

McMaster  
University  
**ENGINEERING**



# CHEMICAL ENGINEERING

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HANDBOOK  
2017/18

This Graduate Student Handbook outlines the policies and procedures followed by the Department of Chemical Engineering with respect to Graduate Studies. All students are advised to familiarize themselves with the regulations in the School of Graduate Studies Calendar (2017-18), available at <http://academiccalendars.romcmaster.ca/index.php>. Particular regulations for graduate study, which have been created with the Department of Chemical Engineering, are specified in this Handbook. As changes in the School of Graduate Studies or Departmental regulations occur, the Department of Chemical Engineering will attempt to keep the graduate students informed.

## **CONTACTS**

### DEPARTMENTAL STAFF

Dr. Carlos Filipe, Chair, ext. 27278, email: filipec

Dr. Todd Hoare, Associate Chair (Graduate), ext. 24701, email: hoaretr

### ADMINISTRATIVE

Kristina Trollip, Administrator, ext. 24762, email: trollip

Michelle Whalen, Graduate Assistant, ext. 24292, email: whalenm

Linda Ellis, Undergraduate Assistant, ext. 24957, email: lellis

### TECHNICAL

Doug Keller, Laboratory Manager, ext. 24014, email: kellerdm

Responsibilities - Health & Safety policies, laboratory infrastructure issues

Tim Stephens, Undergraduate Lab/Research Assistant, ext. 24958, email: steph2

Responsibilities - Department safety issues, safety reports, WHMIS, gas cylinders

Paul Gatt, Mechanical Technician, ext. 24880, email: gattp

Responsibilities - Design and fabrication of devices and machine shop issues

Mike Clarke, Instrumentation Tech, ext. 24959, email: mclarke

Responsibilities – Electronics, instrumentation, and computer issues

### CHEMICAL ENGINEERING CLUB (Graduate)

The Department will work through the executive of the Chemical Engineering Club to obtain students' input on various departmental decisions and seeking representation on certain committees affecting the graduate students. The Club will also organize various social events throughout the year. These are usually transmitted by e-mail and posted on bulletin boards. The Club has put together a large amount of useful information and links for all students, which can be accessed at <https://sites.google.com/site/chegssmcmaster/home>. The Club operates a buddy system for new students, where we link you to the more senior students who can help out in your first few weeks of your student life at McMaster.

## **GRADUATE STUDENT BASICS**

### GRADUATE STUDIES

Gilmour Hall, Room 212, ext. 23679, <https://graduate.mcmaster.ca/>

If you have administrative questions, and the Department cannot help you, the following Graduate Studies Staff can help you. The contact list can be found in the following link:

<https://graduate.mcmaster.ca/contacts>

## RESPONSIBILITIES OF GRADUATE STUDENTS TO THE UNIVERSITY

Just as the University has responsibilities to graduate students, they have responsibilities to the University. The student's responsibilities include, but are not limited to: registering annually until graduation, withdrawal, or withdrawal in good standing due to time limit; paying fees as required; complying with the regulations of the School of Graduate Studies as set out in the School of Graduate Studies Calendar. Where applicable, students are responsible for complying with such conditions as may be laid out in an accepted letter of offer. Students are also responsible for complying with the regulations of the Ontario Council of Graduate Studies and McMaster University with respect to full-time and part-time status and, in particular, for informing the School of Graduate Studies of any change in employment status. Students are further responsible for informing the School of Graduate Studies, which acts as the official keeper of student records, of any change in personal information such as address, name, telephone number, Canadian residency status, etc. Students are also responsible for reporting through the department any change in student status, course registration, or withdrawal. With regard to research and study, students are responsible for maintaining contact and meeting regularly with the faculty advisor, thesis/project supervisor or supervisory committee, for observing departmental guidelines, and for meeting the deadlines of the department and the School of Graduate Studies.

If there is a problem with supervision, it is the student's responsibility to contact the Associate Chair (Graduate).

Students who undertake to write Master or Doctoral theses' assume responsibility both for creating drafts of the thesis and for responding to direction from the Supervisor and the Supervisory Committee (in the case of Doctoral Students). The student shall have the responsibility to write and ultimately to defend the thesis and the Supervisor/Supervisory Committee has the responsibility to offer guidance in the course of the endeavor, and to recommend or not recommend the completed thesis for defense.

In order to receive a degree, the student must fulfill all departmental or program requirements and all University regulations, including those of the School of Graduate Studies. Students who have outstanding financial accounts at the end of the academic year will not receive their academic results, diplomas, or transcripts.

Since registration permits access to libraries and certain other academic facilities, it also implies a commitment on the part of each graduate student to use such facilities in accordance with applicable rules.

Full-time students are obliged to be on campus, except for vacation periods or authorized off-campus status, for all three terms of the university year. Students who absent themselves from campus for more than two weeks during the fall or winter terms or four weeks in the summer term, without permission from the Department and the appropriate Associate Dean of Graduate Studies, will be deemed to have withdrawn voluntarily from graduate study. Students may arrange, through the Department and the Associate Dean of Graduate Studies, to be "full-time off-campus" for periods of up to a year. In cases of unauthorized absence the student will have to petition for readmission. The appropriate Committee on Graduate Admissions and Study will rule on each request on a case-by-case basis. No guarantee of readmission or of renewal of financial arrangements can be made.

GRADUATE WORK SUPERVISION GUIDELINES FOR FACULTY AND STUDENTS are posted at:

[https://graduate.mcmaster.ca/sites/default/files/resources/graduate\\_work\\_supervision\\_guidelines\\_1.pdf](https://graduate.mcmaster.ca/sites/default/files/resources/graduate_work_supervision_guidelines_1.pdf). This document provides suggestions to initiate, promote, and sustain successful Student/Supervisor/Advisor relationships.

Please remember to inform the Chemical Engineering Graduate Assistant and the School of Graduate Studies as soon as possible of any changes such as personal information, name, address, telephone number, as well as change in status or visa information. Please check your email and mailbox in JHE-374 frequently.

