

**DEPARTMENT OF  
EARTH & ENVIRONMENTAL SCIENCES  
UNIVERSITY OF WATERLOO**

**GRADUATE STUDIES REGULATIONS  
AND GUIDELINES**

*January 2020*

Copies may be obtained from the Graduate Co-ordinator  
(EIT 2035)

## **THE GRADUATE PROGRAM**

The Department of Earth & Environmental Sciences offers graduate training at both the MSc (Masters) and PhD (Doctorate) levels. This document provides information for the new and in-course graduate student about the graduate program in Earth & Environmental Sciences ([www.earth.uwaterloo.ca](http://www.earth.uwaterloo.ca)) The text summarizes how the graduate program operates and the main regulations that you should be aware of. The information supplied here is intended to supplement and summarize the information available in the University Graduate Calendar. (<http://gradcalendar.uwaterloo.ca/group/Gen-Info-Regs>) All regulations in the Graduate Calendar apply and supersede information in this booklet.

## **THE GRADUATE OFFICE**

The graduate program in the Department of Earth & Environmental Sciences is administered by the Graduate Officer and the department Graduate Administrative Co-ordinator. The Graduate Administrative Co-ordinator is responsible for ensuring that the regulations for MSc and PhD degrees are met and for the daily operation of the office. The Graduate Coordinator is often your first contact for most inquiries as primary duties include recommendation for acceptance to the program, TA and RS payroll, scholarship and award processes, paperwork for meetings and all issues related to Graduate courses and student records.

The Graduate Officer reports to both the Chair of the Department and to the Associate Dean of Graduate Studies for Science. The Associate Dean chairs the Science Graduate Studies Committee which is responsible for directing the graduate program of the Faculty of Science. The Graduate Studies Committee is responsible for approving such things as time extensions for in-course graduate students and new courses. Graduate and senior-undergraduate students are welcome to approach either the Graduate Officer or the Graduate Coordinator at any time for clarification of rules or advice. In the rare instance of a disagreement between a student and the supervisory committee, attempts at resolution should first be directed to the Graduate Officer. The current Associate Chair, Graduate Studies and Graduate Coordinator are listed below.

### **Name, Title, Office, Phone, E-mail**

Dr. Martin Ross, Associate Professor, Associate Chair, Graduate Studies

EIT 2045, EXT 38171

Susan Fisher, Graduate Administrative Coordinator

EIT 2053, EXT 35836

## **ADMISSION TO THE PROGRAMS**

### **MSc**

Admission to the MSc program normally requires at least a cumulative full B average (75%) in the last two years of a four year Bachelor of Science program (or equivalent). If a student has less than the required standing for admission, but has both the support of the proposed supervisor and meets other admission criteria listed in the graduate calendar, he/she may be admitted as a probationary student. The initial program of study of a probationary student is specified and the student's performance is monitored by the Graduate Officer and the Graduate Coordinator in consultation with the supervisory committee. Probationary students MUST achieve a minimum mark of 75% in each of the required courses. Satisfactory completion of the probationary term(s) will result in a transfer to the regular program. Probationary status is available for MSc candidates only.

Additional information on categories of admission to the Masters program is found in the Graduate Calendar .

### **PhD**

Admission to the PhD program normally requires a two year Masters Science degree in a relevant field with a B standing (not less than 75%). Students with exceptional undergraduate records may be accepted directly into the PhD program; these students are allowed 18 terms (6 years) to complete the program. There is not a probationary status.

### **Transfer from MSc to PhD Program**

In some cases, students begin graduate studies in the Masters program, but with a definite interest in completing a PhD and a project suitable for doctoral studies. The MSc to PhD transfer option may be appropriate for such individuals. By eliminating the requirement to complete the MSc, it allows for earlier completion of the PhD degree.

The option for transferring from the MSc program to the PhD program is open to students with:

1. An excellent academic standing (also, not on probation or carrying incompletes)
2. Good progress in a research project that could be expanded to a PhD project
3. Good scientific writing skills such that the experience of writing an MSc thesis can be Bypassed

An application for a transfer from MSc to PhD program must normally be done before the end of term three. If the supervisor and graduate officer approve the request for transfer, then the paperwork will be completed.

The student must complete five courses, 4 at graduate level, and 1 undergraduate 400 level course is allowed; other than the proposal, seminar and thesis milestone. The student is also to complete the comprehensive examination.

## **Language Requirements**

(alternatively, evidence of education in English must be provided allowing for a waiver)

International students must provide a current TOEFL (Test of English as a foreign Language) score of at least 580 on the written test, 237 on the computer based test or 90 on the internet based test with a TWE (Test of Written English) or Essay score of 4.0 on the written and computer based tests. Note that if presenting the internet based minimum score of 90, applicants must have a minimum of 24 in Speaking and Writing. The department will also accept an IELTS (International English Language Testing System) test score of 6.5 minimum overall (must have a minimum of 6.5 in each section) English language test scores are valid for two years from the test date.

## **Applications**

Application should be can be found on-line at:

<https://uwaterloo.ca/discover-graduate-studies/application-process>

## **REGISTRATION**

A graduate student must register each term. A fee statement will be posted on the financial section of the student's QUEST account each term. Students may pay their tuition on-line, with bank transfers, personal cheque, or by arranging a promissory note. Once tuition has been paid or fees have been arranged, the student is considered fully registered. Students must always remain continuously registered. Should registration be allowed to lapse, then the student will have to re-apply for admission and pay the administrative fee. When progress toward the degree is interrupted or prevented by illness, students may petition to register inactive, and the term will not count against the time limit for the program. Normally students may only be inactive for one term and will be required to provide medical documentation. There are not fees associated with inactive status.

