

GUIDE TO GRADUATE STUDIES
DEPARTMENT OF CHEMICAL ENGINEERING

2017

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PREAMBLE

This document provides a summary of the policies and procedures for graduate studies, and is intended for the use of faculty, staff and graduate students in the Department of Chemical Engineering. Our activities are conducted within the framework of the Engineering & Applied Science Graduate Council and of the School of Graduate Studies and Research, and are subject to the general regulations of the School itself. Accordingly, the Department operates largely according to the policies, procedures and regulations of these bodies. In situations in which these apply essentially as written, the appropriate sections of these documents are referred to in the text. The Procedures of Applied Science Graduate Council can be found at <http://my.engineering.queensu.ca/Governance/FEASgradcouncil.html>. More substantial discussion is provided in this document only in those situations in which variations or special policies/procedures/regulations of the Department have been adopted. Useful information (faculty complement, facilities, courses, etc.) concerning the Department is provided in the [Chemical Engineering section](#) of the [calendar](#) of the School of Graduate Studies and Research. A general publication titled "[Guide to Graduate Supervision](#)" is also available from the School of Graduate Studies and Research, and is recommended reading for all who are involved in graduate studies.

STUDENT GOVERNMENT:

The Chemical Engineering Graduate Student Association (CEGSA) is an organization formed by the students in order to bring a voice to Departmental affairs. Members sit on many boards within the Department and Faculty of Engineering and Applied Science, helping to ensure that the students' perspective is heard. CEGSA also sponsors events throughout the year in order to create a lively and active work, research and social environment. With such a diverse department, with labs spread throughout the campus, it is important that all the students are brought together for fun, friendship and the free

sharing of ideas.

CEGSA has a leadership structure consisting of a variety of positions, including representatives of each research group in the department, as well as Ph.D. studies and Master's representatives. Elections are held once per year, and everyone is welcome to participate. Students are encouraged to get involved.

1. ADMINISTRATION OF THE PROGRAM

Although the health and vitality of the graduate studies program is the responsibility of all faculty members in the Department, the planning and administration is undertaken by the Coordinator of Graduate Studies, with assistance from the Graduate Program Assistant. Specifically, the Coordinator's duties include:

- Seeking, with the assistance of other faculty members, to attract the best students into the graduate program.
- Encouraging the successful and timely completion of the programs of study of all graduate students, within the regulations of the School of Graduate Studies and Research, Engineering & Applied Science Graduate Council, and the Department of Chemical Engineering.
- Working to maintain the OCGS accreditation, at the highest level, in the areas of specialization identified by the Department.

Activities of the Coordinator and Graduate Program Assistant include, but are not restricted to: responding to inquiries and applications, preparing and disseminating information on graduate studies, including calendar material for the School of Graduate Studies and Research, reviewing and recommending student admissions and programs of study, coordinating applications for internal and external scholarships, recommending levels of internal scholarship support for the Department's students, and making representations for academic appeals and other matters to Engineering & Applied Science Graduate Council. The Coordinator is the Department's representative to the Engineering & Applied Science Graduate Council.

2. ADMISSION TO THE PROGRAM

The Department of Chemical Engineering offers the following degree programs: Ph.D. and M.A.Sc. involving research, and a non-research M.Eng., as described in the [Chemical Engineering section](#) of the calendar of the School of Graduate Studies and Research. Applicants to these programs are accepted under the following regulations of the School of Graduate Studies and Research (http://www.queensu.ca/calendars/sgsr/Application_for_Admission.html) and according to the Engineering & Applied Science Graduate Council procedures as described in [Part 2 of the Engineering and Applied Science Graduate Council Manual](#). For applicants whose first language is not English, the Department of Chemical Engineering has set minimum requirements (see table below) as an indication of an acceptable level of proficiency.