#### GRADUATE STUDENT ORIENTATION WELCOME EVENTS

To find more information, please refer to the Student Success Centre page:

<https://graduate.mcmaster.ca/news-events/event-series/graduate-student-welcome>

#### DEPARTMENTAL ORIENTATION EVENTS

Graduate Welcome BBQ: Thursday September 7, 5:30pm

Graduate Welcome Event: Friday September 8, 9:30am

Graduate Student Safety Seminar: Monday September 11, 9:30am

Graduate Student Policy and Procedure Seminar: Friday September 15, 9:30am

#### CAREER PLANNING - Mandatory

Graduate students entering into Masters or Doctoral programs within the Faculty of Engineering are required to complete a career planning exercise within their first academic year. The report may be of any length and must be submitted to the department's graduate advisor before the end of June in their first year.

#### **SAFETY & SECURITY**

##### SAFETY REPORTS

Before the start of an experimental program, all graduate students, PDF's, plus all other researchers are required to submit a safety report to the Departmental Safety Committee. No one can commence their experimental work until their report is submitted and approved. The report must be updated regularly or when a significant change in the experimental work occurs. Safety Report forms and instructions can be downloaded from the Chemical Engineering website <http://chemeng.mcmaster.ca/about-us/forms-and-safety>

If you are carrying out computational work, you are still required to submit a safety report.

##### EYE SAFETY REGULATIONS

All people entering an active laboratory must wear eye protection. The specific type of protection will be determined by the actual hazards present. Graduate students should discuss this with their Faculty Supervisor.

##### NEARBY ASSISTANCE

If the experimental work is potentially hazardous you must not work alone. It is necessary to have a "qualified" person nearby who understands safety procedures.

##### NO SMOKING, EATING OR DRINKING IN THE LABS

Do not smoke, eat or drink, or store food in the laboratory areas. This is obvious for health, safety and legal reasons.

### REPORTING OF A SAFETY INCIDENT

Any incident, which could have resulted in injury, must be reported to the Department immediately. The Department contacts are:

- Doug Keller, Laboratory Manager, ext. 24014 Cell # 905 518 6610
- Your Faculty Supervisor

The University is required, by law, to report such incidents to the Workplace Safety and Insurance Board (WSIB).

### FIRE SAFETY PROCEDURE

In the case of fire, or the sounding of an alarm: “**Get Out And Stay Out**”. You should be at least 50 feet away from the building and not return until the “All Clear” is given by the fire department or the local fire wardens.

### WASTE CHEMICAL DISPOSAL - SAFETY

- Hazardous chemical waste will be picked up from your laboratory every Tuesday between - 11:00 a.m.
- You must wait for the waste management company to arrive at your laboratory for the pickup.
- By Friday afternoon prior to the pick-up on Tuesday, you are required to provide EOHSS with a copy of the chemical waste disposal record either by fax at (905) 540-9085 or by e-mail at [waste@mcmaster.ca](mailto:waste@mcmaster.ca).
- All waste must be identified and properly labeled. Unlabeled waste will not be accepted.
- Do not pour hazardous chemicals down the drains, including any organic solvent or acids/bases that have not been fully neutralized.
- Do not throw hazardous chemical waste into the garbage bins.
- Full guidelines are available at <http://www.workingatmcmaster.ca/eohss/labs/hazardous-waste/>

Graduate students and other researchers in Chemical Engineering who are not certain how to dispose of waste should contact **Doug Keller** for details.

### WHMIS TRAINING SESSIONS

The acronym WHMIS refers to Workplace Hazardous Materials Information System, which is legislation that came into effect on October 31, 1988. This legislation gives everyone the right to know about any hazardous materials with which they may work. All employees **must** complete WHMIS training, as well as an annual update after the initial training is completed. Note that new legislation came into effect in 2015 that has resulted in many changes – please ensure you sign up for WHMIS 2015 training to satisfy these new requirements.

In addition to WHMIS 2015 training, all graduate students are required to take:

- Health and Safety Orientation
- Ergonomics
- Fire Safety
- Slips, Trips and Falls
- Asbestos Awareness
- Violence and Harassment Prevention in the Workplace

Additional courses may be required for specific laboratory work including:

- Chemical Handling and Spills
- Gas Cylinder
- Hydrogen Fluoride
- Machine Guarding

All of the above courses are available through the Health and Safety module in Mosaic. Sign up for courses via Mosaic; within 24 hours, the relevant quizzes will appear on your Avenue to Learn account. Once you have completed the quiz, the result will be automatically recorded on your training summary in Mosaic. Your training record can be used as confirmation of your completion of safety training requirements for access to other facilities on campus if requested.

### SECURITY

McMaster Security Officers act under the authority of the Ontario Police Act to enforce federal and provincial regulations. They are here to protect, not to harass you. Students who violate these statutes and bylaws are subject to arrest, prosecution and/or disciplinary action under McMaster's Student Code of Conduct.

### EMERGENCY

In case of emergency call **88** from any campus phone. The McMaster Security office is located in E. T. Clarke 201 and can be contacted at ext. 24281. This office is responsible for overall security on campus. In addition they operate a Lost and Found service (ext. 23366). Any lost items will be held for 30 days.

### ESCORT SERVICE – SWHAT

During the months of September through April, students operate an escort service, "Students Walk Home Attendant Team" (SWHAT). After dark, if you telephone ext. 27500, you can arrange to be escorted to your car or residence by a male and a female student. During the months, May to August, the Campus Security will look after escorting you to your car or residence. The extension is the same x27500.

## **OTHER UNIVERSITY ADMINISTRATIVE INFORMATION**

### UNIVERSITY NETWORK ACCESS CONNECTION FOR COMPUTERS

This policy applies to both University owned computers and personally owned computers. Users must adhere to all University requirements and policies. Examples of these policies include, but are not limited to, the following documents:

- "Computer Access Accounts"
- "Code of Conduct" ([http://www.mcmaster.ca/uts/policy/comp\\_networks.html](http://www.mcmaster.ca/uts/policy/comp_networks.html))

IP addresses are assigned by the Computer/Instrument Technician. Any computer connected to the University network and assigned an IP address must have registered operating system (OS) which has current security patches and updates applied. If the OS is not registered, then it will not be connected to the University network and no IP address will issued.

All computers within the Department that are connected to University network must have operational anti-virus (AV) software running. The AV software must have current updates and virus definitions applied. The lack of current AV software or the lack of current OS updates may cause University Technology Services (UTS) to block the machine's IP address. The most common reasons

for blocked IP addresses are: Virus/Worm Infection; Comprised or Vulnerable Host; Unusually High Traffic Volume; Using Unauthorized IP address.