Students who are away from campus for an entire term while undertaking degree-related activities may register as "full-time off-campus". While off-campus registration does not affect tuition, it may result in reduced incidental fees.

Students not making satisfactory progress may be required to withdraw. Other students may wish to withdraw voluntarily for a period so that they can devote their time to outside work, or other necessary interruptions in their studies. Inactive status or voluntary withdrawal should be discussed and explored with the Graduate Coordinator or the Graduate Officer.

## **COMMUNICATION WITH GRADUATE STUDENTS**

The Department of Earth & Environmental Sciences notifies graduate students of events, scholarships, employment opportunities, program deadlines, and other relevant information by e-mail. Please obtain an email address as quickly as possible, provide the address to the Graduate Coordinator, and check it regularly.

## **THE SUPERVISORY COMMITTEE**

Each student, at both the MSc and PhD levels, must have a supervisor and a supervisory committee. A student may have two supervisors, in which case they are referred to as co-supervisors. The supervisory committee assists supervisors in their role of monitoring and mentoring research by graduate students. Members of supervisory committees should be reasonably accessible to students when called upon for regular committee meetings, as well as for discussions of a student's academic progress, consultation on issues related to the research project and for general guidance.

### **MSc**

For MSc degree, the supervisory committee consists of at least two members in addition to the supervisor or co-supervisors. At least one of these committee members must be from the Department of Earth & Environmental Sciences, but the second member may be 1) a member of another department at the University, or 2) a scientist from another University, industry or a government laboratory who has been approved by the Department of Earth & Environmental Sciences as an adjunct faculty member. Faculty members from other departments must have cross-appointment status in Earth & Environmental sciences as an adjunct faculty member. Faculty members from other departments must have cross-appointment status in Earth & Environmental Sciences to supervise or co-supervise an Earth Student. Supervisors/Co-Supervisors MUST attend the thesis defence

### **PhD**

The supervisory committee for a PhD student must comprise of at least two members in addition to the supervisor or co-supervisors, one or both of whom must have ADDS status. \* Normally, both committee members should be Faculty from the Department of Earth & Environmental Sciences; at the minimum, at least one member MUST be a Faculty member of the Department, in which even, the other committee member must have been approved by the Department of Earth & Environmental Sciences as an adjunct faculty member.

**NOTE:** *In order to supervise a PhD student, a supervisor (including Cross-Appointed Faculty) must have ADDS(Approved Doctoral Dissertation Supervisor) status: failing such status, the supervisor must find a Earth & Environmental Sciences Faculty member with ADDS who can act as co-supervisor. At the Thesis Defence the examination committee must comprise of at least three faculty members from the University of Waterloo in addition to the supervisor or co-supervisors. One of these members must be from a department other than Earth & Environmental Sciences, but from within the University. This is known as the internal/external examiner, and can be part of the committee from the start or included just prior to the submission of the thesis. Additional members may be appointed to the committee.*

*Supervisors/Co-Supervisors MUST attend the defence. In addition, only ONE other member of the examination committee may be absent from the defence.*

### **MSc and PhD Committee Issues**

The members of your committee are usually selected by your supervisor; it is common for your supervisor to consult you to see if you find his/her selections acceptable. The composition of the supervisory committee must be approved by the Graduate Officer. The Associate Chair, Graduate Studies must also approve any change in composition of the committee. Therefore, if there are changes that you and your supervisor have agreed upon, please inform the Graduate Co-ordinator so that the paperwork and your file can be updated. Your committee should be established by the end of your first term. You are required to meet with your committee at least once per year. Meetings are monitored by the Graduate Co-ordinator, therefore please notify the Graduate Co-ordinator in advance of the meeting so that the necessary paperwork can be prepared and completed. At your committee meeting, you should expect to present an account of your research plans and research activity to date. It is the responsibility of your committee to both approve and advise on your program of studies.

Although your committee is required to meet with you at least once a year, you or your supervisor may wish to call committee meetings more frequently. As well, you should feel at liberty to consult your committee members on a more casual basis at any time. It is for this reason that the composition of your committee should be determined carefully; the members of your committee should be individuals prepared to comment critically on your work and with whom you will have a productive, intellectual exchange.

If your supervisor is going to be away from campus for more than 60 days, he/she must ensure that a member of your committee (or an alternate supervisor) is appointed to oversee your program during the absence. As well, if your research takes you away from campus, your supervisor will be responsible for ensuring that you have adequate supervision. It is important to make sure that the necessary forms for temporary replacement of your supervisor are completed. Forms are available from the Graduate Co-ordinator.

### **COURSE REQUIREMENTS**

To avoid duplication of information, which can increase the risk of errors and inconsistencies, all the official information regarding course and other degree requirements can be found at:

<https://uwaterloo.ca/graduate-studies-academic-calendar/science/department-earth-and-environmental-sciences/master-science-msc-earth-sciences>

Normally, courses are selected from the Earth & Environmental Sciences listings, but you may take courses from any department on campus as well as from other universities in Ontario, provided that your courses are approved for credit by your supervisory committee. Please note, however, that at least one half of the required courses should be chosen from the Department listing. All on campus graduate level courses should be added to your course schedule using QUEST. Permission to take courses at

another institution requires the approval of the Chairs and Graduate Deans at both institutions. This is usually a straightforward matter to arrange, but you must ensure that a similar course is not already available at Waterloo and that you are in good standing in your program. Do not enrol for this type of course through QUEST. Students must submit an Ontario Visiting Graduate Student Application (for courses within Ontario) to the Graduate Coordinator for consideration. OVGS application forms are available on the Graduate Studies & Post Doctoral Affairs web site.

