# Table of Contents

WELCOME! ................................................................................................................................. 1

THE GRADUATE PROGRAM ........................................................................................................ 1

THE GRADUATE OFFICE .......................................................................................................... 1

NEW STUDENT INFORMATION .............................................................................................. 2

Communication with Graduate Students................................................................................. 2
Forms ........................................................................................................................................ 2
Orientation ............................................................................................................................. 3
Becoming fees arranged ......................................................................................................... 3
Course registration ............................................................................................................... 4
Courses at Other Institutions ................................................................................................. 4
Special Topics Courses (BIOL 680 and BIOL 681) ................................................................ 4
Biology Graduate Studies Bi-Weekly Digest ........................................................................... 4

REQUIREMENTS ..................................................................................................................... 4

Programs ................................................................................................................................ 5
General Program .................................................................................................................. 5
Integrated Water Management Program .............................................................................. 6
Transfer from M.Sc. to Ph.D. ............................................................................................... 6
Probationary Status ............................................................................................................. 8

MILESTONES .......................................................................................................................... 8

Academic Integrity Workshop .............................................................................................. 8
Thesis Proposal Examination ............................................................................................... 8
Seminars ................................................................................................................................. 9
Ph.D. Comprehensive Examination ...................................................................................... 9
Thesis Defence ....................................................................................................................... 9

TIME LIMITS .......................................................................................................................... 9

ENROLMENT STATUS .......................................................................................................... 10

Full-time off-campus .......................................................................................................... 10
Inactive .................................................................................................................................. 10
Part-time ............................................................................................................................... 10
Voluntary Withdrawal ......................................................................................................... 11

FINANCIAL SUPPORT .......................................................................................................... 11

Good Standing ....................................................................................................................... 11
Continuation of financial support ........................................................................................ 11
Graduate Research Studentships (GRS) ................................................................................ 12
Graduate Teaching Assistantships (GTA) ........................................................................... 12
Science Graduate Experience Award (SGEA) ...................................................................... 12
Science Graduate Student Award (SGSA) ............................................................................ 12
International Master's/Doctoral Student Award .................................................................. 13
Sample funding breakdowns ............................................................................................... 13
Scholarships .......................................................................................................................... 14
UW and External Scholarships ............................................................................................ 14
Endowment Scholarships .................................................................................................... 15
Graduate Studies Research Travel Assistantship ................................................................. 15

THE SUPERVISORY COMMITTEE ......................................................................................... 15
M.Sc. ....................................................................................................................................... 16
Ph.D. ...................................................................................................................................... 16
M.Sc. and Ph.D. Committee Issues ....................................................................................... 16
Scheduling Committee Meetings ......................................................................................... 17
Feedback on Student Material ............................................................................................. 17

THESIS WRITING .................................................................................................................. 18

Copyright ............................................................................................................................... 18
Welcome!

We are pleased to welcome you to the Department of Biology at the University of Waterloo. We hope that you find your time here to be rich and rewarding. This handbook will provide an overview of your degree requirements and information about each step of your program. If you have any questions or concerns, please feel free to contact us.

The Graduate Program

The Department of Biology offers graduate training at both the M.Sc. (Master) and Ph.D. (Doctorate) levels. This document provides information for the new and in-course graduate student about the graduate program in Biology (http://www.biology.uwaterloo.ca/graduate). 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 Biology is administered by the Associate Chair, Graduate Studies (Associate Chair), the Departmental Administrative Coordinator, Graduate Studies (Graduate Coordinator) and Graduate Office Assistant. The Associate Chair is responsible, in part, for recruiting new graduate students to the department and, with the Graduate Coordinator, responding to requests from prospective students. The Graduate Coordinator and the Associate Chair are responsible for ensuring that the regulations for M.Sc. and Ph.D. degrees are met and for the daily operation of the office. The Graduate Coordinator and the Graduate Office Assistant are often your first contact for most enquires as primary duties include processing graduate applications, recommendations for acceptance to the program, Graduate Teaching Assistantship (GTA) and Graduate Research Studentship (GRS) payroll, scholarship and award processes, paperwork for meetings and all issues related to Graduate courses and student records.

The Associate Chair reports to both the Chair of the Department and to the Associate Dean, 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 Science Graduate Studies Committee is responsible for approving such things as time extensions for in-course graduate students and new courses.

Graduate students are welcome to approach the Associate Chair 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 Associate Chair.
The current Associate Chair, Graduate Coordinator, and Graduate Office Assistant are listed below:

<table>
<thead>
<tr>
<th>Title</th>
<th>Name</th>
<th>Office</th>
<th>Phone</th>
<th>Email (@ uwaterloo.ca)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Associate Chair, Graduate Studies</td>
<td>Kirsten Müller</td>
<td>B2-245A</td>
<td>Ext. 32224</td>
<td>kirsten.muller</td>
</tr>
<tr>
<td>Administrative Coordinator, Graduate Studies</td>
<td>April Wettig</td>
<td>B1-274A</td>
<td>Ext. 36392</td>
<td>awettig</td>
</tr>
<tr>
<td>Graduate Office Assistant</td>
<td>Deanna Hope</td>
<td>B1-274</td>
<td>Ext. 38322</td>
<td>gradbio</td>
</tr>
</tbody>
</table>

A full listing of the Biology Department can be found at [https://uwaterloo.ca/biology/about/people](https://uwaterloo.ca/biology/about/people)

**New Student Information**

Please complete all the forms listed below and submit to the Biology Graduate Office by September 20th (for Fall admits); January 20th (for Winter admits); May 20th (for Spring Admits). Students are requested to complete the following forms and submit them to the

*Communication with Graduate Students*

As per the University statement on official student email addresses, the Department of Biology sends all program related messages to your University of Waterloo email account only. **Any problems arising from the failure of a student to check their email in this account will be the full responsibility of the student.** Please check your UWaterloo email address regularly.