#### REGISTRATION

All students have to register for the forthcoming academic year on-line using MOSAIC. The registration information is available on <https://graduate.mcmaster.ca/academic-services/how-enroll>

#### NEW VISA STUDENTS

Visa Students must register on-line, but will receive the message “Study Permit Required”. Registration will not be complete until a copy of the study permit has been presented to the School of Graduate Studies office.

#### ADDRESS CHANGES

Students are responsible for keeping their personal contacts, such as addresses and phone numbers up to date. Ensure you provide the office with this information.

#### E-MAIL

The School of Graduate Studies and the Department will use electronic mail to communicate directly with graduate students at various times during the year. University Technology Services (UTS) provides each student with an e-mail address. If you have any problems, call the UTS help line at x24357.

#### BUS PASSES

All full-time graduate students are eligible for a Hamilton Street Railway (HSR) bus card. Please see the MSU link for more details: <https://www.msumcmaster.ca/info/hamilton-street-railway-hsr-bus-pass>

#### PAYMENT OF DEPARTMENTAL SCHOLARSHIP & TEACHING ASSISTANTSHIP

Graduate student income includes monies earned from your TA position, a departmental graduate scholarship, and your research scholarship (paid by your supervisor).

#### DIRECT DEPOSIT – MANDATORY

As a graduate student, your payments will be deposited directly into your bank account. This method of payment is mandatory. A “Statement of Earnings”, showing details of your payment, can be accessed at <https://eprd.mcmaster.ca/psp/preprd/?cmd=login>

#### CUPE

If you are receiving a Teaching Assistantship or a Research Assistantship in lieu of TA, you are a member of the Canadian Union of Public Employees, Local 3906. Union dues are deducted when you receive TA/RA monies. The union office is located in KTH B111. <http://www.cupe3906.org/>

Dental Plan – All full-time graduate students who are receiving a TA and/or a RA in lieu of a TA of 130 hours or greater will have Dental Plan premiums deducted each month for the full year (September to August). Provisions for opting-out of the Dental Plan or for obtaining family coverage are covered in a separate document which describes the CUPE Dental Plan. Dental claim forms and opt out forms are available in PDF-format at <http://www.cupe3906.org/wordpress/benefits-forms/unit-1-benefits/dental>

### EMPLOYMENT REGULATIONS

There are 3 terms in the School of Graduate Studies: Fall (September to December), Winter (January through April), and Summer (May through August). Students who begin as full-time students are expected to remain full-time until the degree requirements are completed, or until they take up employment of more than 10 hours/week. In the latter case, they are no longer full-time students (but continue to pay the fee schedule set out for the regular program). Once the student has ceased full-time status, it cannot be regained unless approved by both the Department and the School of Graduate Studies.

If a student is to be employed other than as a TA, the School of Graduate Studies should be informed in writing as to the nature of the employment, and the approval of the supervisor and the Chair is required. The approval of the School of Graduate Studies is required if the student is to be hired for University teaching.

### LEAVES OF ABSENCE

Please refer to the School of Graduate Studies Calendar;

<http://academiccalendars.romcmaster.ca/content.php?catoid=20&navoid=3572&hl=%22leave+of+absence%22&returnto=search#2-5-7> leaves of absence

### REQUEST FOR SPECIAL LETTERS

From time to time, special letters are needed for reasons of work authorization, visas, travel, etc.

When requesting such letters, please be specific and let us know if you will require financial details.

Please allow at **least one week** for preparation and signature. A maximum of 3 letters will be done per year. If more are needed, there will be a cost.

### TRANSCRIPTS

Copies of your unofficial transcript are available through MOSAIC. If you require an official transcript, please contact the Office of the Registrar (Room 108, Gilmour Hall).

### SCHOLARSHIPS AND AWARDS

McMaster University has adopted a policy of ensuring that all full-time PhD students receive at least a combined total of \$17,500 per year of research scholarships, awards, external scholarships, bursaries (where applicable), teaching assistantships, and other sources. The Faculty of Engineering has a policy ensuring that the gross pay minus tuition of any newly-hired full-time, non-overtime PhD student is a minimum of \$14,000. The Chemical Engineering Department also has a policy ensuring that the gross pay minus tuition of any full-time, non-overtime graduate student (MA Sc or PhD) is a minimum of \$17,000. In most cases, the department policy is the "strongest" which satisfies all three requirements.

There are three types of funds offered to Graduate Students: (1) those that require an application form (**major awards**), normally announced in the spring and funded in the following academic year; (2) those that are by nomination from your department (**internal scholarships** and **bursaries**) and (3) a limited number of **travel awards** that are funded in the current academic year. The timing of most scholarship and award administrative processes takes place in the fall term.

### GRADUATE STUDENT HOLIDAYS

Graduate students should discuss any vacation request with their supervisor(s). Vacation must be approved in advance by the student's supervisor(s). In addition to statutory holidays and the weeklong closing of the University from late December until early January, normal vacation



entitlement is two weeks of vacation during the year, to be scheduled by mutual agreement with the research Supervisor and the employment Supervisor. Exceptions to this allotment require approval from the supervisory committee and the approval of the associate Dean of Graduate Studies, if more than four weeks.

[http://academiccalendars.mcmaster.ca/content.php?catoid=20&navoid=3572&hl=%22leave+of+absence%22&returnto=search#2-5-8\\_vacations](http://academiccalendars.mcmaster.ca/content.php?catoid=20&navoid=3572&hl=%22leave+of+absence%22&returnto=search#2-5-8_vacations)

## HOUSING

In order to help students get started in their search for housing, the University operates an Off-Campus Housing Office. The office is located in University Centre, Room UB112.

General Inquiries: (905) 525-9140, ext. 24086

Email: [ocho@mcmaster.ca](mailto:ocho@mcmaster.ca)

Website: <http://housing.mcmaster.ca>

There is no on-campus housing for Graduate Students.

## PARKING AND TRANSIT SERVICES

There are a limited number of parking facilities on campus. Travel to and from the University on foot, by bicycle, by public transportation and by car pools, is encouraged. If you do require parking for an extended period, please contact the Parking Office in the E.T. Clarke Centre, Room 102, where you will have to present a current University Identification Card, vehicle registration and payment of the parking fee. Special arrangements can be made for disabled parking privileges.