Internet-based TOEFL:
Reading = 22 Listening = 20 Speaking = 22 Writing = 24
Paper-based TOEFL = 580
Computer-based TOEFL = 237
IELTS = band 7.0
MELAB = 80

A very large number of applications for graduate study are received by the Department each year. The following procedures are used to process these applications:

2.1 For Inquiries. All inquiring students will be sent an email which includes instructions on how to apply and contains application links to the online application system. There is no pre-application so inquiring students must fill out an application in order to have their eligibility for graduate studies properly assessed. The Graduate Program assistant will not assess an applicant's eligibility but instead will direct the applicant to the School of Graduate Studies instruction page entitled "[How to Apply in 5 Steps](#)".

2.2 For Completed Formal Applications. Upon receipt of a completed application, the Graduate Program Assistant will ensure the applicant meets the minimum requirements for entry into the program applied for. If the applicant is qualified, the application will then be circulated to all faculty members in the department for review. The Coordinator or Graduate Program Assistant may alert possible research supervisors for the applicant based on the fields of research interest indicated on the application form. If the application arose as a result of stated interest from a faculty member to have the inquiring student apply, the application will be open to all faculty members to ensure a fair and transparent process. If a particularly strong application is received (e.g. from someone holding an NSERC Scholarship) the Graduate Program Assistant will alert the Graduate Coordinator who will review the application and direct it toward faculty members who could provide an opportunity for the applicant to study. It should be stressed, however, that applications for graduate study are made to the Department, and not to individual faculty members. Regardless of the way in which the application was made, all faculty members have equal access to applications and may seek to attract applicants to their individual research programs. Applications will remain open to all faculty members for a period of two weeks prior to making a recommendation to the School of Graduate Studies to offer the applicant a position.

If a faculty member agrees to serve as the supervisor for an applicant, or two faculty members wish to co-supervise an applicant, he/she/they will sign a form in the applicant's file and the Graduate Coordinator will review the offer and will make a recommendation to the School of Graduate Studies to accept the individual into a specific graduate program in the Department. The recommendation identifies the program, the potential supervisor, and the amount of financial support, and any conditions imposed on the acceptance (such as completion of a previous degree). The recommendation to accept a student into a specific program is reviewed by the Director of Admissions and Student Services in the School of Graduate Studies to accept the applicant according to one of the categories described in the Graduate School calendar

(http://www.queensu.ca/calendars/sgsr/Academic_Qualifications_for_Admission.html) and [Part 2 of the Engineering and Applied Science Graduate Council Manual](#). The Director then advises the applicant that he/she is accepted into a specific graduate program in this Department. The Coordinator, upon receiving a copy of this acceptance letter, also writes to the applicant welcoming the individual to the program, offering a specified level of financial support, and asking that the student reply to the Department indicating acceptance or rejection of this offer no later than one month from the date of the Registrar's letter of acceptance.

If more than one or more faculty members wish to serve as the supervisor for an applicant, but not as co-supervisors, then the Graduate Coordinator will have the Graduate Program Assistant contact the applicant and indicate that there are two potential offers, encourage the applicant to contact both faculty members and render a decision as to which offer they wish to accept. Once the applicant's decision is received, the offer will proceed as usual.

Applicants interested in the collaborative biomedical engineering program (CBME) should discuss this with their potential supervisor and then inform the Graduate Program Assistant, who will make their application available to the CBME group for acceptance.

If no faculty member is willing to supervise an applicant, then a recommendation not to accept the individual is made to the School of Graduate Studies, and the applicant is notified by the Director of Admissions and Student Services of the School of Graduate Studies that he/she is not admitted to graduate study in this Department.

In the case of qualified applicants to the M.Eng. program, (http://www.queensu.ca/calendars/sgsr/Chemical_Engineering_0.html), the current Departmental policy is to admit such applicants, with no financial support being offered by the University or the Department. In the letter, welcoming M.Eng. students into the department, the Graduate Coordinator will indicate that the Graduate Coordinator acts

as a Mentor for the student for the duration of his/her program. Any faculty member may act as the M.Eng. student's mentor.