*Forms*

These forms are available from the Biology Graduate Office or the Biology webpage ([https://uwaterloo.ca/biology/graduate-studies/new-student-information](https://uwaterloo.ca/biology/graduate-studies/new-student-information))

1. Biology Department forms to complete
   1. Graduate Student Information Form (pdf)
   2. Confidential Personal Data Form (pdf)
   3. Biology Key Permit Application (pdf)
   4. Photocopier Information Form (pdf)

2. Payroll forms to complete in order to be paid:
   - Personal Information form – including address, social insurance number, and banking information
   - Federal TD1 form – required to determine federal tax deductions
   - Ontario TD1 form – required to determine provincial tax deductions
Important details on how to provide this information can be found on the HR website under Human Resources>Support for employees>Payroll>Information specific to graduate students.

Since the first refunding process for graduate students occurs in the first week of term it is common for new students to end up being refunded their scholarships/awards via cheque instead of direct deposit because HR has not had a chance to set up the banking information. Also, the University does not mail cheques outside of Canada or the US, so it is strongly recommended that you update your mailing address on QUEST to a local address to avoid unnecessary delays in receiving financial aid funding from the University.

3. Mandatory Safety training:
The following online safety training must be completed:
- Employee Safety Orientation (SO1001)
- Workplace Violence Awareness (SO1081)
- Laboratory Safety (SO1010)
- WHMIS 2015 (SO2017)

Please note that there may be additional training that will be required depending on your research. Please discuss training requirements with your supervisor.

**Orientation**

An orientation session will be held by the Department for all incoming graduate students each September. Students should review: https://uwaterloo.ca/biology/graduate-studies/new-student-information.

The Student Success Office and the Graduate Student Association run a University-wide orientation every Fall, Winter and Spring. (https://uwaterloo.ca/orientation/graduate-students).

New students will receive more information about these sessions by e-mail.

**Becoming fees arranged**

One date you should be aware of is the Fees Arranged deadline. You must either pay your fees outright, or complete a promissory note by that date. You will not be able to become Fees Arranged until you have been charged tuition which will not happen until mid-July for Fall; mid-November for Winter; mid-March for Spring. Once your funding for the upcoming term is processed (either payments from your supervisor, the department or an external scholarship) you should be able to become fees arranged through Quest.

Please refer to: https://uwaterloo.ca/finance/student-financial-services/how-become-fees-arranged

Please note: If you were given conditional admission, your Fees Arranged deadline will be 10 business days after those conditions are met.

A graduate student must become Fees Arranged to 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, by certified cheque, or by arranging a promissory note. Once tuition has been paid or fees have been arranged, the student is considered fully registered (Fees Arranged). Students
must remain continuously registered. Should registration be allowed to lapse, then the student will have to re-apply for admission and pay the administrative fee.

**Course registration**

Once you are ‘Fees Arranged’ you can register for courses (https://uwaterloo.ca/graduate-studies/course-enrolment/course-enrolment). Graduate course enrolment only begins in late-July for Fall, late-November for Winter, or late-March for Spring, and courses rarely fill up, so do not worry if you cannot register until your arrive. You should discuss your course selection with your supervisor.

Please refer to the Graduate Studies Academic Calendar (https://uwaterloo.ca/graduate-studies-academic-calendar/) for a listing of courses (and descriptions) that could potential run. Also refer to the Schedule of Graduate Classes (http://www.adm.uwaterloo.ca/infocour/CIR/SA/grad.html) for a list of courses that are being offered each term.

**Courses at Other Institutions**

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.

You cannot enrol for this type of course through Quest. Students need to submit an Ontario Visiting Graduate Student (OVGS) Application to the Graduate Coordinator for consideration. OVGS application forms are available on the Graduate Studies website: https://uwaterloo.ca/graduate-studies/forms

**Special Topics Courses (BIOL 680 and BIOL 681)**

Special topics courses are offered on an individual basis, and typically allow the student to investigate a 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. M.Sc. students should enrol in Biol 680 and Ph.D. students in Biol 681. Students need to submit a Special Topics Course Form (available from the Graduate Coordinator) in order to register.

Please note that students cannot take more than one Special Topics Course for credit toward their degree.

**Biology Graduate Studies Bi-Weekly Digest**

Every other week the Biology Graduate Office will send out a digest that provides information about various items, including upcoming thesis proposal examinations, thesis defences, and important dates. Please be sure to read this.