## CHAPLAINCY CENTRE

The McMaster University Chaplaincy Centre has an open door policy and offers responsive pastoral support to the whole community with personal counselling, bereavement support groups, public memorial services, and participation in McMaster University networks and programs. It is located in the McMaster Student Centre in room MUSC-231. <http://www.mcmaster.ca/chaplain/>

## BOOKSTORE

Stationery, lab coats, lab books, and computer supplies are available. It is located in GH-B101.

<http://titles.mcmaster.ca/>

## STUDENT WELLNESS CENTRE

You can access health services on campus in the Campus Health Centre, which is located in the McMaster Student Centre B101 ext. 27700. They provide medical care similar to a family physician, and health care is available throughout the year for all students. There is also a pharmacy located in the McMaster Student Centre. For more information on health care and wellness services and office hours, please visit. <http://wellness.mcmaster.ca/>

## STUDENT SUCCESS CENTRE

Career Services is located in GH-110 and is designed to help students in all programs and faculties in establishing a more focused view of their academic and career options. They provide a full range of career and employment related services, including career counselling, job postings, On-Campus Recruitment (OCR), career information, resume workshops and coaching, interview skills and job search workshops, personality and interest testing, educational planning, as well as mentoring and experiential education opportunities. <http://studentsuccess.mcmaster.ca/>

## FINANCIAL AID & SCHOLARSHIPS

The Office of Financial Aid is located in GH-120 and can help students address the financial

obligations associated with University study through *loans (i.e. OSAP, BCSAP), bursaries, work programs and scholarships.* <http://sfas.mcmaster.ca/>

#### HOSPITALITY SERVICES

Visit <http://mealcard.mcmaster.ca> for Meal Plans, Meal Card Info., Account Status & History, Meal Card Deactivation, and other on-campus dining. Office location CB-116;  
<http://hospitality.mcmaster.ca/>

#### HUMAN RIGHTS & EQUITY SERVICES

The services offered by HRES are available to the entire McMaster community – students, staff and faculty. The overall goal is to create an environment where everyone can learn, work, teach or live in an atmosphere free from all forms of violence, harassment and discrimination. For more information, visit <http://www.mcmaster.ca/hres/> office location MUSC 212.

#### ACADEMIC INTEGRITY OFFICE

Handles academic dishonesty, research integrity and ownership. For more information, visit <http://www.mcmaster.ca/academicintegrity/>. Office is located in MUSC 211.

#### OMBUDS OFFICE

The Ombuds Office provides impartial, independent, and informal dispute-resolution advice and assistance to all members of the University community. The Ombuds Office is located in MUSC 210  
<http://www.mcmaster.ca/ombuds/>

#### ATHLETICS & RECREATION

The Athletics and Recreation department aims to enhance the student experience and the McMaster community through engagement in programs and services built on a foundation of physical activity, health, wellness and sport. It is located at the David Braley Athletic Centre  
[http://www.marauders.ca/sports/2011/5/9/FACILITIES\\_0509112334.aspx?id=272](http://www.marauders.ca/sports/2011/5/9/FACILITIES_0509112334.aspx?id=272)

#### UNIVERSITY PLANS, POLICIES, PROCEDURES & GUIDELINES

University Plans, Policies, Procedures & Guidelines pertaining to Graduate Studies  
<http://www.mcmaster.ca/policy/> Office location: Gilmour Hall, room 210

#### GRADUATE STUDENTS ASSOCIATION (GSA)

The mandate of the GSA is to promote the welfare and interests of the members through the provision of facilities and opportunities for social, athletic and intellectual activities, to represent the members before the duly elected and appointed authorities of McMaster University, and to promote communication and participation in all matters of common interest between the members of other student organizations, both at McMaster and in other educational institutions  
<http://www.mcmaster.ca/gsa/> Office location: Refectory, 2<sup>nd</sup> Floor

#### ENGINEERING GRADUATE SOCIETY (EGS)

The Engineering Graduate Society at McMaster University was founded in late 2014 to represent the opinions and interests of all Engineering graduate students to the University Authorities such as the Faculty of Engineering Graduate Student Association (GSA) and CUPE, among others.  
<http://www.macegs.com/>

#### APPEAL PROCEDURES

The University Senate Policy on Student Appeal Procedures outlines the conditions and procedures

under which students can make appeals for re-assessment of a course, exam, assignment, or program component based on errors in academic assessment or non-academic issues such as bias, unfair treatment, or other unjust circumstance. The policy also outlines procedures for appeals based on decisions or actions of University officials which are unrelated to courses or program requirements. Students that wish to make an appeal should review the Senate policy document and discuss the issue with the Associate Chair (Graduate) if possible.

<http://www.mcmaster.ca/policy/Students-AcademicStudies/StudentAppeal.pdf>

### **INTERNATIONAL STUDENTS**

As a newcomer to Canada, you are probably undergoing a double culture shock; not only are you stepping into the “culture” of the School, but you are also experiencing the larger disorientation that comes from being a newcomer to Canada. If you can, arrive about a month before classes start. This gives you a chance to set up a place to live and get to know Hamilton before your hectic life as a student begins.

### **INTERNATIONAL STUDENT SERVICES**

ISS is a vibrant and essential part of Student Affairs and as a student service aims to provide core services and programs for international students, visiting scholars, post-doctoral fellows and faculty at McMaster University and their families. They are very helpful, especially in matters concerning health care, tax problems, and visas. In early September, the office organizes a week of activities to help you get to know Hamilton and features of the McMaster Campus. Take them up on this; it is really fun and useful.

ISS also provides information to students at McMaster on a range of options from independent study and externally sponsored programs, formal student exchange programs, and opportunities to work and study abroad. ISS is also responsible for the administration of the University Health Insurance Plan (UHIP) for all international students. Office location is GH-104.

<http://oisa.mcmaster.ca/>

### **FINANCIAL REALITIES**

Be aware that if you are living on a Departmental Scholarship and teaching assistantship; this will not allow you to afford a lifestyle of the rich and famous. The cost of food and accommodation and other living expenses will account for most of this income, so be prepared to live modestly. Make allowances for this by bringing as much money as you can to cover setting yourself up in accommodations, buying books and school items, and to provide you with a more social lifestyle.