Please note that students cannot take more than two Special Topics course for credit towards their degree; MSc students Earth 691 and PhD students Earth 692 . Special topics courses are offered on an individual basis, and typically allow the student to investigate to specific topic or subject area through self directed study. These courses usually involve the preparation of a review paper that is critiqued by the instructor. If you take more credits during your graduate program than you need to graduate, you will be asked to specify the credits that you wish to designate as having been required for your degree; if you don't do this, the Graduate Officer will try to make judicious selection. Courses that are not used for credit may become available for credit in another program; approval for such advanced credit, however, is not automatic.

Graduate students and their supervisory committee must ensure that the course selection reflects a graduate degree in Earth & Environmental Sciences.

### **Good Standing**

In order to be eligible for bursaries, travel awards and off-campus courses, a graduate student must be in "good standing" in his/her program. This means that the student is within program time limits, has no incomplete courses and has an average mark of 70% or higher. In order to be eligible for scholarships, the students' average mark must be 80% or higher, be within program time limits and have no incomplete courses.

### **MILESTONES**

Milestones are program requirements that will automatically appear on a student's QUEST account as "IN PROGRESS" until each has been completed.

### **MSc THESIS PROPOSAL**

MSc students should enroll in this course (Earth 695) during the first year of their program (normally, it should be completed during term #2, and no later than term #3). The grade is a Pass or Fail and the course consists of two parts. The first part is the writing of a thesis proposal and the second part is the presentation of the proposal before the thesis committee. The length of the presentation should be a maximum of 30 minutes. The use of electronic visual material (e.g. powerpoint slides) is strongly recommended. The sections below provide detailed information about the written component of the

thesis proposal. These sections are adapted from the guidelines to authors of the Canadian Journal of Earth Sciences (<http://www.nrcresearchpress.com/page/cjes/authors>).

## **COMPREHENSIVE EXAMINATION FOR PhD CANDIDATES**

### **Comprehensive Examinations**

Our PhD program, requires doctoral students to successfully complete a comprehensive exam as part of their academic requirements

The purpose of this document is to provide university-level guidance to students, supervisors and Departments / Schools (referred to as Departments in this document) on the comprehensive exam. This document also presents links to Faculty level guidelines that are consistent with the principles established here. Links to Departments' guidelines are available on the Faculty pages.

### **Comprehensive Exam Purpose**

Comprehensive exams serve multiple purposes depending on the discipline. Permitted purposes for comprehensive exams at the University of Waterloo include demonstrating that:

- PhD students have the appropriate academic background – a foundation and breadth of knowledge in the field of study– to be successful in their PhD program;
- PhD students have the capacity to engage in scholarly communications – both oral and written – necessary to be successful in their PhD studies;
- PhD students have developed a novel research topic to be evaluated during their PhD studies.

The purpose(s) of the exam shall be communicated clearly to students.

### **Comprehensive Exam Timing**

The comprehensive exam is an important accomplishment in the completion of students' PhD programs. Normally, completing the comprehensive exam allows students to advance to the research or dissertation phase of their studies. The timing of the exam should allow sufficient time for students to achieve the foundational knowledge to be successful in their programs. The exam timing should also be determined with consideration of providing timely feedback to students on their progress and motivating appropriate times to completion. To balance these two objectives, the University requires that:

- Students with no previous studies at the PhD level successfully complete the comprehensive exam not later than the end of their seventh term of studies;
- Students who have completed previous studies in another PhD program at the University of Waterloo or at another university, successfully complete the comprehensive exam not later than their fourth term of studies in their current program or their seventh term of study at the PhD level, whichever is longer.

Earlier deadlines are at the discretion of the Faculty, Department or Program level.

A student who anticipates not meeting these requirements (up to the final evaluation of the exam) may seek an extension to the deadline to complete the comprehensive exam. The student is required to submit a petition providing evidence of extenuating circumstances to the student's Associate Dean, Graduate Studies.

Valid extenuating circumstances are normally limited to issues related to the student's (or student's immediate family's) health or documented incidents involving graduate student supervision that can be demonstrated to have delayed the student's progress. The conduct of research or other projects is not considered a valid extenuating circumstance to delay beyond the normal comprehensive examination completion deadline. Guidance on seeking accommodation due to health reasons shall be managed by the University's AccessAbility Office.

If the petition is granted, the Associate Dean, Graduate Studies shall coordinate with the student's Graduate Officer to establish a new deadline by which the comprehensive exam shall be completed. This deadline shall be communicated to the student in the notice of decision on the petition.

If no petition has been previously adjudicated, and a student fails to meet these requirements by the end of the seventh term, the student's academic status will be changed to **Required to Withdraw**. Students may seek to have their standing changed to allow them to continue in their programs by submitting a petition under Policy 70 to the student's Associate Dean, Graduate Studies, not later than 10 business days from the change of status. The petition rules described in this section apply.