**Requirements**

Although both the M.Sc. and Ph.D. programs are fundamentally research programs in the Department of Biology, students in both programs are required to take courses. Your supervisory committee may require more than the minimum described below.
Normally, these courses are selected from the usual Biology listings, but you may take courses from any department on campus or, indeed, from other universities, 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 within the Biology Department listings. All on campus graduate level courses should be added to your course schedule using QUEST.

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 Associate Chair will try to make a 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 Biology. It is unusual to complete a degree in Biology without at least one course from the Biology Department.

The Academic Integrity Module is required by all students and is to be completed within the first term of arrival at the University of Waterloo. You will be contacted by the Integrity Office to complete this online module. This is not the same as the Academic Integrity Workshop.

In addition to the course requirements there are milestones (non-degree requirements) that must also be completed in order for the student to graduate.

**Programs**

**General Program**

**Master of Science (BIOLM)**

The department requirement for the M.Sc. degree consists of:

- a minimum of three one-term courses accepted for graduate credit by the department
- the Academic Integrity Module
- the following milestones:
  - Academic Integrity Workshop
  - M.Sc. thesis proposal (refer to Appendix I)
  - M.Sc. graduate seminar
  - M.Sc. thesis defence

NOTE: One 400-level course (0.5 credit) can be applied toward the M.Sc. program with the approval of the supervisory committee and the Associate Chair, but the remainder of the courses must be at the graduate course level. If you plan to take a 400-level course, notify the instructor as soon as possible; some undergraduate courses will be full, and graduate students are not pre-registered. You will also be required to submit a Graduate Studies Drop/Add Form ([https://uwaterloo.ca/graduate-studies/forms](https://uwaterloo.ca/graduate-studies/forms)) to the Graduate Coordinator, signed by your supervisor and the course instructor.

**Doctor of Philosophy (BIOLD)**

The department requirement for the Ph.D. degree consists of:

- a minimum of two one-term courses accepted for graduate credit by the Department of Biology.
- the Academic Integrity Module
the following milestones:
- Academic Integrity Workshop
- Ph.D. thesis proposal (refer to Appendix I)
- Ph.D. graduate seminar
- Ph.D. comprehensive exam (refer to Appendix II)
- Ph.D. thesis defence

NOTE: Ph.D. students cannot use a 400-level course to count towards their degree requirements.

Integrated Water Management Program
Please review the joint-venture Integrated Water Management program information available. The Graduate Calendar contains the most current and official record of requirements.

Master of Science, Water (BIOLWM)
The department requirements for the **M.Sc. (Water) degree** consists of:
- a minimum of three one-term courses accepted for graduate credit by the department. *Up to 2 of these course credits will be satisfied by WATER 601 and WATER 602. The number of courses double-counted will be determined by a student's Advisory Committee and the Department of Biology on a case-by-case basis.*
- the Academic Integrity Module
- the following milestones:
  - Academic Integrity Workshop
  - M.Sc. thesis proposal (refer to Appendix I)
  - M.Sc. graduate seminar
  - M.Sc. thesis defence

NOTE: One 400-level course (0.5 credit) can be applied toward the M.Sc. program with the approval of the supervisory committee, but the remainder of the courses must be at the graduate course level.

Doctor of Philosophy, Water (BIOLWD)
The department requirements for the **Ph.D. (Water) degree** consists of:
- a minimum of two one-term courses accepted for graduate credit by the Department of Biology. *Up to 2 of these course credits will be satisfied by WATER 601 and WATER 602. The number of courses double-counted will be determined by a student's Advisory Committee and the Department of Biology on a case-by-case basis.*
- the Academic Integrity Module
- the following milestones:
  - Academic Integrity Workshop
  - Ph.D. thesis proposal (refer to Appendix I)
  - Ph.D. graduate seminar
  - Ph.D. comprehensive exam (refer to Appendix II)
  - Ph.D. thesis defence

NOTE: Ph.D. students cannot use a 400-level course to count towards their degree requirements.

Transfer from M.Sc. to Ph.D.
In some cases, students begin graduate studies in the Master's program, but with a definite interest in completing a Ph.D. and a project suitable for doctoral studies. The M.Sc. to Ph.D.
transfer option may be appropriate for such individuals. By eliminating the requirement to complete the M.Sc., it allows for earlier completion of the Ph.D. degree.

The option of transferring from the M.Sc. program to the Ph.D. program is open to students with:
1. good academic standing (also, not on probation or carrying incomplete course grades)
2. good progress in a research project that could be expanded to a Ph.D. project
3. good scientific writing skills such that the experience of writing a M.Sc. thesis can be bypassed.

An application for a transfer from a M.Sc. to Ph.D. program must normally be done before the end of term four, and usually is initiated after the M.Sc. thesis proposal examination, if the supervisor and supervisory committee agree that the student might be a candidate for transfer. The decision whether to allow a transfer is made at a meeting of the supervisory committee with the Associate Chair and a departmental delegate (chosen by the Biology Graduate Office), normally within one week of the M.Sc. thesis proposal exam (or committee meeting). At this meeting the student will give a short presentation (5-10 minutes) as to why they wish to transfer to a Ph.D. If approved for a transfer, the student must submit a Change of Program form and prepare for a new thesis proposal examination based on the original M.Sc. proposal but suitably expanded for the Ph.D. The Ph.D. thesis proposal examination should be completed within 2 terms after the transfer has been approved.