2.3 Student Status. Students admitted to graduate studies in the Department must, at registration, indicate their study status (full time, part time or inactive) as per regulation 7 in the graduate calendar (http://www.queensu.ca/calendars/sqsr/Study_Status.html).

Full time students are expected to be engaged in their programs of study on a full time basis, to meet regularly with their supervisors, to be geographically available and visit the campus regularly. TA contracts include 4% vacation pay so full time graduate students are expected to negotiate vacation time with their supervisor in any calendar year. Students are entitled to the usual University, civic and national holidays.

Part-time students must follow the regulations in the Graduate Calendar (http://www.queensu.ca/calendars/sqsr/Part_Time.html). Students remain enrolled in their program of study but are not expected to attend CHEE897 seminars.

Off-campus students remain funded but may leave campus to further their research or program at another institution. They are also exempt from attendance at CHEE897 seminars.

Transfers to part-time or off-campus status must be supported by the supervisor and department and submitted to the School of Graduate Studies for final approval prior to the term in which the change in status is to be applied.

3. FINANCIAL SUPPORT

Accepted applicants for graduate study in the Department are notified in the Coordinator's letter (see above) that they will receive at least the department minimum level of support during the first year of study. Funding will be renewed at or above the department minimum level (as set on a yearly basis), providing good standing in the

program is maintained and contingent to availability of funds, until the completion of their studies or the end of their second year for MSc students, and until the completion of their studies or the end of their fourth year for PhD students, whichever comes first.

The overall minimum levels of financial support are set annually through discussion by faculty members in the Department. Although supervisors have the responsibility to meet these levels of financial support, some internal sources of funding may be available as will be discussed below. The current minimum level of financial support offered to students accepted into graduate studies in this Department, and the “nominal” source of these funds are shown below:

FINANCIAL SUPPORT FOR GRADUATE STUDENTS FOR 2017-18

The minimum funding for graduate students is as follows:

NSERC Postgraduate M.Sc. Scholarship Holders (PGS-M or CGS-M):
 (NSERC Scholarship for M.Sc. is \$17,300 or \$17,500) **Total: \$31,000**

NSERC Postgraduate Ph.D. Scholarship Holders (PGS-D):
 (NSERC Scholarship for Ph.D. is \$21,000) **Total: \$35,000**

NSERC Postgraduate Ph.D. Scholarship Holders (CGS-D):
(NSERC Scholarship for Ph.D. is \$35,000) Total: \$50,000

OGS/QEII Scholarship Holders: **Total: \$30,000 (M.Sc.)**
 (OGS award is \$15,000) **Total: \$30,000 (Ph.D.)**
 (QEII award is \$15,000)

McLaughlin/Dean's Canadian Visible Minority Award Holders:
(Internally competitive awards) Total: \$28,500 (M.Sc.)
 (McL/Dean's Minority Award is \$10,000) **Total: \$28,750 (Ph.D.)**

RA Supported Students **Total: \$25,000 (M.Sc.)**
Total: \$25,000 (Ph.D.)

For international students:

Supervisor must pay a tuition differential (currently \$6311) if tuition award is not available from QGA funds. Tuition awards are valued at \$5,000 so the supervisor is responsible for the balance above \$5,000. Additionally, the supervisor is required to cover the cost for the University Health Insurance Plan (currently \$612).

Note: Funding information is subject to annual review by committee.
 Information on this page is accurate to March 2017.