### **Comprehensive Examinations and Students' Academic Requirements**

A student is encouraged to communicate with supervisor(s) and / or instructors regarding the need to balance the student's effort toward preparing for and completing the comprehensive exam, and any other academic requirements in the term during which the comprehensive exam takes place. Additional guidance for students serving as a TA are outlined in Policy 30.

In cases where agreement cannot be reached on revised expectations, the Department's Graduate Officer shall determine and communicate the revised expectations, if any, to the student and the supervisor / instructor.

### **Comprehensive Examining Committee**

In many cases a student's comprehensive exam written and / or oral components are evaluated by an examining committee constituted for a given student. These rules govern the composition of these examining committees.

The comprehensive examining committee shall engage those who can advance the purpose(s) of the exam. The University requires that the committee includes at least three examiners who:

- hold a PhD or equivalent degree (as determined by the Associate Vice President, Graduate Studies and Postdoctoral Affairs),

- two of whom are not the student's supervisor(s),
- at least one of whom is a tenured or tenure-track member of the student's Department or School, and
- at least two of whom hold regular faculty appointments at the University of Waterloo.

Additional committee members may be required at the discretion of the Faculty, Department or Program. When examining committee members are external to the University of Waterloo, their purpose in the exam process shall be clearly communicated to the student.

Normally, the examining committee will not exceed five examiners.

The comprehensive exam shall be chaired by a tenured or tenure-track faculty member at the University of Waterloo with Approved Doctoral Dissertation Supervision (ADDS) status, normally from the student's home Department / School, who is not the student's supervisor or co-supervisor. The Chair's role is at a minimum to ensure that this portion of the exam is conducted consistent with appropriate guidelines. The Chair is non-voting.

The composition of the comprehensive examining committee will be approved by the Associate Dean, Graduate Studies for the student's Faculty.

The method by which the comprehensive examining committee is constituted and the timing of the examining committee formulation shall be clearly articulated and communicated to students.

### **Comprehensive Exam Format and Content**

The format and content of the comprehensive exam shall be directly related to the stated purpose(s) of the exam. These elements shall be clearly articulated and communicated to students to ensure transparency and clarity of expectations. If a student in a program perceives a lack of clarity on these issues, these concerns should immediately be communicated to the student's Department's Graduate Officer.

Students may warrant an accommodation to allow for an alternative exam format other than the norm as described by a Faculty or Department. For accommodations related to health, the student shall provide supporting medical documentation to the University's AccessAbility Office where the request will be vetted. As a result of that evaluation, AccessAbility shall determine whether an accommodation is warranted. When an accommodation is determined appropriate, AccessAbility shall communicate the decision and the nature of the accommodation to the Graduate Officer in the student's home Department.

Requests for accommodation not related to health issues shall be made by students to the Graduate Officer in the student's home department, who will coordinate the process by which the request for accommodation will be advanced.

### **Outcomes of the Comprehensive Exam**

This section defines permitted outcomes of Comprehensive examinations at the University of Waterloo. On a candidate's first attempt at the comprehensive exam, the outcome shall be one of:

- Passed: the candidate successfully completed all requirements of the examination;
- Passed conditionally: the candidate will be considered to have completed the exam successfully upon having satisfied conditions established by the examining committee. The conditions shall:
  - Be communicated to the student in writing;
  - Contain the date by which the conditions must be satisfied;
  - Identify the member(s) of the examining committee responsible for determining that the conditions have been met. Normally, this determination will be made by at least one member of the committee other than the student's supervisor or co-supervisors.

Failure to satisfy the conditions within the designated time limit shall result in an outcome of Re-examination.

- Re-examination: the candidate will be required to repeat the exam. In this case, the student shall be provided written communication that identifies the deficiencies in the exam that led to this outcome and the deadline by which the re-examination must take place. In the case of re-examination it is anticipated that the committee membership will be the same as the initial committee. Any change in membership must adhere to committee guidelines and be approved by the student's Associate Dean Graduate Studies.

When a candidate is re-examined, the outcomes are limited to:

- Passed
- Exam Unsuccessful: the candidate will be deemed to have failed to satisfy the program's comprehensive exam requirement. In this case, the student shall receive written communication identifying the deficiencies in the exam that led to this outcome.

A student who is deemed to have failed to satisfy the comprehensive exam requirement (Exam Unsuccessful) may not continue in the current PhD program. The student's status will change to **Required to Withdraw** in the term immediately following the term in which the examination took place. The student may seek admission to another PhD program or to any Master's degree program at the University of Waterloo.

The outcome of the exam is determined by the majority vote of the examining committee. The following rules govern the voting process:

- In the case where the student is co-supervised, the co-supervisors' votes shall count collectively as one vote. In the case where co-supervisors vote for different outcomes, these votes shall count as 0.5 votes for each outcome.
- In the case where only two outcomes receive votes and the number of votes is equal for both outcomes, the decision shall be for the less positive outcome, provided that outcome is not exam unsuccessful.
- If the previous case results in an exam unsuccessful outcome, or if no majority is obtained, the case shall be referred to the Associate Dean, Graduate Studies, who shall make the final determination of the outcome of the exam.

Those members of the examining committee who are voting members shall be clearly communicated to the candidate.

In programs where the comprehensive exam involves multiple components, a student may obtain different outcomes on each component of the exam. The comprehensive exam will be considered satisfied when the candidate has passed all components of the exam. The comprehensive exam will be considered failed if the candidate receives an exam unsuccessful outcome on any component. No component may be repeated more than once.