Students who transfer from M.Sc. to Ph.D. will not normally be allowed back into the M.Sc. program. If the Ph.D. is not successfully completed then no degree can be awarded.

**Doctor of Philosophy, Transfer (BIOLD3)**

The department requirement for the **Ph.D. Transfer degree** consists of:
- A minimum of four one-term graduate courses (0.5 credits each) accepted for graduate credit by the Department
- Academic Integrity Module
- The following milestones:
  - Academic Integrity Workshop
  - Ph.D. thesis proposal (refer to Appendix I)
  - Ph.D. graduate seminar
  - Ph.D. comprehensive exam (refer to Appendix II)
  - Ph.D. thesis defence

**Doctor of Philosophy, Water, Transfer (BIOLWD3)**

The department requirement for the **Ph.D. Transfer degree** consists of:
- A minimum of four one-term graduate courses (0.5 credits each) accepted for graduate credit by the Department. *Up to 2 of these course credits will be satisfied by WATER 601 and WATER 602. The number of courses double-counted will be determined by a student’s Advisory Committee and the Department of Biology on a case-by-case basis.*
- Academic Integrity Module
- The following milestones:
  - Academic Integrity Workshop
  - Ph.D. thesis proposal (refer to Appendix I)
  - Ph.D. graduate seminar
  - Ph.D. comprehensive exam (refer to Appendix II)
  - Ph.D. thesis defence
NOTE: Ph.D. students cannot use a 400-level course to count towards their degree requirements.

**Probationary Status**
The initial program of study of a probationary student is specified and the student’s performance is monitored by the Associate Chair in consultation with the supervisory committee. Probationary students MUST achieve a minimum mark (usually 75% or 80% as noted on the offer letter outlining terms) 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 M.Sc. candidates only.

Additional information on categories of admission to the Master’s program is found in the Graduate Calendar at:  [http://gradcalendar.uwaterloo.ca/page/GSO-Admission-Categories](http://gradcalendar.uwaterloo.ca/page/GSO-Admission-Categories)

**MILESTONES**

Milestones are program requirements that will automatically appear on a student’s Quest account as ‘In Progress’ (IP) until each has been ‘Completed’ (CR). Program milestones are outlined below. These are in addition to the Course requirements listed above.

**Academic Integrity Workshop**
The Academic Integrity Workshop is required by all students and is to be completed within the first term of arrival (or second term for Spring admits) at the University of Waterloo. You will be contacted by the Science Associate Dean of Graduate Studies generally in the third month of term to complete this requirement. The workshop is normally held in December (Fall admits) and March (Winter admits) in the evening. A workshop is not held in the Spring term. Please note that this is separate from the Academic Integrity Module.

**Thesis Proposal Examination**
Graduate students must complete a M.Sc. or a Ph.D. thesis proposal. Remember to visit the Graduate Coordinator to set up the Thesis Proposal Examination paperwork a minimum of 2 weeks before the meeting.

Each student submits a research proposal with sufficient copies for each member of their advisory committee and one copy for the Graduate Coordinator to be placed on display at least one week in advance of a scheduled proposal defence. Each student defends their proposal orally at a meeting of the committee that is open to the public.

For M.Sc. students, this requirement must be fulfilled within the first two terms of the program.

For Ph.D. students this requirement must be fulfilled within the first three terms of the program. Students who have transferred complete their Ph.D. proposal within two terms of the transfer.

A summary of the regulations can be found in Appendix I.
**Seminars**
During the course of both the M.Sc. and Ph.D. programs, a student is required to give a seminar based on their research. All the seminars will be held on one day, normally late in the winter term. An award is presented each year to the best seminar presented by a M.Sc. student and the best one presented by a Ph.D. student.

The Department of Biology also operates a Guest Seminar Series involving visiting scientists and our own faculty and all graduate students are urged to attend. Less formal seminar or discussion groups organized by either graduate students or faculty meet as well.

**Ph.D. Comprehensive Examination**
Ph.D. students are required to demonstrate a broad general knowledge of their research area; this is accomplished by means of an oral examination held during the early part of the program, normally within 4 terms of the entry to the program and completed within at least seven academic terms from initial enrolment. The examining committee consists of the supervisory committee and an impartial chair from the department appointed by the Graduate Coordinator. Students can have additional members on their committee for this exam as well (e.g. experts in the field). However, you can only have one member of your committee absent for the exam meeting. As with the Thesis Proposal, you must remember to visit the Graduate Coordinator to set up the Comprehensive Exam paperwork a minimum of 9 weeks before the exam.

The subject matter of the examination (i.e. on which the pass/fail decision will be based) must be declared to you in advance of the examination. You must be informed in writing of the exam subject matter no less than 8 weeks prior to the exam. That notice notwithstanding, your committee may elect to question you on anything; the pass/fail decision, however, must be based on your responses to questions in the prescribed area. In order to continue in the Ph.D. program you must pass this examination.

A separate summary of the regulations governing the Ph.D. Comprehensive Examination is available in Appendix II as well as online:

**Thesis Defence**
The thesis defence is the culmination of the candidate’s research program. It exposes the candidate’s work to scholarly criticism by members of the University and gives the student the opportunity to defend it.