In addition to the 2 external sources of financial support noted above (NSERC and OGS), and financial support provided by the supervisor (RA support), the Department has access to 3 University sources of funding. The first, Queen's Graduate Fellowships including but not limited to QEII and McLaughlin Fellowships, involves a University-wide competition. In May of each year the Department puts forward the names of individuals (usually with first class or similar standing) to the School of Graduate Studies and Research for consideration for these awards. The second source of financial support, Queen's Graduate Awards, is an allotment of funds made available to the Department each year, which must be allocated by January of the next year. These funds are allocated as a \$3,500 yearly award to full-time M.A.Sc. students in years 1 or 2 and \$4,000 yearly award to full-time Ph.D. students in years 1,2,3 or 4. The third source of financial support is Teaching Assistantships which are provided by the Faculty of Applied Science. The total funding available for Teaching Assistantships is determined each year by enrolment in the undergraduate program. Assistantships are allocated by the Associate Head as funds permit and are restricted to funding eligible graduate students only.

In some instances, applicants have indicated that they have available full or partial financial support from their government or from a public or private institution. The current Departmental policy concerning such students is that neither the supervisor nor the Department will accept any financial responsibility for such students should their financial support prove to be inadequate.

4. PROGRAMS OF STUDY

With the exceptions/modifications noted below, graduate students in the Department of Chemical Engineering must undertake programs as stipulated in the regulations of the School of Graduate Studies and Research

(<http://www.queensu.ca/calendars/sgr/Registration.html>) All requests for changes to approved programs, course substitutions, promotion from the Master's to Ph.D. program, advanced standing, etc. are to be prepared by students in consultation with their supervisor and submitted to the Coordinator for consideration by Engineering & Applied Science Graduate Council.

Programs of study and general requirements are described in the [Chemical Engineering section](#) of the graduate calendar.

The Ph.D. Comprehensive Examination

The purpose of the Ph.D. Comprehensive Examination is to assess the candidate in two respects:

- the suitability and feasibility of the candidate's proposed Ph.D. research
- the candidate's competence to undertake that research

In preparation for the Ph.D. Comprehensive Examination, the candidate will prepare a Ph.D. research proposal in which:

- The research problem is formulated, setting out the objectives, significance and scope of the research.
- The relevant literature is critically reviewed, including identification and interpretation of the principal theoretical and experimental contributions to the present state of knowledge in this area of research.
- Proposed plans for obtaining, analysing and interpreting the data are discussed.
- The main features of the equipment to be used or developed for use in the research are described.
- The time required to complete each of the main stages of the investigation is estimated.

In addition, the candidate should review fundamentals in the core subjects related to their research, in preparation for Part 2 of the exam, described below.

The timing for the PhD Comprehensive Examination will be determined by the PhD candidate and the candidate's research supervisor(s). The examination must be held within 18 months of the candidate's initial registration as a PhD student. If the Comprehensive Examination (original examination or re-examination) has not been completed within 3 months after the specified time period, the department may recommend to Applied Science Graduate Council of the School of Graduate Studies and Research that the candidate be required to withdraw from the PhD program.

At least two weeks before the examination, a copy of the Ph.D. research proposal must be given to each of the members of the Ph.D. Comprehensive Examining Committee, which will consist of the Head of the Department (or delegate) as Chair, members of the Ph.D. Supervisory Committee (minimum of supervisor(s), one internal and one external member), and other members of the Department selected by the supervisor.

The examination will be held in two parts, on the same day, with the same examiners for both parts. Each part is expected to last from 1.5 to 2 hours.

Part 1 of the examination will be an examination of the suitability and feasibility of the candidate's proposed Ph.D. research. It will begin with a 10 to 15 minute presentation of the research proposal by the candidate. Following the presentation, members of the Examining Committee will question the candidate about the proposal.

