CIVE 660	(4)	Chemical and Physical Treatment of Waters

#### **Air Pollution Engineering Course**

One of the following courses:

CHEE 592	(3)	Industrial Air Pollution Control
MECH 534	(3)	Air Pollution Engineering

#### **Soil and Water Quality Management Course**

One of the following courses:

BREE 533	(3)	Water Quality Management
CIVE 686	(4)	Site Remediation

#### **Environmental Impact Course**

One of the following courses:

GEOG 501	(3)	Modelling Environmental Systems
GEOG 551	(3)	Environmental Decisions

or an approved 500-, 600-, or 700-level alternative.

#### **Environmental Policy Course**

URBP 506	(3)	Environmental Policy and Planning
----------	-----	-----------------------------------

or an approved 500-, 600-, or 700-level alternative.

#### **Elective Courses (11 credits)**

(minimum 11 credits)



Another project course and/or Engineering or non-Engineering 500-, 600-, or 700-level course subject to approval of the Department.

The relevant Project course in Mining and Materials Engineering is the following:

MIME 629                      (6)                      Mineral Engineering Project 2

### **11.6.9 Doctor of Philosophy (Ph.D.); Mining and Materials Engineering**

A candidate for this degree must pass a minimum of two courses assigned by the Department. These are selected on the basis of the student's previous academic training and research interests. The candidate is required to participate in an appropriate Research Seminar course and is expected to take a preliminary examination within the first year of his/her Ph.D. registration.

The candidate must submit an acceptable thesis based upon successfully completed research and must satisfy the examiners in an oral examination of the thesis.

#### **Thesis**

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.

### **11.6.10 Graduate Diploma in Mining Engineering (30 credits)**



## **11.7.3 Urban Planning Admission Requirements and Application Procedures**

### **11.7.3.1 Admission Requirements**

The M.U.P. degree is open to students holding a bachelor's degree or equivalent in Anthropology, Architecture, Economics, Engineering, Environmental Studies, Geography, Law, Management, Political Science, Social Work, Sociology, or Urban Studies. Students from other backgrounds are considered for admission on an individual basis.

### **11.7.3.2 Application Procedures**

McGill's online application form for graduate program candidates is available at [www.mcgill.ca/gradapplicants/apply](http://www.mcgill.ca/gradapplicants/apply).

See [section 6.3: Application Procedures](#) for detailed application procedures.

#### **11.7.3.2.1 Additional Requirements**

**Adjunct Professors**

Murtaza Haider; B.Sc.(NWFP UET-Pesh.), M.A.Sc., Ph.D.(Tor.)

Marc-André Lechasseur; LL.B.(Sher.), LL.M.(Montr.)

Mario Polèse; B.A.(CUNY), M.A., Ph.D.(Penn.)

Richard Shearmur; B.A.(Camb.), M.U.P.(McG.), Ph.D.(Montr.)

Ray Tomalty; B.A., M.P.A.(Qu.), Ph.D.(Wat.)

**Guest Lecturers**

Suzanne Doucet, Paul LeCavalier, Denis Lévesque, James McGregor, Pierre Morissette, Larry Sherman, Martin Wexler

**11.7.5 Master of Urban Planning (M.U.P.); Urban Planning (Non-Thesis) (66 credits)**

The M.U.P. requires two years of study including a three-month internship with a member of a recognized planning association.

**Research Project (15 credits)**

URBP 630	(3)	Supervised Research Project 1
URBP 631	(6)	Supervised Research Project 2
URBP 632	(6)	Supervised Research Project 3

**Required Courses (27 credits)**

URBP 609	(3)	Planning Graphics
URBP 612	(3)	History and Theory of Planning
URBP 622	(6)	Planning Studio 1
URBP 623	(3)	Planning Studio 2
URBP 624	(6)	Planning Studio 3
URBP 633	(3)	Planning Methods
URBP 635	(3)	Planning Law

**Required Internship (6 credits)**

URBP 628	(6)	Practical Experience
----------	-----	----------------------

**Complementary Courses**

12-18 credits

In choosing courses from the following list, students are encouraged to complete at least one course in each of the four areas of design, environment, housing, and transportation.

ARCH 515	(3)	Sustainable Design
ARCH 520	(3)	Montreal: Urban Morphology
ARCH 521	(3)	Structure of Cities
ARCH 527	(3)	Civic Design
ARCH 528	(3)	History of Housing
ARCH 529	(3)	Housing Theory
CIVE 540	(3)	Urban Transportation Planning
CIVE 561	(3)	Urban Activity, Air Pollution, and Health





URBP 631	(6)	Supervised Research Project 2
URBP 632	(6)	Supervised Research Project 3

**Required Internship (6 credits)**

URBP 628	(6)	Practical Experience
----------	-----	----------------------

**Required Courses (33 credits)**

URBP 602	(3)	Urban Design Seminar 1: Foundations
URBP 604	(3)	Urban Design Seminar 2: Advanced Topics
URBP 609	(3)	Planning Graphics
URBP 612	(3)	History and Theory of Planning
URBP 622	(6)	Planning Studio 1
URBP 623	(3)	Planning Studio 2
URBP 624	(6)	Planning Studio 3
URBP 633	(3)	Planning Methods
URBP 635	(3)	Planning Law

**Complementary Courses**

9-12 credits from the following including at least one ARCH course and one URBP course:

ARCH 515	(3)	Sustainable Design
ARCH 520	(3)	Montreal: Urban Morphology
ARCH 521	(3)	Structure of Cities
ARCH 527	(3)	Civic Design
ARCH 561	(3)	Affordable Housing Seminar 1
ARCH 562	(3)	Affordable Housing Seminar 2
ARCH 566	(3)	Cultural Landscapes Seminar
URBP 504	(3)	Planning for Active Transportation
URBP 506	(3)	Environmental Policy and Planning
URBP 530	(3)	Urban Environmental Planning
URBP 616	(3)	Selected Topics 1
URBP 619	(3)	Land Use and Transportation Planning

0-3 credits can be selected from other courses at the 500 or 600 levels in any academic unit at McGill or at another university, subject to the approval of the School.

ARCH 515	(3)	Sustainable Design
ARCH 528	(3)	History of Housing
ARCH 529	(3)	Housing Theory
ARCH 550	(3)	Urban Planning and Development
URBP 501	(2)	Principles and Practice 1
URBP 505	(3)	Geographic Information Systems
URBP 530	(3)	Urban Environmental Planning
URBP 607	(3)	Reading Course: Urban Planning

URBP 617	(3)	Selected Topics 2
URBP 618	(3)	Selected Topics 3
URBP 619	(3)	Land Use and Transportation Planning
URBP 625	(2)	Principles and Practice 2
URBP 626	(2)	Principles and Practice 3
URBP 629	(3)	Cities in a Globalizing World