For more information on defending your thesis, please refer to the Thesis Writing section.

**Time Limits**
The program requires that students be registered full-time for at minimum number of terms (please refer to the chart on page 10).
<table>
<thead>
<tr>
<th>Program</th>
<th>Time Limits</th>
<th>Minimum Residency (Full time status)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Sc.</td>
<td>6 terms (2 years)</td>
<td>3 terms (1 year)</td>
</tr>
<tr>
<td>Ph.D.</td>
<td>12 terms (4 years)</td>
<td>6 terms (2 years)</td>
</tr>
<tr>
<td>Ph.D. – direct entry</td>
<td>18 terms (6 years)</td>
<td>9 terms (3 years)</td>
</tr>
<tr>
<td>Ph.D. – transfer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Extensions past the program limit (first three terms over program time limit) must be applied for through the Biology Graduate Office, and must be approved by the Associate Chair. Subsequent extensions (fourth and above terms over program time limit) need to be approved by the Associate Dean, Graduate Studies for Science. The current trend is to make these extensions increasingly difficult to obtain. Students who are beyond their program time limits and who fail to submit a Petition for Extension of Program Time Limit form will be deregistered and will have to reapply to their program.

Students beyond program limits are not entitled to a Graduate Teaching Assistantship (GTA), and most scholarships are generally time-limited. Your supervisor is not obligated to pay you a Graduate Research Studentship (GRS) once you have exceeded the program time limit.

**ENROLMENT STATUS**

Form: [https://uwaterloo.ca/graduate-studies/forms#Enrolment/Supervision](https://uwaterloo.ca/graduate-studies/forms#Enrolment/Supervision)

**Full-time off-campus**

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.

**Inactive**

When progress toward the degree is interrupted or prevented by physical or mental illness, or maternity/paternity leave, 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 no fees associated with inactive status and no degree-related activities can take place during the inactive term.

**Part-time**

Switching to part-time status from full time status can only be done under 3 conditions:

1. Your thesis has been submitted to your committee and you are waiting for the defence date
2. You are employed full-time (including a Sessional Instructor Appointment, see below), or
3. For medical reasons, as recommend by a doctor in writing.

While on part-time status students are no longer entitled to a GTA position or financial support from their supervisor. Terms are counted as one half term (.5) per full-time term. Students may complete any degree-related activities (thesis proposal examination, thesis defence etc.) as a part-time student.
Students that are employed as Sessional Instructors at the University of Waterloo or another institution will be required to switch to part-time status for that term, returning to Full-time once the Sessional role has been completed. Supervisors of students who are Sessional Instructors are not obligated to provide financial support to the students for that term, because of the part-time status and the time spent away from their research project. A copy of the sessional appointment letter needs to be attached to the Change of Status form.

Voluntary Withdrawal
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. Voluntary withdrawal should be discussed and explored with the Graduate Coordinator and the Associate Chair. Students who withdraw voluntarily may continue their studies by applying for re-admission. It is strongly recommended that they speak to the Associate Chair before they re-apply to the program.

Students not making satisfactory progress may be required to withdraw.

Financial Support

Full-time Graduate Students without a major award are generally supported by 4 sources of funding: Graduate Research Studentship (GRS), Science Graduate Student Award (SGSA), Graduate Teaching Assistantship (GTA), and the Science Graduate Experience Award (SGEA).

Beginning May 1, 2016 the minimum departmental funding for all students is $22,293 per year during their program time limits.

International students can also receive the International Masters Student Award (IMSA) or the International Doctoral Student Award (IDSA) in addition to the departmental funding. Refer to: https://uwaterloo.ca/graduate-studies/awards-funding/international-funding

Good Standing
In order to be eligible for funding (including bursaries and travel awards) and off-campus courses, a graduate student must be in “good standing” in their program. This means that the student is within program time limits, has no incomplete courses and has an average mark of 75% or better. In order to be eligible for scholarships, the students’ average mark must be 80% or better, be within program time limits and have no incomplete courses.

Continuation of financial support
Students who are registered as full-time are normally supported until the end of their program time limit (refer to time limits on page 9). However, university policy guidelines state “A student whose performance is judged to be unsatisfactory will normally receive written warning 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/guidelines-graduate-student-support).
**Graduate Research Studentships (GRS)**
Graduate Research Studentships (GRS) are given to students to supplement their TA earnings. Please refer to the Sample funding breakdown charts on page 13.

Students with major scholarships may also receive GRS support, but this will usually be less than students who do not have a scholarship. Studentships are paid as awards and thus are tax free.

**Graduate Teaching Assistantships (GTA)**
Graduate students in the Department of Biology normally assist in demonstrating laboratories or otherwise help in the undergraduate instructional program. In return for this, graduate students receive Graduate Teaching Assistantship (GTA) support which normally comprises a substantial portion of the students’ annual income.

Students are eligible for one 10-hour TA (2 units) and one 5-hour TA (1 unit) totaling 3 units per year. M.Sc. (BIOLM) students are eligible for no more than 6 units during their program. Ph.D. (BIOLD) students are eligible for no more than 12 units and those students who have transferred from the M.Sc. to the Ph.D. program (BIOLD3) are eligible for no more than 18 units during their program.