A student may seek reassessment of the exam evaluation only when the outcome is re-examination or exam unsuccessful based on the written element of the comprehensive exam. A student may not seek a reassessment of the oral component. A request for reassessment shall follow the process described in Policy 70 (reassessment challenge).

### **Academic Integrity and the Comprehensive Exam**

The University considers academic integrity to be an integral part of all scholarship. Violations of academic integrity are handled under University Policy 71.

When the comprehensive exam involves a written submission of original work by the candidate completed in an invigilated setting, the student shall employ the University's plagiarism detection software leading up to the submission of the written document to the examining committee. The student is encouraged to discuss the reports generated from the software with their supervisor(s) to avoid academic integrity violations. The report generated related to the document submitted to the examining committee shall be included with the student's written element and shall be made available to the committee.

In cases where comprehensive exams involve the submission of a written document followed by an oral exam component, the following process shall be followed regarding suspected violations of academic integrity on the written element. The person identifying the possible violation shall communicate the concern in writing only to the Associate Dean, Graduate Studies in the student's home Faculty. The Associate Dean shall then assess the allegations. If the vetting cannot be completed prior to the scheduled date of the oral component of the exam, the oral exam shall be postponed, pending the outcome of the investigation. If the vetting is completed prior to the oral exam, and no violation is identified, then the exam can be held as scheduled.

When a change in comprehensive examination date is necessary, the Associate Dean Graduate Studies shall inform the candidate, the supervisor or co-supervisors and the graduate officer not later than one week prior to the date of the scheduled exam. If a violation is determined to have happened, the Associate Dean shall proceed under Policy 71. If no violation is deemed to have

occurred, the exam shall be rescheduled to the satisfaction of the student, the supervisors, and the examining committee.

Investigations related to academic integrity in which the student is determined to not have committed such a violation are considered to be a valid extenuating circumstance to extend the examination deadline.

If an academic integrity violation is believed to have occurred during the oral component of the comprehensive exam, the person suspecting the violation shall ask the chair to pause the exam. The concerns identified shall be communicated to the chair (only) who will then determine the course of action. If the Chair believes that uncertainty exists regarding the concerns identified, the Chair may determine that the exam shall continue and the potential academic integrity violation will be vetted after the completion of the exam. If the Chair believes that the suspected violation is likely to be valid or that the alleged occurrence precludes a fair evaluation of the candidate, the Chair shall then suspend the exam until a determination can be made as to whether an academic integrity violation has occurred.

In both cases, the suspected academic integrity violation shall be reported to and investigated by the Associate Dean, Graduate Studies in the student's home Faculty under Policy 71.

When the comprehensive exam includes the completion of a written exam in a controlled environment, suspected violations of academic integrity in these cases should be reported to the Associate Dean, Graduate Studies in the student's home Faculty.

## **PhD Thesis Proposal**

The Graduate Coordinator will set up the Thesis Proposal paperwork. Each student submits a research proposal with sufficient copies to each member of his/her supervisor and advisory committee two weeks in advance of the meeting. Each student defends his/her proposal orally at a meeting of the committee. This is set-up as a pass/fail and should be completed within 4-6 academic terms.

## **PROPOSED GUIDELINES FOR THE DEFINITION OF SUBJECT AREAS COVERED BY PHD COMPREHENSIVE EXAMS**

**Comprehensive Exams are to be completed within 7 academic terms.**

### **A) PHD COMPREHENSIVE EXAM FORMAT**

Supervisor and committee members will give the student their study/reading material for the examination at least one term in advance of the examination. To ensure students are focused on studying, Teaching Assistantships are not issued for the term of the exam.

The material covered by the comprehensive exam is divided into three general areas.

**Area 1:** Knowledge of fundamental concepts from appropriate first year undergraduate courses. Courses or sections of courses will be identified by the supervisory committee in consultation with the departmental graduate committee.

**Area 2:** Upper level undergraduate knowledge. This section will evaluate the candidate's knowledge of material in an appropriate number of fields. These fields will be defined in terms of a specific course, textbook or set of papers. Fields will be identified by the supervisory committee.

**Area 3:** Graduate level knowledge. This section will evaluate the candidate's knowledge of material in an appropriate number of fields. These fields will be defined in terms of a specific course, textbook or set of papers. Fields will be identified by the supervisory committee.

## **B) PROCEDURE FOR DEFINING COMPREHENSIVE EXAM SUBJECT AREAS**

The courses and fields will be defined in writing a minimum of four months prior to the scheduled exam date. It is suggested that this process be done in the first six months of the PhD program so that appropriate course(s) can be taken by the candidate. These defined areas can be revised by the supervisory committee with the approval of the department graduate committee.

A Comprehensive Exam Subject Areas form will be placed in the students file. Completion of this document will be one of the milestones used by the departmental graduate committee to assess the progress of PhD candidates.

## **ACADEMY INTEGRITY WORKSHOP**

This is a mandatory workshop on academic integrity and intellectual property which is offered twice per year to all new incoming graduate students by the Faculty of Science. The format for this workshop is as follows: Associate Dean (or delegate) delivers a presentation to all new incoming graduate students in attendance (approximately 50 minutes). After a short break, students are divided into smaller groups and together with a group leader (faculty members, normally current or former graduate officers or other volunteers), would be assigned to a location to discuss various scenarios. After approximately 30 minutes of discussion amongst the students and 15 minutes open discussion with the group leader, students are handed a form stating that they understood the discussion about academic integrity and intellectual property, sign it and return it to the group leader. The milestone is recorded on the student's grade report.