### **GETTING THE HELP YOU NEED**

Feel free to approach people in the Department with questions or concerns. Get into the spirit of the Department and participate in as many activities as you can. Take advantage of this situation by getting to know as many people as possible.

### **TIPS ON LEARNING ENGLISH**

A key to getting the most out of your graduate study period is to deal with language barriers at the outset. However, getting past these barriers is not an easy matter. Below are some tips that might be helpful in improving your language skills:

- Using English in both social and academic settings will improve your language skills substantially.
- Don't be afraid to speak out because you may be unsure of how to express yourself.

Remember that other students in the Department have gone through the same experience as you now face, so don't hesitate to use them as resources or for peer support.

#### STUDENT VISA, EMPLOYMENT AUTHORIZATION

Visa students are required to provide photocopies of their study permit and/or employment authorization to the School of Graduate Studies at Graduate Registration and each time such authorizations are renewed. Failure to do so will result in the withholding of their pay. Please leave a copy of your forms with the Graduate Assistant – Michelle Whalen.

#### THE DEPARTMENT OF IMMIGRATION

The local immigration office is located at 55 Bay Street North, Hamilton, telephone 1 888-242-2100 <http://www.cic.gc.ca/>. When renewing your visa, please call this number as they are now handling these renewals by telephone.

#### SOCIAL INSURANCE NUMBER (SIN)

It is essential that the School of Graduate Studies have your Social Insurance Number on file. If you do not have a SIN number, please apply immediately. Social Insurance Number (SIN) Application forms are available through GH 104 or through the Human Resources and Development Canada (HRDC) web page at:

<http://www.servicecanada.gc.ca/en/sc/sin/index.shtml>

It will take *3 or 4 weeks to receive your card in the mail*. Your new SIN card will have the same expiry date as your study permit. Please inform the department your number once you have received this document. Remember to renew both documents at the same time and give copies to the department.

#### OHIP (Ontario Health Insurance Plan)

Permanent residents who require health coverage under OHIP may obtain application kits from Student Wellness Centre in McMaster Student Centre, Room B101 (on campus). You may also download the application form at: <http://www.health.gov.on.ca/en/public/programs/ohip/> Completed applications should be delivered as soon as possible to the Ministry of Health Office at 119 King Street West (the 10th floor of the Convention Centre) in Hamilton. The telephone number is (905) 521-7100. You will be required to produce two pieces of identification (e.g. birth certificate, driver's license).

#### UHIP (University Health Insurance Plan)

Your UHIP coverage will begin September 1, 2017 for the 2017/18 session. More information can be found here: <https://iss.mcmaster.ca/our-services/university-health-insurance-plan-uhip.html>

#### **COURSE REQUIREMENTS FOR GRADUATE STUDENTS - Mandatory**

All Graduate students are required to complete the following courses in their first term of study:

1. **SGS-101**-Academic Research Integrity & Ethics
2. **SGS-201**-Accessibility for Ontarians with Disabilities Act (AODA) Training.

These courses are to be completed during the first term of the student's first year.

3. In addition to the mandatory SGS courses above, each student must also be enrolled into our Department seminar series **CHEM ENG 700-Graduate Seminar Series** in terms 1 and 2. Students must be registered into this course every year during their degree program.

#### SGS-700 (RESEARCH/WRITING)

**All students must be registered in a course each term.** If the student is not enrolled in a traditional

course, they must register for SGS-700. This course is for Research/Writing, and is used to show the student is active on their transcript.

### COURSE CATEGORIES

The School of Graduate Studies has the following categories for its courses, which are assigned after the courses have been completed.

#### M (Count towards the Master's degree requirements)

This category identifies the courses that are to count towards the Master's degree requirements. The passing grades for an M course are A+, A, A-, B+, B, and B-. Courses that are required by the supervisory committee or the Department Chair as additional requirements in excess of the stated minimum for the program must be designated as M.

#### D (Count towards the Doctoral degree requirements)

This category identifies the courses that are to count towards the Doctoral degree requirements (including any additional graduate requirements or undergraduate courses specified by the supervisory committee or Department Chair). The passing grades for a D course are A+, A, A-, B+, B, and B-. Courses that are required by the supervisory committee or the Department Chair as additional requirements in excess of the stated minimum for the program must be designated as D.

#### EC (Extra Course)

This category identifies courses that the student is taking with the approval of the supervisor but that are not necessary to the student's current degree program. In order to designate a course as extra, a student will have to submit a course designation request during the normal add period of enrollment in a particular term. The form is submitted to the program office and once approved will have the designation added to the enrollment record for that course only. If a failing grade (i.e. less than B-) is received in a course taken as Extra, the courses (and grade) will not appear on the student's transcript unless because of academic dishonesty. Students may petition to change the designation of an Extra Course to a Masters or Doctoral course prior to the deadline to drop a course provided that this change is supported by the supervisor and program. Changes of designation after the drop date will not be approved. Courses designated as Extra Course may subsequently be counted towards graduate degree requirements and the course designation changed to Masters or Doctoral, if approved by the Faculty Admissions and Study Committee or the Associate Dean acting on its behalf. The passing grades for an Extra Course are A+, A, A-, B+, B, and B-.

Courses that are required by the supervisory committee or the Department Chair as additional requirements in excess of the stated minimum for the program must be designated as Masters or Doctoral.

### AUDIT COURSES

It is possible for graduate students to audit a graduate course under regulations given in the School of Graduate Studies Calendar. Auditing allows a student to participate in a course without being assigned a mark. The course will show up on the transcript as an audited course, but it will not count as an M, D, or EC course nor can it be used satisfy any degree program requirements. In order to audit a course, permission must be granted by the instructor. To apply to audit a course, a student must complete the Audit Graduate Course Form provided by SGS here:

[https://graduate.mcmaster.ca/sites/default/files/resources/audit\\_course\\_fillable.pdf](https://graduate.mcmaster.ca/sites/default/files/resources/audit_course_fillable.pdf)

### COURSES INSIDE THE DEPARTMENT

Graduate courses taken within the Chemical Engineering department can be counted toward degree requirements (i.e., given an M or D distinction). Note that a course which is hosted by another department but is cross-listed as a Chemical Engineering course also counts as a course inside the department.