Students usually TA 2 out of 3 terms and are not permitted to do more than two TA terms in a row. As of May 1, 2016, a 2 unit TA (10 hours per week) is valued at $3,772 per term, and a 1 unit TA (5 hours per week) is valued at $1,886 per term. Vacation pay of 4% is calculated per term.

Graduate students who are beyond their normal program limits or have reached the maximum number of TAs for their program may choose to TA as an “Other” for which they will be paid at the standard TA rate. Before accepting a TA position, please be sure that you have your supervisor’s approval.

**Science Graduate Experience Award (SGEA)**
As of September 2007, students who agree to TA will receive the Science Graduate Experience Award. As per University of Waterloo policy, the award appears as “anticipated aid” in your Quest account. Students must use a promissory note and their Quest account printout to apply this amount directly to their tuition. Only students that are within their normal program limits are eligible to receive the SGEA.

As of May 1, 2016, students with a 1 unit TA receive $676 and students with a 2 unit TA receive $1,352. This amount is reviewed annually by the Department.

**Science Graduate Student Award (SGSA)**
The Science Graduate Student Award is meant to aid supervisors in providing financial support to students. The SGSA is given to eligible students who are full-time, within time-limits, in good standing, and without a major scholarship. There are some exceptions, so please contact the Graduate Coordinator if you have questions.
The SGSA is valued at:

<table>
<thead>
<tr>
<th>Program</th>
<th>Amount/term</th>
</tr>
</thead>
<tbody>
<tr>
<td>All M.Sc. &amp; International Ph.D.</td>
<td>$1000</td>
</tr>
<tr>
<td>Domestic Ph.D.</td>
<td>$2067</td>
</tr>
</tbody>
</table>

**International Master's/Doctoral Student Award**

Eligible students will be enrolled full-time in research-based graduate degree programs at the University of Waterloo, hold a valid Canadian study permit, meet the academic progress requirements of their program, not have outstanding probationary admission requirements, and not hold external awards or sponsorships. **Other conditions or restrictions may apply.**

More information on the IMSA/IDSA is available on the Graduate Studies Office web site: [https://uwaterloo.ca/graduate-studies/awards-funding/international-funding](https://uwaterloo.ca/graduate-studies/awards-funding/international-funding).

Please see our website for more information on International Student Funding: [https://uwaterloo.ca/biology/graduate-studies/graduate-student-sources-funding/international-student-funding](https://uwaterloo.ca/biology/graduate-studies/graduate-student-sources-funding/international-student-funding).

**Sample funding breakdowns**

All M.Sc. and International Ph.D. students:

<table>
<thead>
<tr>
<th># of TA Units</th>
<th>GRS</th>
<th>GTA</th>
<th>SGEA</th>
<th>SGSA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>$6,431</td>
<td>$0</td>
<td>$0</td>
<td>$1,000</td>
<td>$7,431</td>
</tr>
<tr>
<td>1</td>
<td>$3,869</td>
<td>$1,886</td>
<td>$676</td>
<td>$2,067</td>
<td>$7,431</td>
</tr>
<tr>
<td>2</td>
<td>$1,307</td>
<td>$3,772</td>
<td>$1,352</td>
<td>$2,067</td>
<td>$7,431</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yearly total $22,293</td>
</tr>
</tbody>
</table>

Domestic Ph.D. students:

<table>
<thead>
<tr>
<th># of TA Units</th>
<th>GRS</th>
<th>GTA</th>
<th>SGEA</th>
<th>SGSA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>$5,364</td>
<td>$0</td>
<td>$0</td>
<td>$2,067</td>
<td>$7,431</td>
</tr>
<tr>
<td>1</td>
<td>$2,802</td>
<td>$1,886</td>
<td>$676</td>
<td>$2,067</td>
<td>$7,431</td>
</tr>
<tr>
<td>2</td>
<td>$ 240</td>
<td>$3,772</td>
<td>$1,352</td>
<td>$2,067</td>
<td>$7,431</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yearly total $22,293</td>
</tr>
</tbody>
</table>
Scholarships

UW and External Scholarships
The Graduate Studies Office maintains a database of scholarships and awards information for postgraduate and postdoctoral studies. Information can be found on the Graduate Studies Office Scholarship website: https://uwaterloo.ca/graduate-studies/awards-funding

The main competitions are for the Natural Sciences and Engineering Research Council (NSERC), Ontario Graduate Scholarship (OGS) and University of Waterloo (UW) scholarships.

The competition for OGS and NSERC awards begin in September, with applications due in the Fall term; competition for UW Grad Scholarships takes place in Winter and at other times as announced by the Associate Chair. Notice of competitions is sent by e-mail. Please see the website above for more details.