Mandatory on-line ACINTY 650 computer based academic Integrity MUST be completed within the first term of study.

## **FINANCIAL SUPPORT**

### **Teaching Assistantships and SGEA**

A Manual for Teaching Assistants

<https://uwaterloo.ca/centre-for-teaching-excellence/sites/ca.centre-for-teaching-excellence/files/uploads/files/TA%20Manual%20W13.pdf>

Graduate students in the Department of Earth & Environmental Sciences help in the undergraduate instructional program. In return for this, graduate students receive “TA” support which normally comprises a portion of the students’ annual income. Students are eligible for one TA per year until the student has reached their program time limit.

Students must use a promissory note and their contract letter to apply this amount directly to their tuition.

### **Graduate Research Studentships (GRS)**

Graduate Research Studentships (GRS) are given to students to supplement their TA or other earnings and are paid as an award. Students receiving TA earnings and students with major scholarships may get a reduced GRS.

### **Continuation of Financial Support**

Students are normally supported until the end of their program time limit. However, university policy guidelines state “A student whose performance is judged to be unsatisfactory will normally receive written warnings and suggestions for improvement. If the student’s performance does not improve sufficiently within a reasonable period of time, financial support may be reduced or discontinued”. Written warning and an opportunity need not be given in cases of serious misconduct or serious neglect of duties. Complete Policy Guidelines on graduate student support can be found on the Graduate Studies Website: <https://uwaterloo.ca/graduate-studies-academic-calendar/general-information-and-regulations/financial-support>

### **Scholarships**

The Graduate Awards area of the Graduate Studies Office maintains a scholarship information field containing scholarship and awards information for postgraduate and postdoctoral studies. Information is available from <https://uwaterloo.ca/graduate-studies-postdoctoral-affairs/awards/university-waterloo-graduate-scholarship>

The main competitions are: Ontario Graduate Scholarships (OGS) and Natural Sciences and Engineering Research Council (NSERC). There are also several other external scholarship opportunities; students are encouraged to explore scholarship programs in their field (e.g. scientific societies) and to apply to as many as possible.

Full-time international students enrolled in a PhD program will receive an International Doctoral Student Award. Students receiving external awards or sponsorship are ineligible.

### **Funds for Travel to Scientific Meetings**

The Dean of Graduate and Postdoctoral Affairs has a small amount of money to subsidize the travel costs of graduate Students presenting papers at scientific meetings. The student may only apply once per fiscal year. The Research Travel Scholarship form <https://uwaterloo.ca/forms/graduate-studies/>

should be submitted to the Graduate Coordinator BEFORE the trip, with a copy of the abstract. This is only a subsidy, so the student should consult his/her supervisor first to ascertain whether he/she is willing to put up some of the cost. Proof that the student's abstract has been accepted is required.

### **THESIS WRITING**

General instructions on the writing of a thesis can be found by accessing the following Internet address: <https://uwaterloo.ca/graduate-studies/current-students/thesis/preparation-thesis>

If the thesis is designed as a collection of publishable papers, it must still have overall Abstract, Introduction, and Conclusion sections in order to meet Graduate Studies regulations. When you are at the point of beginning to write up your thesis, you are strongly recommended to meet with your supervisory committee. How closely your committee monitors your drafts will depend on you and your committee.

### **Copyright**

If research papers based on your work are published before submission of the thesis, then you will need to obtain permission from the publisher to include this material in your thesis. It may be more efficient to request permission at the time of publication. NOTE: A thesis may be withheld from the public domain (ie. Internet, University of Waterloo Libraries and the Library and Archives Canada) for one year on the authorization of the Dean of Graduate Studies. Please see the guidelines for thesis examination without public disclosure and discuss this option with your supervisor

<https://uwaterloo.ca/forms/graduate-studies/request-restrict-circulation-thesis-0>

Alternately, a student may delay web publication of the Thesis for a period of 4 months. Please see web site for more details.

### **Thesis Submission:**

#### **MSc**

When your supervisor has seen and approved your thesis, meet with your graduate coordinator to discuss the MSc Defence details and paperwork. It is the student's responsibility to ensure that all members of the examining committee are available to attend the defence. You must allow at least 3 weeks between the submission of your thesis to your committee members and your defence. A PDF

version of your thesis (3 weeks prior) must be sent to the [Science.dissertations@uwaterloo.ca](mailto:Science.dissertations@uwaterloo.ca) , also with information on how you sent your thesis to your committee (PDF or Hard copy). After a successful thesis defence you should submit one corrected copy electronically to UWSpace.

## **PhD.**

Your supervisor is responsible for initiating the process that leads to the selection of an external examiner. One term before your thesis is submitted, your supervisor should make informal inquiries to two or three scientists who would be appropriate examiners of your work. Having established the willingness and availability of these individuals, your supervisor must fill in a form which explains that there has been no collaboration, plus a current CV (including all publications) of that individual and a statement of suitability and impartiality of the proposed candidate. The external examiner must be approved by the Graduate Officer and the Associate Dean of Graduate Studies. The defence date must be at least 6 weeks after the thesis is submitted. Only after your supervisor has seen and approved your thesis, the external examiner has been approved, date of defence has been set, (contacting your graduate co-ordinator) can your thesis be submitted by PDF to [science.dissertations@uwaterloo.ca](mailto:science.dissertations@uwaterloo.ca) , also informing how your supervisor and committee received a copy of your theses (PDF or hardcopy). Your thesis must be in a complete form when you submit it. After a successful thesis defence you should submit one corrected copy electronically to UWSpace.

