

# Graduate Student Handbook

**2015-2016**

**Department of Mining and Materials Engineering**

## **FOREWORD**

The Graduate Studies Committee of the Department of Mining and Materials Engineering has produced and regularly updates this handbook. It contains information specific to the graduate programs of study offered by the Department. It is important for all graduate students to familiarize themselves with the information in this handbook upon entering the program and

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### **FOREWORD**

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## **1. PROGRAMS OFFERED**

The Department offers the following graduate degree programs to qualified engineers and scientists:

1. Master of Engineering (M.Eng.) - Thesis option
2. Master of Engineering (M.Eng.) - Project option
3. Doctor of Philosophy (Ph.D.)
4. Master of Science (M.Sc.)
5. Graduate Diploma

## **2. ADMISSION REQUIREMENTS**

### **2.1 Language Requirements**

All non-Canadian applicants seeking admission to the graduate degree programs are required to fulfill the following language requirements.

- a) Non-Canadian applicants (including permanent residents) whose mother tongue is neither English nor French and/or who hold degrees from universities where the teaching is not done in either English or French are required to take a TOEFL (Test of English as a Foreign Language) and pass it with a minimum score of 550 (paper-based), or 86 overall, with no less than 20 in each of the four component scores (Internet based) or an International English Language Testing System (IELTS) and obtain a minimum overall band of 6.5.

- (b) Applicants must show evidence of suitable academic achievement: a minimum standing equivalent to a Cumulative Grade Point Average (CGPA) of 3.0 out of a 4.0 for all years of the undergraduate program, or a GPA of 3.2 out of 4.0 for the last 2 full-time academic years. In special cases candidates with CGPA less than 3.0 but above 2.7 may be recommended for admission by the DGSC if they produce strong evidence of research or professional achievement and receive a strong and justified endorsement from a willing professor to supervise their studies. Such recommendation for admission may be conditional on the student completing successfully a prescribed full course load term as Qualifying or Special student.

### 2.3 Ph.D. Degree

Prospective graduate students who wish to pursue a Ph.D. degree in the department must satisfy the following minimum requirements:

- (a) A minimum academic standing equivalent to a Cumulative Grade Point Average (CGPA) of 3.2 out of a 4.0 in a Master's degree program (M.Eng. or M.Sc.) in addition to a CGPA of 3.0 out of 4.0 in the undergraduate program.
- (b) Applicants should hold an M.Eng. degree or equivalent from a recognized university. Most applicants holding M.Eng. (thesis) degrees will be accepted into Ph.D. 2.
- (c) Applicants holding a non-thesis M.Eng. or M.Sc. degree or equivalent whose academic/research background in mining/mineral/metallurgical/materials/process engineering is perceived to be insufficient in any way may be admitted into Ph.D. 2 with conditions set by the DGSC.

If the application is approved, the Graduate Studies Committee will inform the candidate to prepare for the Preliminary Oral Examination to be scheduled sometime before the first semester of Ph.D. 2 program. If the candidate fails the Preliminary Oral Examination, he/she will be permitted to complete the Master's degree and can apply for regular Ph.D. program.

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courses, unless the formal request from both supervisor and graduate student is approved by GPD.

- b) Students admitted into the M.Eng./M.Sc. program and whose academic background is not in mining/mineral/metallurgical/materials/process engineering may be required to take 2 one-term undergraduate courses in addition to the 4 graduate courses (item (a)). These courses are

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work, during their third semester. Seminar presentations are scheduled and announced by the Course Coordinating Professors (Professors Gauvin and Bevan for 2014-2015) at the beginning of each term. Changes to the seminar schedule will be made only if the student requesting the change can provide well justified/commanding reasons at the beginning of the term. Students are required to provide an abstract of their seminar at the latest by Wednesday prior to their Friday presentation. Students are expected to register in this course during their third semester. A course outline is provided by the Course Coordinating Professors with more details on the learning objectives, expectations and marking system.

## Thesis Requirement

### a) Thesis Supervision

Upon admission, each student will have a designated thesis supervisor from the academic staff of the department. It is important that students consult with their supervisor on a regular basis. As soon as possible after starting the program but not later the end of the first term, students should develop a research topic and research plan that is assigned or approved by their supervisor. Students are expected to inform themselves of program requirements and deadlines; to work within these deadlines; to communicate regularly with their supervisor and to submit progress reports as required.