<table>
<thead>
<tr>
<th>Eligibility Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NSERC</strong></td>
</tr>
<tr>
<td>Must be a Canadian citizen or Permanent Resident.</td>
</tr>
<tr>
<td>Must have a minimum average of 80% (A-) in each of the last two years.</td>
</tr>
<tr>
<td><a href="http://www.nserc-crsng.gc.ca">http://www.nserc-crsng.gc.ca</a></td>
</tr>
<tr>
<td>An overview of Canada Graduate Scholarships (CGS) and NSERC Postgraduate Scholarships (PGS) is found on the NSERC website at:</td>
</tr>
<tr>
<td><strong>OGS</strong></td>
</tr>
<tr>
<td>Must be enrolled as a full-time student when holding the award.</td>
</tr>
<tr>
<td>Must have a minimum average of 80% in the last two years (or 20 credits)</td>
</tr>
<tr>
<td><a href="https://uwaterloo.ca/graduate-studies/awards-funding/external-awards/ontario-graduate-scholarship-ogs">https://uwaterloo.ca/graduate-studies/awards-funding/external-awards/ontario-graduate-scholarship-ogs</a></td>
</tr>
<tr>
<td><strong>President’s Graduate Scholarship (PGS)</strong></td>
</tr>
<tr>
<td>Automatic, incentive award valued at up to $10,000/year for recipients of NSERC, OGS, CIHR awards ($5000 from the President, $5000 from the Department as an offer of a GTA + GEA)</td>
</tr>
<tr>
<td><a href="https://uwaterloo.ca/graduate-studies/awards-funding/waterloo-awards/presidents-graduate-scholarship-pgs">https://uwaterloo.ca/graduate-studies/awards-funding/waterloo-awards/presidents-graduate-scholarship-pgs</a></td>
</tr>
<tr>
<td><strong>UW Grad Scholarships</strong></td>
</tr>
<tr>
<td>Must have a minimum average of 80% in graduate coursework.</td>
</tr>
<tr>
<td>Must not have any INC in courses.</td>
</tr>
<tr>
<td>Must not be past program time limits</td>
</tr>
<tr>
<td>Must be registered as a ‘Full-time’ student in good standing</td>
</tr>
<tr>
<td>Not available to students who hold NSERC, OGS or other major scholarships.</td>
</tr>
</tbody>
</table>
Endowment Scholarships

The **E.B. Dumbroff Award** in Plant Science is awarded annually (if a suitable candidate exists) to a graduate student for research excellence in any aspect of plant science. All eligible student records are reviewed by members of the graduate committee who select the winner. The value of the award is variable, but no less than $250.

The **Dr. Noel Hynes Memorial Graduate Scholarship** is awarded annually to a graduate student working in the area of ecology. Preference is given to students who do not hold another major award. All eligible student records are reviewed by members of the graduate committee who select the winner. The value of the award is up to $2,000.

The **John E. Thompson Biology Graduate Scholarship** is awarded annually to a graduate student who also holds an Ontario Graduate Scholarship or other major external scholarship that requires a matching or enhancement component. Students are nominated by the Department. The value of the award is $5,000.

The **Ram and Lekha Tumkur Memorial Graduate Scholarship** was established in memory of their children who were killed in the Air-India flight 182 crash and is awarded annually to a M.Sc. candidate based on academic achievement, financial need, and research potential. Students must apply for the award. Information will be distributed by e-mail when the competition is open. The value of the award is $1,000.

The **Waterloo Pioneers of Microbiology Graduate Award** is awarded annually to a graduate student in the first year of their M.Sc. or Ph.D. program. The recipient must have demonstrated research ability, scholastic aptitude, and an interest in pursuing microbiology or a related field. Students are nominated by the Department. The value of the award is $1,000.

**Graduate Studies Research Travel Assistantship**

The Graduate Studies Office (GSO) has a fund available to subsidize the travel costs of graduate students presenting papers or posters at scientific meetings. The student may only apply once per fiscal year (Spring-May 1 to Winter-April 30). The Research Travel Scholarship form should be submitted to the Graduate Coordinator by the deadline (August 1 for Fall term travel, December 1 for Winter term travel, April 1 for Spring term travel) or a minimum of 2 weeks BEFORE the trip. This is only a subsidy, so the student needs to consult their supervisor first to ascertain whether they are willing to provide some funding. Proof that the student's abstract has been accepted is required. Students must submit their claims upon returning from the trip within 30 days of the end of the conference.

The form can be found at: [http://uwaterloo.ca/graduate-studies/sites/ca.graduate-studies/files/uploads/files/2012%20Research%20Travel%20Form.pdf](http://uwaterloo.ca/graduate-studies/sites/ca.graduate-studies/files/uploads/files/2012%20Research%20Travel%20Form.pdf)

The Supervisory Committee

The role of the supervisory committee is to aid in the mentoring of graduate students and provide feedback when needed.
Each student, at both the M.Sc. and Ph.D. 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. Faculty members from other departments must have cross-appointment status in Biology to supervise or co-supervise a Biology student.

Individuals who do not hold a Ph.D. cannot serve on Ph.D. examination committees. The supervisory committee will normally consist of members who hold a Ph.D.; exceptions to this need to be approved by the Associate Chair (Graduate Studies) and Associate Dean (Graduate Studies, Faculty of Science).

Students should set up their committee well before the first meeting, and preferably in their first term. This is done by emailing the Graduate Coordinator the following information:

1. Your name
2. Your degree (Masters or Doctoral)
3. Supervisor(s) name(s)
4. Committee members
5. Thesis title (this can change at a later date)

Members of supervisory committees should be accessible to students when called upon for regular committee meetings, discussions of a student’s academic progress, consultation on issues related to the research project, general guidance, and for reading thesis chapters prior to submission.