### COURSES OUTSIDE THE DEPARTMENT

Graduate courses with technical content that are within the School of Engineering and Applied Science, the Faculty of Science or the Faculty of Health Science will usually be counted toward degree requirements (i.e., given an M or D distinction), but must be approved in writing by the Associate Chair, Graduate.

Graduate courses with technical content outside of the School of Engineering and Applied Science, the Faculty of Science or the Faculty of Health Science will only be given an M or D distinction in rare circumstances. A "Petition for Special Consideration to the Committee on Graduate Admissions and Study" must be completed and approved by the Associate Dean, Graduate Studies *prior to the start of the course* (please allow for 4 weeks for approval). This form requires a statement from the student specifying why the course is essential for their research activities and provides the technical relevance of the course in the context of chemical engineering. In addition, a statement supporting this opinion is also required from the research supervisor (with particular emphasis on the technical relevance) and the Associate Chair, Graduate. The petition can be downloaded here:

[https://graduate.mcmaster.ca/sites/default/files/resources/petition\\_july2016.pdf](https://graduate.mcmaster.ca/sites/default/files/resources/petition_july2016.pdf)

Note that, for example, courses in the School of Business, the School of Engineering Practice, or Education will generally not be given an M or D distinction unless those courses are cross-listed with Chemical Engineering. Note also that each degree program requires a certain number of courses to be taken within the department (see next section). Please talk to the Associate Chair, Graduate Studies if you have any questions regarding which courses may qualify under this procedure.

### MASTER'S PROGRAM: (M.A.Sc.):

Students are required to present a thesis, which constitutes an original contribution to chemical engineering. The thesis must be defended in an oral examination.

*For students entering September 1, 2014 or later:* A candidate is required to complete successfully at least three (3) half courses with an M designation where at least two (2) courses should be at the 700-level and at least two are required to be a Chemical Engineering course.

*For students who entered prior to September 1, 2014:* A candidate is required to complete successfully at least four (4) half courses with an M designation, at least three of which should be at the 700-level and at least two are required to be a Chemical Engineering course.

### PhD PROGRAM

*For students who hold a M.A.Sc. degree:* PhD candidates are required to complete three (3) half courses, at least two (2) of which should be at the 700 level and of which at least two are required to be a Chemical Engineering course.

*For students who transferred from the M.A.Sc. program to the PhD program without completing the M.A.Sc. degree:* PhD candidates are required to complete three (3) half courses, at least two (2) of which should be at the 700 level and at least two of which are required to be a Chemical Engineering course, **IN ADDITION TO** the degree requirements of their M.A.Sc. program. For example, for a student who entered the M.A.Sc. program prior to Sept 1, 2014 and transferred into the PhD program, at **least four of the seven** total graduate courses must be a Chemical Engineering course and at least **four of the seven** total graduate courses must be at the 700 level. Or, for a student who entered the M.A.Sc. program on Sept 1, 2014 or later and then transferred into the PhD program, at least **four of the six** total graduate courses must be a Chemical Engineering course and at least **four of the six** total graduate courses must be at the 700 level.

*For students entering the PhD program September 1, 2014 or later directly from a bachelor's program:* PhD candidates are required to complete six (6) half courses, at least four (4) of which should be at the 700 level and of which four (4) are required to be a chemical engineering course.

*For students who entered the PhD program before September 1, 2014 directly from a bachelor's program:* PhD candidates are required to complete seven (7) half courses, at least four (4) of which should be at the 700 level and of which four (4) are required to be a chemical engineering course.

#### GRADUATE COURSES AND SELECTION

The complete list of graduate courses in Chemical Engineering is listed in the School of Graduate Studies Calendar. The courses that are being offered during 2017-2018 are listed in on our website.

#### SGS SESSIONAL DATES

<http://academiccalendars.romcmaster.ca/content.php?catoid=20&navoid=3579>

#### ENTRY TO Ph.D. PROGRAM WITHOUT COMPLETION OF MASTERS REQUIREMENTS

Students enrolled in a M.A.Sc. program may be transferred to the Ph.D. program prior to the completion of the M.A.Sc. degree. Transfer to the Ph.D. without completion of the M.A.Sc. is intended to expedite the student's progress towards the Ph.D. by not requiring the preparation of the formal M.A.Sc. thesis, instead allowing the research to be used in a Ph.D. thesis. The expectation for transfer to Ph.D. is that the research progress at the M.A.Sc. level should be exemplary. The candidate will be expected to have completed at least two (2) graduate level half courses (one term) with a grade average of B+ or better and have made excellent research progress.

The possibility of transfer to Ph.D. should be discussed by the student and the research supervisor early in the M.A.Sc. program. Not sooner than eight months after initial registration but no later than the 24 month mark of the M.A.Sc. program, students may request in writing to the Chair to be reclassified as Ph.D. students.

#### ACCELERATED M.A.Sc. PROGRAM

Undergraduate students in chemical engineering who are interested in the M.A.Sc. program can apply for the Accelerated Option during their final year of their undergraduate program. Undergraduate students can take one 600 level chemical engineering course which can count both toward their undergraduate requirements and, if accepted into the M.A.Sc. program, toward their M.A.Sc. degree requirements. In addition, undergraduate students must conduct at least one term of research with their supervisor (typically in the penultimate summer of their undergraduate degree) that can then be used toward the M.A.Sc. thesis requirements, thus resulting in a shorter



time requirement to complete the M.A.Sc. Any work completed as an undergraduate in the Chem Eng 4Y04 independent study course while enrolled in the Accelerated M.A.Sc. program can also be used to contribute to the M.A.Sc thesis, although enrollment in 4Y04 is not a condition of the program. For more details, including eligibility requirements, see: <http://chemeng.mcmaster.ca/graduate/accelerated-masters-option>

#### SUPERVISORY COMMITTEES - DOCTORAL STUDENTS

Doctoral students at McMaster University are each assigned a supervisory committee no later than 6 months following their initial registration. This consists usually of the research supervisor(s), one other professor in the department, and a professor from outside the department. The Committee will be appointed by the Associate Chair (Graduate) of the department upon the recommendation of the supervisor. Supervisory Committee meetings will be scheduled by the Graduate Assistant.