Part 2 of the examination will be an examination of the candidate's competence to undertake the research. The examiners should meet prior to Part 2, to agree on the subject areas from which questions for this part of the examination are to be selected. Immediately following Part 2 the Examining Committee will reach a decision on the outcome of the Ph.D. Comprehensive Examination by majority vote. If that decision is "PASSED", the School of Graduate Studies will be so advised. If the decision is

"FAILED", the Examining Committee may decide either to re-examine the candidate or to recommend to the department that the candidate be required to withdraw from the Ph.D. program. In the case of the latter recommendation, the department must then decide whether to recommend to Applied Science Graduate Council of the School of Graduate Studies and Research that the candidate be required to withdraw. The candidate will be informed of the decision of the Examining Committee as soon as the decision is reached. If the decision of the Examining Committee is "FAILED", then the committee will provide the candidate with a written explanation of the basis for that decision. Each member of the committee, including the candidate, will complete a "Conduct Form" in order to provide feedback on the fairness of the examination.

If the candidate is to be re-examined, the new examination must be held within three months of the original examination with the same committee. If the decision at the re-examination is "FAILED", the department will recommend to the School of Graduate Studies that the candidate be required to withdraw.

Candidates may appeal negative decisions. The general guidelines for appealing an academic decision made by the department or a committee of the Department are set out in the graduate calendar

(http://www.queensu.ca/calendars/sgsr/Appeals_Against_Academic_Decisions.html).

If a candidate wishes to appeal the decision of a Ph.D. Comprehensive Examining Committee on which the Head of the Department has not been a member, then he/she should direct that appeal to the Head of Department. However, if the Head of the Department has served as a member of that Ph.D. Comprehensive Examining Committee, then the candidate should direct any appeal of the decision to the Coordinator of Graduate Studies and Research.

Ph.D. Supervisory Committee. A PhD Supervisory Committee will be appointed for each PhD student. The role of these committees is to assist supervisors in monitoring and advisory functions, to provide input to the students' research complementing that of

the supervisor, to provide guidance should a supervisor be absent for a period of time, and to act as examiners for Comprehensive Examinations and during the Thesis Defence. Further details can be found in the School of Graduate Study's "[Guide to Graduate Supervision](#)." The research supervisor(s) in consultation with the PhD candidate is responsible for the selection of the Supervisory Committee.

Health and Safety Training. All graduate students must successfully complete a WHMIS course as well as CHEM-801, a non-credit course in laboratory safety, at the first opportunity after their initial registration. Additional forms may be required for students who work in laboratories and/or who TA in undergraduate laboratories. Each student and faculty supervisor are responsible for ensuring safety regulations are met and are encouraged to contact the Department Safety Officers to obtain forms.

The Graduate Seminar. The School of Graduate Studies and Research calendar requirements for CHEE 897 state: "Graduate Students working on theses must give a seminar on their research. The seminar carries no course credit but all graduate students are expected to attend." Attendance is tracked using sign-in sheets at each seminar and if students are not able to attend, they are expected to consult the Graduate Coordinator prior to the seminar.

The objectives of the course are:

- To provide a regular opportunity to inform students and faculty about the research work being conducted outside their own area of immediate interest:
- To encourage the exchange of ideas and to stimulate discussion about the research
- To give graduate students experience in organising and presenting their work to an audience with a spectrum of familiarity with the subject matter of the seminar. This experience is particularly valuable in subsequent academic careers when lecturing at first or second year levels, and also in industrial careers when making presentations to non-technical personnel.

- To provide students with additional experience in formulating and responding to questions.

All Master's students working on theses must give one Departmental Seminar on their work during their residency, and all Ph.D. students must give two Departmental Seminars. The Master's seminar must be given before the student begins preparation of the thesis. The Ph.D. seminars will normally be held shortly after successful completion of the Comprehensive Examination, and before the student begins preparation of the thesis.

The first Ph.D. seminar would be expected to contain a statement of the problem, specific background, experimental procedure, results obtained to date, discussion of the results, the work still to be done, and a conclusion. The M.Sc. seminar and the second Ph.D. seminar would be expected to contain a statement of the objectives, a review of the literature related to the results to be discussed, theory, experimental procedure, results, discussion of the results, and conclusion, with the emphasis on the contributions made by the student.