## **THESIS DEFENCE** (*time lines below*)

### **MSc Thesis**

The exam will usually consist of a short presentation by the student, usually no longer than 30 minutes, followed by questions from the examiners. Afterwards members of the audience may ask questions. At the end of questioning everyone will be asked to leave the room except for the examining committee, which will deliberate and reach one of four possible decisions (listed under PhD section) The student will be notified immediately of the decision reached.

### **MSc Research Paper**

The research paper must be formatted the same as the MSc thesis. Once the paper is completed and has been approved by your supervisor and your reader, completion forms must be processed.

### **PhD**

The exam will usually consist of a short presentation by the student, usually no longer than 30 minutes, followed by questions from the examiners. Afterwards members of the audience may ask questions. At the end of questioning everyone will be asked to leave the room except for the examining committee, which will deliberate and reach one of four possible decisions (see below). The student will be notified immediately of the decision reached.

**NOTE: For both MSc and PhD thesis defences, four outcomes are possible:**

- A) Accepted – Thesis may require typographical and/or minor editorial corrections to be made to the satisfaction of the supervisor.
- B) Accepted conditionally – Thesis requires more substantive changes, but will be acceptable when these changes are made. Changes are to be made to the satisfaction of those members of the Examining Committee designated by the Committee. The Examining Committee's report must include a brief outline of the nature of the changes required and the date by which the changes are to be completed.
- C) Decision deferred – The thesis requires modifications of a substantial nature the need for which makes the acceptability of the thesis questionable. The examining committee's report must contain a brief outline of the modification expected and should indicate the time by which the changes are to be completed. The re-examination will follow the same procedures as for the initial submission except that the display period may be reduced or eliminated at the discretion of the Graduate Officers. Normally the same Examination Committee will serve. A decision to defer is open only once for each candidate.

- D) Rejected – The thesis is rejected. The Examining Committee shall report the reasons for this rejection. A student whose thesis has been rejected will be required to withdraw from the program.

### **TIME LIMITS**

The MSc thesis and Research Paper program have rules that have been set-up for both full-time and part-time studies. MSc thesis degree program must be completed in 6 terms and the MSc Research Paper Program must be completed in 3 terms. Similarly, the PhD degree requires that the student be registered for at least 6 terms (two years) or 9 terms (three years) in the case of students without an MSc degree. The PhD degree must be completed within 12 terms (four years) for students with MSc and 18 terms (six years) for students without MSc. Extensions past the program limit must be applied for through the Earth & Environmental Sciences Graduate Office, and must be approved by the Associate Dean for Graduate Studies. Subsequent extensions may be approved by the Dean of Graduate Studies. Students beyond program limits are not entitled to a TA and most scholarships are generally time limited. Your supervisor maybe willing/able to pay you an RS, but is not obligated to do so once you have exceeded the program time limit.

## MSC Thesis Defence Timeline

	Step	Timeline	People Involved	Details	Links
1	Thesis Writing and Review	Ongoing until submission to committee	Supervisor, student	You should be submitting your draft material to your supervisor as you are preparing your thesis. This will provide you with guidance on writing and material presentation. As a courtesy to your committee you should inform them you are in the writing stage and possibly sending them copies as well.	<a href="#">Thesis Formatting</a>
3	Set Defence date	3+ weeks before defence	Student, , (Supervisor and defence committee)	In order to prepare the paperwork for your defence the following information is required. 1. Specific date and time must be agreed upon by entire committee. See the department graduate co-ordinator to book time and room. To meet end of term deadlines allow at least two weeks to make changes and complete all requirements after defence. 2. Provide exact thesis title. 3. A complete, confirmed list of committee members. (“who” will be present /absent) 4. Form for restricting circulation of thesis if required	
5	Deposit your Thesis	3 weeks before your defence	Student, Dissertation Coord., Dept Coord.	Students are required to submit an electronic version of their thesis to the Faculty of Science Grad. Dissertation Coord. 3 weeks prior to defence date. If the committee would like a hard copy, students should make these arrangements.  Your thesis must be completely finished following GSPA standards prior to distribution to your committee. These will then be distributed to the committee members along with information regarding the defence. At this point a chair will be chosen for your defence.	
6	“Apply to Graduate”	Upon submission of thesis to committee	Student, Supervisor Dept. Coord	As soon as your thesis has been submitted to your committee, go to QUEST and “Apply to Graduate” .	

### Thesis Defence

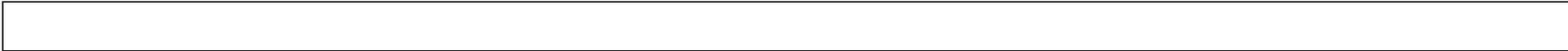
7	Post defence required thesis changes	After defence	Student, (supervisor, committee)	The committee may complete paperwork after the defence in which they may suggest changes which need to be completed prior to submitting your thesis. If your changes need to be approved by your supervisor or whole committee you will be notified of this at your defence. Review Thesis Regulations!	<a href="#">Thesis Regulations</a>
8	Upload to UW Space	After changes completed and approved	Student	Following the thesis regulations link, use the link on the right to upload your thesis to UW space. If limited circulation, when uploading your thesis to UW Space ensure that “yes” is selected from the drop-down list on the “Submit:Describe Your item” page. <b>Note: your abstract will be visible to everyone</b> , even if circulation is limited. If you apply a short term (4 months) or long term (one year) restriction to your thesis it is critical you choose “YES” to the “Patent/Copyright or Publications Pending” question. “Request to Restrict Circulation of Thesis” form is required for long term restrictions and your supervisor will be notified prior to release. This request must have been previously approved by the Associate Dean, Graduate Studies. <b>The completed form should be received by the GSPA in advance of the student submitting the thesis to UWSpace or risk having the thesis uploaded.</b>	<a href="https://uwspace.uwaterloo.ca/">https://uwspace.uwaterloo.ca/</a>