If the student/supervisor relationship is in failure, student may request the change ( ) (c 0 Twc0.61  
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3.2 M.Eng. (Project) including the M.Eng. Environmental Engineering Option

### 3.3 Residence requirement

The minimum residence requirement for McGill's Master's thesis programs is 3 full-time terms. Non-thesis option residence requirements are fulfilled when students complete all

Students admitted to direct Ph.D program (Ph.D. 1) from their Bachelor program or Fast Track Ph.D program (Ph.D. 2) directly from their Master's program are required to take four one-semester graduate courses (500 level or higher) of which at least three are lecture-type courses. For Fast Track Ph.D program students, the courses taken during their Master program prior to Fast Track admission are counted as part of course requirement. Courses are selected in consultation with the thesis supervisor. Students may be required to take courses beyond the normal four course requirement if this is deemed necessary for the advancement of the student's research training. At least two graduate level courses should be taken from the present department, unless special case. However, the maximum number of course is six (6) courses, unless the formal request from both supervisor and graduate student is approved by GPD.

b) Ph.D. Preliminary Oral Examination

(MIME 701 Thesis Research Proposal) Within a year (refer to explanatory note\* at the end of the section) of registering, a Ph.D. student is required to present his/her research program to an examination committee, and describe the results obtained to date together with plans to complete the research. He/she should be prepared to talk knowledgeably about the research subject area. Prior to this examination, the student must have passed at least one graduate course. For the examination, the student should prepare a report (refer to Appendix A for preparation guidelines) of no more than 25 pages including diagrams etc. (1-inch margins, 1 ½-spaced, 12-point font size). The report should be approved by the thesis supervisor and then distributed to the members of the examination committee at least one week prior to the oral examination. The examination consists of a 20-25 minute presentation followed by questions from the members of the committee on the proposed thesis topic as well as general background in the area of the student's research. The presentation is open to all Departmental staff and graduate students. The oral examination following the open presentation and question period is a closed-door session.

In consultation with the student's supervisor, the Graduate Program Director or delegate will convene an examining committee of normally four members. The committee will include the supervisor, two examiners (professors from other Departments can be invited) familiar with the research subject, and a fourth member-examiner to act as the Chair of the examining committee. In the absence of a fourth member one of the other two examiners acts as Chair. Committee for the students entered through Direct Ph.D program and Fast Track Ph.D program is composed of five (5) examiner including

the event of a double failure, and upon recommendation of the examination committee, the Graduate Studies Committee might allow the student to change his/her registration status to M.Eng. if appropriate. The Chair of the examination committee will verbally inform the student of the outcome of the examination. A formal written report summarizing the committee's ruling and comments/recommendations will be prepared by its Chair and forwarded to the candidate and the Graduate Program Coordinator to be placed in the student's file along the Ph.D Oral Exam Document.

All announcements and related organization for both the Mining and Materials engineering programs are coordinated by the Graduate Studies Coordinator of the Department.

\* (Normal Ph.D 2 entrance student): Preliminary exams are typically scheduled in two exam periods one in late May and the other in early November depending on the level and term of first registration. Thus those who started their studies at the Ph.D 2 level in either May or September are normally required to take the exam during the May exam period of the following year. On the other hand those who started their studies in January are required to take the exam during the November exam period of the same year.

\* (Fast Track Ph.D program entrance student (Ph.D 2): If the application is approved, the Graduate Studies Committee will inform the candidate to prepare for the Preliminary Oral Examination sometime before the first semester of Ph.D 2 program. Five (5) examination members are required including the committee Chair and supervisor. Typically GPD or Associate GPD can be the Chair of this committee.

\* (Direct Ph.D program entrance student (Ph.D.1)): In the case of students who were admitted at the Ph.D 1 level or who are required to take a minimum of four courses take the Preliminary Ph.D Oral Exam during the second exam period. Thus those who started in September take their exam in November of the following year while those who started in January take their exam in May of the following year. Refer to Appendix A for the 2014-2015 schedule. Five (5) examination members are required including the committee Chair and supervisor. Typically GPD or Associate GPD can be the Chair of this committee.

c) Ph.D. Seminar:

All Ph.D. students are required to give a seminar and complete their respective seminar course MIME 771 for Materials and MIME 776 for Mining about a year after they have taken their Preliminary Oral Examination. The seminar is typically scheduled during their 4<sup>th</sup> semester since entering into the program, or one year after their Preliminary Oral Examination.

For the graduate students in mining engineering, MIME 776 includes the "comprehensive examination" taking place prior to and as a requirement for Ph.

d) Comprehensive thesis examination - Mining Engineering:

This examination is taken one to two years after the Ph.D. Preliminary Oral Examination, and must be satisfactorily completed prior to thesis submission and defense.

In consultation with the student, the thesis supervisor nominates three possible examiners of the thesis to the Graduate Program Director or Delegate (Professor M. Kumral who also coordinates the graduate seminar course: MIME776). At least one of the examiners is external to the Department.

The committee members must be provided with thesis copies at least four (4) weeks prior to the oral examination. The examiners prepare written comments and submit to the Chair of the examination committee. These written reviews are appended to the examination forms and are made available to the student, after the deliberation of the committee. The thesis reviews become part of the student's file.

A thesis can only be considered for submission, if all modifications requested at the comprehensive exam stage are completed satisfactorily. The student is required to provide a written response to each examiner's comments one by one as implemented and how, where appropriate; if not implemented justifications/explanations are required. This written response if approved by the supervisor is placed in the student's file and the student is authorized to proceed with the submission of his/her thesis.