Student seminar days are planned for each term. The Graduate Program Assistant will send out a call for abstracts in the weeks ahead of the student seminar day and an agenda will be created that will follow a mini-symposium format. Students are expected to complete required seminars during their program. There are no "special seminars."

5. GRADUATE COURSES

A list of graduate courses being offered by faculty members in this Department is provided in the Chemical Engineering section of the Graduate Calendar. This list is updated annually by the Coordinator using information provided by all faculty members in the Department. The addition of new graduate courses and the modification of course descriptions must be approved by the Engineering & Applied Science Graduate Council; accordingly, all such requests must be initially directed to the Coordinator.

Graduate courses being offered by the Department for a given academic session, as well as courses being offered by staff of the Department of Chemistry and Chemical Engineering at the Royal Military College of Canada are announced prior to the start of the academic session. In the case of a graduate course offered in this Department, it may be withdrawn from being offered in a particular academic session if less than 4 students register for it.

6. ACADEMIC INTEGRITY

The graduate calendar section on Academic Integrity states that:

"Within a graduate program, it is essential that an environment exist in which faculty and students have the utmost regard for the principles of academic integrity. To this end, faculty members have a responsibility to inform their students of any particular norms of their discipline. For their part, students should be aware of the seriousness of dishonesty in a graduate setting and the possibility of expulsion from the program for any of the listed offenses. Jurisdiction in cases of academic dishonesty rests with the School, with the exception that the recommendation for expulsion or suspension must be forwarded to the Senate for approval."

Many departmental courses include an independent research paper. Submitting written work in whole or in part by someone else as one's own, or using direct quotations or large sections of paraphrased material in a project, research report, thesis, or scholarly publication without appropriate acknowledgment is considered Academic Dishonesty. An expanded discussion, including definitions of Academic Integrity and Plagiarism is

found in the graduate calendar

(http://www.queensu.ca/calendars/sgr/Academic_Integrity_Policy.html). Students are encouraged to consult instructors regarding procedures and use of materials if in doubt about how they may relate to academic integrity.

If a case of Academic Integrity arises in the department, the steps outlined in the graduate calendar will be followed.

7. ORAL EXAMINATION OF THESES

The supervisor and Graduate Program Assistant are responsible for informing the Thesis Coordinator of the School of Graduate Studies regarding the particulars of the Oral Examination and the fulfillment of program and course requirements for the degree. The supervisor must finalize the time and place of the Oral Examination after having ensured the availability of the examiners and of the venue. A form for the above arrangements is available from the Graduate Program Assistant, who can assist with locating a Chair/Head's Delegate for Master's thesis exams or Head's Delegate for Doctoral exams.

Master's oral thesis examination committees are composed of the supervisor, one examiner who is internal to the Department, one Head's Delegate who acts as Chair and one additional examiner. The additional examiner may be from the Chemical Engineering department (in which case the Head of the department must review the committee make-up prior to submission) or from another Queen's department (preferable) or in extreme cases where a suitably qualified examiner is not available within Queen's the additional examiner may be chosen from another university. The supervisor is responsible for funding the additional examiner's travel and accommodations.

Doctoral oral thesis examination committees are composed of the supervisor, one examiner who is internal to the Department, one Head's Delegate who is chosen by the Graduate Program Assistant, one examiner who is from another Department at

Queen's, one examiner who holds a tenure track faculty position at another university, and a Chair chosen by the thesis coordinator at the School of Graduate Studies.

8. THE THESIS FORMAT AND THE THESIS DEFENCE

Important information about completing the student's degree can be found at <http://www.queensu.ca/sgs/current-students/degree-completion> . Graduate student theses must follow a prescribed format as outlined at <http://www.queensu.ca/sgs/thesis-formatting-other-resources> . Master's thesis defenses are managed on a departmental level and students should consult their supervisor for information as to how the exam is conducted. The Doctoral thesis defence is conducted according to the format described in the following web site <http://www.queensu.ca/sgs/preparing-your-oral-examination> .