9	Thesis Reviewed by GSPA	Within 1 week of being submitted to UW Space	Graduate Studies & Post Doctoral Office	Your thesis will not be reviewed by GSPA until they have received your Thesis Acceptance Form. The GSPA will contact you if this is the case. The GSPA (UWSpace) will review your thesis and send you changes to make (usually 2-3 days). Be sure to check your UW e-mail as GSPA will contact you with any changes.	
10	Submit thesis changes to UW Space	As soon as possible	Student	Make all changes suggested by the GSPA and re-submit to UW Space.	

## PhD Thesis Defence Timeline

	Step	Timeline	People Involved	Details	Links
1	Thesis Writing and Review	Ongoing until submission to committee	Supervisor, student	You should be submitting your draft material to your supervisor as you are preparing your thesis. They will provide you with guidance on writing and material presentation. As a courtesy to your committee you should inform them you are in the writing stage.	<a href="#">Thesis Formatting</a>
2	External Examiner and Internal/External Request	2 terms (8 months before defence date)	Supervisor, Dept Co-ord., Faculty	Your supervisor should be contacting and submitting your potential <b>External Examiner</b> request form and CV for review to the Dept. Coord. and then faculty. If this request is not approved then another potential examiner must be found and nominated. At this time your supervisor should be contacting an <b>Internal/External</b> examiner for the defence as this person must be included in the nomination form. (this person can also be included in your committee from day one) Only after these two potential members are confirmed can you set up your defence date.	
3	Set Defence date	8+ weeks before defence	Student, Dept. Coord, (Supervisor and defence committee)	In order to prepare the paperwork for your defence the following information is required. 1. Specific date and time must be agreed upon by entire committee (including external and internal/external). See Dept. Co-ord. to book time and room. To meet end of term deadlines allow at least two weeks to make changes and complete all requirements after defence). 2. Provide exact thesis title. 3. A complete, confirmed list of committee members.	
4	Distribute your Thesis to the Faculty	6+ weeks before your defence	Student, Faculty Grad Office	*Your thesis must be completely finished following GSPA standards prior to re-distributing it to your committee. Send a PDF copy to <a href="mailto:science.dissertations@uwatelroo.ca">science.dissertations@uwatelroo.ca</a>	
5	Apply to graduate	Upon submission of thesis to committee	Student, signed by supervisor, Grad Coord	As soon as your thesis has been submitted to your committee go to QUEST and “apply to graduate”	
<b>Thesis Defence</b>					

6	Upload to UW Space	After changes completed and approved	Student	<p>Following the thesis regulations link, use the link on the right to upload your thesis to UW space. If you have had a closed defence and/or you wish your thesis to have limited circulation, when uploading your thesis to UW Space ensure that “yes” is selected from the drop-down list on the “Submit:Describe Your item” page. <b>Note: your abstract will be visible to everyone</b>, even if circulation is limited. If you apply a short term (4 months) or long term (one year) restriction to your thesis it is critical you choose “YES” to the “Patent/Copyright or Publications Pending” question. The attached “Request to Restrict Circulation of Thesis” form (link in step 3) is required for long term restrictions and your supervisor will then be notified prior to release. This request must have been previously approved by the Associate Dean, Graduate Studies. <b>The completed form should be received by the GSO in advance of the student submitting the thesis to UWSpace or risk having the thesis uploaded.</b></p>	<a href="#">UW Space</a>
7	Thesis Reviewed by GSPA	Within 1 week of being submitted to UW Space	Graduate Studies Office	<p>Your thesis will not be reviewed by GSPA until they have received your Thesis Acceptance Form. The GSO will contact you if this is the case. The GSPA will review your thesis and send you changes to make (usually 2-3 days). Be sure to check your UW e-mail as that is how the GSPA will contact you with changes.</p>	



## **ACADEMIC REGULATIONS AND STUDENT DISCIPLINE**

A summary of the University disciplinary Policies can be found in the graduate Calendar. Any actions which prejudices the integrity of the university's scholarly activities can be considered to be an academic offence. In particular, the following offences are punishable by penalties ranging from reprimand to expulsion:

- cheating on examinations, assignments, etc.
- plagiarism (copying published or unpublished work of others without proper citation) in essays theses, or other work.
- submitting false credential or certificates, including, medical certificates]
- submitting work for one course which has been submitted for credit elsewhere, without permission.
- behaviour in a laboratory which endangers oneself or others
- behaviour which interferes with the studies of other students
- Falsification or fabrication of data for research

The detailed policies can be found using the following links:

<https://uwaterloo.ca/secretariat-general-counsel/policies-procedures-guidelines/policy-33>

<https://uwaterloo.ca/secretariat-general-counsel/policies-procedures-guidelines/policy-71>

<https://uwaterloo.ca/secretariat-general-counsel/policies-procedures-guidelines/policy-70>