The committee is required to meet with the candidate at least once per academic year (September to August). The student is responsible for initiating these meetings and keeps the Graduate Assistant informed. The School of Graduate Studies requires students to complete a progress report form, which becomes part of the overall Ph.D. Supervisory committee report. This page is initialed by the supervisory committee members. Please submit this form with your technical report that is to be circulated to the supervisory committee, one week in advance of your supervisory meeting. The format of your technical report should be discussed with your supervisor. The report should be a maximum of 25 pages. Supplemental material such as thesis chapters or paper submissions should be sent separately electronically.

The Graduate Assistant will keep the signed original for supervisory committee members' initials. The progress report form copies will be distributed, with the technical report, to the supervisory committee via e-mail, unless a committee member requests a hard copy.

#### SUPERVISORY COMMITTEES – M.A.Sc.

\*\*Effective for anyone entering the M.A.Sc. program in September 2017 or later

The M.A.Sc. student will complete a supervisory report with their Supervisor one year from the date they started. Accelerated M.A.Sc. students will complete this form with their Supervisor at the beginning of their studies or no later than 6 months after the start date.

#### DEPARTMENTAL COMPREHENSIVE EXAMINATIONS FOR Ph.D. STUDENTS

The comprehensive examination will test the breadth of knowledge and the ability to synthesize and integrate ideas from within and peripheral to the candidate's research area. Successful completion of the comprehensive examination is a requirement for the candidate to continue in the Ph.D. program. The candidate's level of achievement in this examination may determine academic background deficiencies that the candidate will have to address through course work or other means as determined by the committee.

The comprehensive examination will normally take place between *6 and 18 months* after the candidate initially registers in the Ph.D. program. If an examination date has not been set with the 18 month period, then the Department Chair will set the date of the examination.

It is the responsibility of the Supervisory Committee to recommend and notify the department and the candidate in writing, within a period of 4 to 16 months from initial registration in the Ph.D. program, that a candidate will take the examination. Upon receipt of the recommendation, the Associate Chair (Graduate) will appoint a Chair for the Examining Committee.



## FORMAT OF THE EXAMINATION

The Comprehensive Examination will consist of a written part and an oral part. A comprehensive examination preparation seminar will be delivered during the fall semester to assist in preparing students for what to expect throughout the process.

The candidate will be required to submit a proposal, up to 25 pages in length, on a research topic related to, but not the same as, the Ph.D. research topic. The candidate will be required to prepare this report, within 21 days of receiving the proposal topic, without aid from any other individual. The candidate has the option of meeting with the Supervisor and Comprehensive Committee Chair one week after the topic is received if clarifications on the interpretation of the topic are sought.

The written report must include:

- 1) a critical survey of the directly related literature in the field,
- 2) an explanation of the relevant background in terms of chemical engineering principles, and
- 3) a research proposal related to the topic.

Copies of the report must be submitted to the Department at least one week prior to the date of the oral examination. Late submissions without an explanation acceptable to the Examining Committee will be deemed to be a failure by default and the candidate will be asked to withdraw from the program. Candidates are also expected to submit their report to turnitin.com for plagiarism checking – consult with the Graduate Assistant for details on how to do this.

Queries by the candidate on matters related to the comprehensive examination must be directed, in writing, to the Committee Chair.

The oral examination will be conducted in two parts. In the first part, the candidate will be required to make a brief presentation of the report (no more than 15 minutes), followed by questions directly related to the report. The second part of the oral examination will probe the candidate's general comprehension of the research field and peripheral areas. The oral examination will normally require two hours to complete, but in no case will continue for more than three hours.

## COMPREHENSIVE EXAMINATION RESULT

The candidate's performance will be judged as: Pass with Distinction, Pass, or Fail on the written and oral parts of the examination. The Examining Committee report may make recommendations with regards to remedial actions necessary to overcome deficiencies in the candidate's background. A candidate who fails the Comprehensive Examination will be given a second opportunity for a retake on the portions of the comprehensive examination deemed to have been failed. There is no opportunity for a third attempt. According to Section I and Section III.C of the [Senate Policy for Student Appeal Procedures](#), the student may file an appeal only on the basis of injustice in the decision (such as bias or unfair treatment) and not on the basis of the academic merit of the performance of the examination. Procedures for filing an appeal are provided in the linked document, specifically section III.D.16 and Form B (Application for a Formal Inquiry).

The Chair of the Examining Committee will communicate the results of the examination orally to the candidate immediately after the examination and subsequently, in writing, to the Associate Chair (Graduate), who will follow up as required with the candidate.

The Comprehensive Examination may be rescheduled due to documented medical or other

emergencies that preclude the originally chosen date. The Examining Committee may recommend a retake of the examination only in unusual situations, in writing to the Associate Chair (Graduate) who will take appropriate actions.

## **THESIS DETAILS**

### **RESEARCH PROPOSAL TO THE SUPERVISORY COMMITTEE**

No later than six months after a successful completion of the Comprehensive Examination, a Supervisory Committee meeting must be held in which the Ph.D. candidate is required to present a detailed research proposal. The proposal will document the research objectives, relevant background literature, required experimental, analytical or computational approaches, and projected timetable for completion of the steps necessary in the research. The candidate will be asked to make an oral presentation of the proposal for approximately 30 minutes, and the proposal will normally be about 25 pages in length. The candidate should identify potential problems and approaches that will be undertaken to resolve difficulties in the proposed research program.

The Supervisory Committee must consider the research proposal to be satisfactory for the candidate to be permitted to continue in the Ph.D. program. If the proposal is unsatisfactory, the Supervisory Committee must indicate the reasons for unsatisfactory process on the Supervisory Committee meeting reporting form. The Committee may decide to list criteria for satisfactory improvement that must be completed within a certain timeframe or recommend withdrawal from the graduate program according to the normal procedures for supervisory committee meeting reports.