9. LEARNING OUTCOMES

Following the completion of a program or defense, the "Graduate Learning Outcomes" form for the respective program is to be reviewed and signed by the Head's Delegate of the defense and the student's supervisor. There are five different forms, one for each graduate program, and they can be found here:

<http://my.chemeng.queensu.ca/graduate-studies/information-advice/index.html>

10. REVIEW OF ACADEMIC DECISIONS

Students have the right to appeal academic decisions such as may occur in the grades for courses, and the outcomes of comprehensive examinations and thesis defences. General guidelines for the review of academic decisions are provided in the following website

(http://www.queensu.ca/calendars/sgsr/Appeals_Against_Academic_Decisions.html).

11. SELECTION AND DUTIES OF TEACHING ASSISTANTS

Teaching assistants play an important role in ensuring that the department meets the

objectives of the undergraduate program. The contribution of an effective teaching assistant to the teaching and learning process is appreciated by staff and students alike. In addition, experience as a teaching assistant is beneficial to most graduate students, even when they do not plan a career in teaching. For these reasons the department tries to meet the needs of graduate students as well as undergraduate students when awarding teaching assistantships.

Awarding of Teaching Assistantships

All graduate students are expected to TA once per year of full time study, which is comprised of 72 hours of work per term compensated at the current rate of pay for TAs, as part of their minimum funding package. If the student is willing and able to TA twice in one year he/she receives full payment of the TA funding. If a supervisor wishes to do so they may buy-out the TA portion of the student's stipend and the student is removed from TA responsibilities for that year. The student may choose not to TA and if the supervisor is unwilling to cover the TA portion of the stipend, the student's stipend will be reduced by the amount of the TA.

There are some courses which may require only half of a normal TA assignment (36 hours). In these cases, every effort will be made to match the student up with another half-TA to complete their full assignment.

Assignment of Courses

Continuing graduate students are asked to express their preferences for courses before the start of the session, and every effort is made to meet these requests. However, the department must balance its resources among courses, and this may make it impossible to satisfy everyone's wishes. We know that the first time through a course requires greater preparation effort than the second, and an attempt will be made to repeat the course offered if that is the student's wish.

All TA assignments are made in consultation with the Associate Head and if necessary

with the course instructor to ensure the TA assigned to the course has the appropriate background.

The Duties of a Teaching Assistant

The duties of a teaching assistant vary according to the needs of the course, and the skill and experience of the graduate student. Typical assignments involve one or more items from the following list.

1. Presenting and discussing solutions (prepared by the instructor) in a tutorial.
2. Presenting and discussing solutions (prepared by the teaching assistant) in a tutorial.
3. Assisting individual students to solve problems during the tutorial.
4. Assisting individual students to solve problems at specified times outside the tutorial.
5. Marking assignments using solutions provided by the instructor.
6. Marking assignments using solutions produced by the teaching assistant.
7. Writing computer programs to be used in the course.
8. Solving problems to be used as assignments in the course.
9. Special projects based on the experience of the teaching assistant, e.g. preparing and presenting one or two lectures on a special topic.
10. Proctoring examinations in the course when these are held within the department.

The time requirement of a one-term course is 72 hours. This is normally taken to be 'contact time'. It is expected that teaching assistants have the competence to provide effective assistance to undergraduate students. Some preparation time will always be necessary, but an allowance for this is only included in the 72 hours when the assignment is unusually demanding, such as in the preparation of a lecture. A TA/Instructor agreement will be reviewed and signed by the TA and the course instructor prior to the start of the term in which the assignment has been made.

The additional duties of a teaching assistant in a laboratory course are:

1. Knowledge of the objectives of projects and the equipment being used.
2. Completion of the WHMIS course.
3. Knowledge of the departmental health and safety policies and procedures related to laboratory operations.