Thesis Requirement

a) Thesis Supervision

Upon admission, each student will have a designated thesis supervisor from the academic staff of the department. It is important that students consult with their supervisor on a regular basis. As soon as possible after starting the program but not later the end of the first term, students should develop a research topic and research plan that is assigned or approved by their supervisor. Students are expected to inform themselves of rtp[3(a)4(cm3( )-1eTJ

submit his/her thesis. Upon receipt of satisfactory reports from the external and internal examiners, the date of the final oral defense is scheduled and conducted as per GPS's regulations/guidelines. The composition of the Ph.D Oral Defence Committee is proposed by the supervisor and approved by the Graduate Program Director. Students are reminded to consult with the Graduate Studies Coordinator regarding the recommended dates for submissions of thesis forms.

c) Time Limitation

The maximum allowable length of studies is up to and including Ph.D. 7. Students in their Ph.D. 6 level will be asked to specify when and how they expect to complete their programs within the remaining time period. No extension is given after the specified term and students must withdraw from the program. But re-admission for students may be allowed upon the proof of the completion of their thesis.

d) Residence requirements for doctoral programs

Doctoral programs require a minimum of two years full-time residence (4 full-time terms) unless the student is admitted to Ph.D 1 (6 full-time terms).

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

More information on residency requirements can be found here:





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## External Fellowships

External fellowships are awarded on a competitive basis to prospective graduate students or graduate students in residence who are Canadian citizens or permanent residents of Quebec. These fellowships are awarded by the provincial government in the form of postgraduate scholarships administered by FRQNT and by the federal government in the form of NSERC postgraduate scholarships.

NSERC/FRQNT industrial innovation scholarships (IIS) are awards that are based on a specific research proposal involving a departmental professor, a collaborating company and a graduate student. In addition to the basic requirements like those of the regular NSERC postgraduate scholarships, IIS require students spend part of their time at the company's facilities. All applicants require departmental endorsement and a signed commitment from the sponsoring company.

In the case of doctoral students receiving NSERC or FRQNT post-graduate scholarships the Faculty of Engineering provides them automatically with a Leveraged MEDA Award (McGill Engineering Doctoral Award) amounting to \$12,000 as top-up to their external award. No application fored meeem30T



compulsory for all graduate students. Such safety trainings and records are considered as part of the progress of graduate program and such information is collected through progress report. Additional info becomes available through announcements from our Safety Committee or can be found at <http://www.mcgill.ca/ehs/laboratory>

## APPENDIX A

1.

### 3. 2014-15 Schedule of Preliminary Ph.D. Examinations

Student Entered Program in	Status is			Entry to the left indicates when the student will take their preliminary exam
	PhD1	PhD2	PhD2 with four lecture courses*	
May 2014	November 2015	May 2015	November 2015	
September 2014	November 2015	May 2015	November 2015	

## **APPENDIX B**

### **Departmental Disagreement Resolution Procedure and Change of Supervisor Requests**

These procedures are intended to aid in the resolution of conflicts between graduate students and their supervisors (or supervisory committees) as outlined in 8.13 (v) of the Graduate Student Calendar. It is important to remember that students should always attempt to resolve such conflicts within their department before seeking outside assistance, and the confidentiality of the issues raised at each step will be ensured to the greatest possible extent.

If you find yourself in a conflict with your supervisor or supervisory committee, you should follow these steps, in this order:

1. Informal discussions with your supervisor. Discuss the matter tactfully with the supervisor - he/she is often unaware of the problem and will usually be happy to help find a satisfactory solution.
2. Discuss with the Graduate Program Director - refer to section below.
3. Discuss with the Department Chair. The chair should attempt to resolve the conflict, either by providing mediation or making alternative arrangements for the continued supervision of the student if the student is otherwise performing satisfactorily in the program.

If your supervisor is also graduate program director or department chair and you cannot resolve the problem with him/her, then you should skip the corresponding step.

4. Informal meeting with the Associate Dean (Graduate and Postdoctoral Studies) or the Ombudsperson. Under these circumstances, an informal meeting outside the department is often all that is required for both sides to reach an agreement. If further steps are warranted, the Associate Dean or Ombudsperson will then advise you to that effect.

### **Change of Supervisor Requests**

In exceptional circumstances, the student may request in writing from the Graduate Program Director a change of thesis supervisor if valid reasons are given. The approval of the Graduate Studies Committee, upon recommendation from the Graduate Program Director is required in order to make such a change. This implies that a new supervisor is willing to accept the student otherwise the student may be asked to withdraw from the program. In case of potential conflict with one or more members of the GSC the matter may be referred to the Department Chair for final decision. Note that in case of students funded through a grant of his/her supervisor may be required that the related deliverables are provided before a change of supervisor is finally approved.