### **DEPARTMENTAL AND UNIVERSITY THESIS PROCEDURE**

The School of Graduate Studies has forms, regulations and information regarding thesis preparation, available from the School of Graduate Studies website;

<https://gs.mcmaster.ca/academic-services/degree-completion>

### **GUIDELINES RE: RESPONSE TIME FOR PH.D. AND MASTERS THESES**

Supervisors should respond to the draft of a thesis within 2 months. Providing comments on individual chapters will take proportionately less time. Very long theses or chapters may take more time. There are busy periods within the academic year when the time taken to provide comments might be a bit longer than this norm. However, in no case should the response time exceed 3 months. For Master's theses, the corresponding times are 1 month and 2 months.

### **SANDWICH THESES**

If some of the research undertaken expressly for the degree has previously been published or prepared for publication by the student as one or more journal articles, or parts of books, those items may be included directly within the thesis subject to the School of Graduate Studies' regulations and to obtaining permission from the supervisory committee. Please consult the "Guide for the Preparation Theses" for more detailed information on Sandwich Theses. Note that you may wish to temporarily embargo the thesis if text from the thesis will be submitted to journals for publication.

### **E-THESIS FILE NAME CONVENTIONS**

For your e-thesis to be published via MacSphere, the final version of your thesis should be named using the following file naming convention:

***familyname\_firstname\_middleinitial\_finalsubmissionyearmonth\_degree***

## MASTER'S THESIS

The administration of the M.A.Sc. thesis defence examinations is the responsibility of the Department. We recommend that the thesis follow the format described by Graduate Studies "Guide for the Preparation of Master's and Doctoral Theses" at:

<https://graduate.mcmaster.ca/masters-degree-thesis>

The student is responsible for ensuring that the format satisfies the University requirements. The sequence of events is as follows:

- The student's supervisor gives him/her permission to prepare his/her thesis. The student is responsible for submitting a thesis, which is reasonably free of grammatical, typographical and technical errors. If the thesis is found to contain an excessive number of errors, it will be returned to the student and the oral examination postponed until a satisfactory thesis has been resubmitted.
- It is *strongly recommended* that a student submit a first draft of his/her thesis, acceptable to the supervisor, before taking up full time employment. Past experience has shown that students who do not follow this recommendation are seriously delayed in completing their thesis, and in some cases never graduate.
- The candidate should inform the Department of his/her intention to submit the thesis at least 6 weeks prior to the anticipated defense date so that an examining committee can be struck and an oral defense date set.
- An electronic copy and any requested printed copies must be submitted to the Department at least 2 weeks prior to the defense date.
- The student's advisor(s) and two other faculty members, one of whom may be from a department other than Chemical Engineering, sit as an examining committee for the candidate. The Chair, with the advice of the research supervisor, appoints the examining committee. After the presentation (to be approximately 15-20 minutes in length) the examining committee will conduct an examination of the candidate on his/her thesis. The seminar presentation and this examination constitute the oral examination of the candidate. The student may elect to ask the audience to leave the room during the examining committee's question period; in this case, the audience must be given a chance to ask questions before they leave.
- Upon successful completion of this examination, the candidate is requested to correct any misprints that may exist in the thesis and to submit the thesis to the School of Graduate Studies. The School of Graduate Studies maintains an updated list of deadlines for the revised submission by term and degree, see:  
<http://academiccalendars.romcmaster.ca/content.php?catoid=20&navoid=3579>
- Upon completion of all degree requirements, the student will be required to "sign out" from the department. A checklist has been compiled for this purpose. Keys must be returned and your lab and study areas be left tidy. Please leave a forwarding address with office. Financial assistance for preparation of the master's thesis may be available for additional copies if requested by the advisor.

## Ph.D. THESIS

Students close to submitting their Ph.D. thesis (about 2 months) should complete the on-line Thesis Defence System (TDS). You will be asked for your thesis title and estimated date to submit your thesis. Your supervisor will be asked to submit the name of potential external examiners, which must

be approved by your supervisory committee and department. A final date and time of the defense will be scheduled and approved by the student, supervisory committee and external examiner. The student will then submit an electronic copy of the thesis to the School of Graduate Studies and Supervisory Committee members.

#### LENGTH OF PH.D. THESIS

Doctoral students and their supervisors should keep in mind that theses of extraordinary length are to be discouraged. The preparation of a lengthy Ph.D. thesis almost certainly extends the time that the student takes to complete his or her degree. As a general rule, doctoral students are urged to limit theses to no greater length than three hundred (300) manuscript pages. In cases where students and their supervisors believe that responsible scholarly treatment of the thesis topic requires substantially greater length than that specified above, they are expected to receive written approval from the Associate Dean of Graduate Studies before the thesis is submitted for the defence.

#### SEMINARS IN THE DEPARTMENT

The Department arranges a series of seminars each year at which outstanding scientists and engineers address the faculty and students. Graduate students are **REQUIRED** to attend and participate in these seminars. Seminars for which mandatory attendance is required are indicated on the seminar notice, and attendance will be taken at the seminar. **\*You must be registered into these courses - CHEM ENG 700-Graduate Seminar Series for both term 1 and term 2.** In addition, research groups organize smaller, specialized seminars. These seminars are arranged by the students and faculty involved.

Graduate students should note that all other departments of Science and Engineering as well as neighboring universities hold regular seminars in which they might be interested. Notices concerning such seminars will be posted on the bulletin board outside the Departmental Office.

Each Ph.D. student must present a seminar lecture (in addition to their oral defence) on the results of his/her research or study project. We encourage all interested persons to attend these seminars. This presentation is an important component of your studies at McMaster, both for yourself and also for the Department. It is hoped that you receive valuable feedback on your presentation as well as informing the Department on research being done. Each Ph.D. student will present his or her seminar after completing nine terms of study (but prior to his/her Ph.D. defence).

#### MCMASTER UNIVERSITY CHEMICAL ENGINEERING CONFERENCE (MUCEC)

Graduate students also organize a very successful Seminar/Research Day in which graduate students are expected to participate. This day is set aside for the graduate students plus research staff to give seminars and/or posters about their work. Everyone in the department is invited to attend, with the event normally held in April. The A.E. Hamielec Award is presented annually at this event to the student giving the best presentation, with prizes also given for the best poster. Note that the requirement for a Ph.D. seminar (noted in the previous point) is satisfied by a presentation at MUCEC.

We encourage graduate students to report results of their research at Conferences held outside the University, which are attended by Chemical Engineering professors. The preparation involved with such presentations and financial assistance available should be discussed with your research supervisor.