Resources Provided to Teaching Assistants

The department will ensure that teaching assistants have access to a copy of the textbook, which can be obtained from support staff in the main office.

The department will ensure that the software used in a course is accessible to teaching assistants. This will be identified by the course instructor ahead of the start of term and students will contact the IT administrator for instructions on how to access the software.

The Queen's University Centre for Teaching and Learning offers workshops annually to assist teaching assistants in developing their instructional skills and the Department of Chemical Engineering holds a workshop which is mandatory for all new TAs.

Evaluation of the Performance of Teaching Assistants

The performance of a teaching assistant will be evaluated on the basis of

- effectiveness in helping students to understand the course material
- ability to answer questions from students
- reliability in performing assigned duties
- ease of approach from the undergraduates' viewpoint

The course instructor should discuss the teaching assistant's performance with the teaching assistant at about mid-point of the course, and again at the end of the course. The instructor's evaluation will be based on personal observations and discussion with students in the course.

The teaching assistant's performance will also be evaluated by the students in the

course as part of their regular course evaluation procedure.

12. PUBLICATION AND INTELLECTUAL PROPERTY

It is expected that the results of research will be prepared and submitted for publication in the scientific literature. When the main contribution of the work is part of a graduate student's thesis, then it is expected that the student will prepare the first draft of the paper. This will be revised for submission in collaboration with the thesis supervisor. It is therefore expected that all papers resulting from graduate thesis research will be joint publications with the thesis student as senior author (i.e. first name on the list of authors). There may be additional co-authors if other students or researchers are considered to have made a significant contribution to the work. The student should list these people as co-authors on the final thesis submission forms and obtain signatures as necessary.

Research Assistants who are employed for data collection or analysis are not normally listed as co-authors unless they are considered to have made an original contribution to the work.

Inventions or other Intellectual Property (IP) may arise from the thesis research of graduate students, and these may be of commercial value. The following web site <http://www.queensu.ca/sgs/academic-matters> should be consulted with regard to the manner in which such IP is handled. In addition, there exist a variety of Senate and other documents concerning IP, Technology Transfer and the distribution of revenues arising from the commercialisation of IP. More information can be found here <http://www.queensu.ca/secretariat/policies/senate/technology-transfer> regarding how IP is managed.

13. CONFLICT RESOLUTION

Conflicts between student and supervisor may arise due to disagreements or misunderstandings. Most conflicts can and should be resolved through informal discussion with your supervisor. The ability to discuss differences in opinion and

expectations with your supervisor is an important component of a healthy working relationship.

Should an issue arise that presents a potential conflict, students are encouraged to informally seek out the advice of their research peers, members of CEGSA, or the Graduate Coordinator (with whomever they are comfortable discussing the topic). Should a resolution not appear imminent stemming from informal discussion, the following procedure is recommended.

In the event of a more serious conflict, one that jeopardizes your ability to complete your degree, the following steps should be taken in order to seek resolution. Note that all consultations in the Departmental and School of Graduate studies should be kept confidential and no action should be taken without the acknowledgement and consent of both you and your supervisor. Wherever possible, formal communications should be limited to those parties directly concerned in dealing with problems.

1. Contact the departmental Graduate Studies Coordinator, providing them with an outline of the conflict. The Graduate Studies Coordinator will arrange a meeting with you and your supervisor and attempt to resolve the conflict. If required, the Department Head will be contacted to mediate further discussions.
2. If no satisfactory resolution is reached, contact the Associate Dean(s) of the School of Graduate Studies. In consultation with the aggrieved parties, the Dean may elect to appoint an advisory committee to help resolve the issue.

In the most serious of cases, a formal committee may convene and render a resolution. If you are unhappy with the decision, you have a right to appeal.

If necessary consult the **Senate Document on Student Appeals, Rights & Discipline** (<http://www.queensu.ca/ombudsman/students/appeals/student-appeals-rights-and-discipline>) for further information regarding the channels of and time limits for appeal.