Your committee should be established by the end of your first term.

**M.Sc.**
For the M.Sc. 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 Biology, but the second member may be either 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 Biology as an adjunct faculty member.

**Ph.D.**
The supervisory committee for a Ph.D. 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 Biology; at the minimum, at least one member MUST be a Faculty member of the Department, in which event, the other committee member must have been approved by the Department of Biology as an adjunct faculty member.

*Note: In order to supervise a Ph.D. student, a supervisor (including Cross-Appointed Faculty) must have ADDS (Approved Doctoral Dissertation Supervisor) status; failing such status, the supervisor must find a Biology Faculty member with ADDS who can act as co-supervisor.

**M.Sc. and Ph.D. 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 their selections acceptable. The composition of the supervisory committee must be approved by the Associate Chair. The Associate Chair must also
approve any change in composition of the committee. Therefore, keep the Graduate Coordinator informed if you would like to add or drop a committee member, so that the paperwork in your file can be up-dated. 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 Associate Chair; therefore, please complete a meeting request form when setting a date for your committee meeting so the Graduate Office Assistant can prepare the necessary paperwork. 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. When your active research is at or near an end, you and your supervisor should call a committee meeting to seek approval for the writing up of your thesis. This meeting is not required, but strongly recommended.

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 the campus for more than 60 days, they must ensure that a member of your committee (or an alternate supervisor) is appointed to oversee your program during their absence. As well, if your research takes you away from the campus, your supervisor will be responsible for insuring that you have adequate supervision. To protect yourself, make sure that the necessary forms for temporary replacement of your supervisor are completed. Forms are available from the Graduate Coordinator.

For information on your committee when defending your thesis please see Thesis Defence section.

**Scheduling Committee Meetings**

Types of committee meetings include: Committee Meetings, Thesis Proposal exams, Comprehensive exams, and Thesis Defences.

The Biology Graduate Office is able to book your meeting at any time, so please submit a meeting request form with a specific date and time. Please contact the Biology Graduate Office Assistant to set up your meetings, proposals and defences only after you have confirmed details with your supervisor and committee. The meeting request forms can be found at: https://uwaterloo.ca/biology/graduate-studies/program-information/forms

You can only have one member physically absent from a meeting, however members can participate via Skype or teleconference if unable to physically attend.

**Feedback on Student Material**

Biology graduate students should expect timely feedback on thesis material from supervisors and committee members. It is expected that comments on written material for thesis and publication will be provided within three weeks. However, there may be exceptions to this due to extenuating circumstances (illness, travel, field work etc.). These circumstances should be discussed between
the graduate student and the committee member or supervisor and a more appropriate time should be agreed upon.

Suggested revisions and comments on the thesis as a result of a thesis defence must be provided at the defence to ensure that the student is able to complete their revisions in a timely manner and meet the examining committees suggested deadline.

If there are concerns regarding timely feedback, students should notify the Associate Chair.

**Thesis Writing**

General instructions on the writing of a thesis can be found by accessing the following link: [https://uwaterloo.ca/graduate-studies/thesis](https://uwaterloo.ca/graduate-studies/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. A master reference list, rather than separate lists for individual chapters, is strongly recommended.

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. For a general overview on the steps to complete your thesis defence please review the Thesis Defence Checklists available on the Biology website under Program Information ([https://uwaterloo.ca/biology/graduate-studies/program-information](https://uwaterloo.ca/biology/graduate-studies/program-information)).

**Copyright**

If research papers based on your work are published before submission of the thesis, then you may 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 (i.e., 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/graduate-studies/thesis/submitting-your-thesis](https://uwaterloo.ca/graduate-studies/thesis/submitting-your-thesis). Alternately, a student may delay web publication of the Thesis for a period of 4 months.

**Thesis Submission and Defence**

For full details review the Thesis Defence Checklists available on the Biology graduate website under ‘Program Information’ [https://uwaterloo.ca/biology/graduate-studies/program-information](https://uwaterloo.ca/biology/graduate-studies/program-information). Information can also be found on the Science webpage under Graduate students ([https://uwaterloo.ca/science/graduate-students/thesis-defence-submission-information](https://uwaterloo.ca/science/graduate-students/thesis-defence-submission-information)).

Both M.Sc. and Ph.D. students are required to defend the thesis in an oral examination attended by their Thesis Defence Committee. Generally the Thesis Defence Committee is the same as a
student’s supervisory committee, but the student and supervisors are able to change the committee at any time by informing the Biology Graduate Office of the change.

A faculty member from the University will sit as Chair of the thesis defence. This is arranged by the Faculty of Science Graduate Office.

**Supervisors/Co-Supervisors MUST attend the thesis defence. Committee member attendance by phone or Skype is still considered an absence.**

If more than one committee member of a M.Sc. defence is absent (including those attending electronically), the defence must be rescheduled.

If more than two committee members of a Ph.D. defence are absent (including those attending electronically), the defence must be rescheduled. This includes the External Examiner.

In both cases (M.Sc. defence and Ph.D. defence), participation via electronic media is limited to one member of the committee. As well, a delegate will need to be chosen by the Associate Chair to read the absent committee members’ questions. Members of your committee that are not present (including attending via electronic means) must submit their questions a minimum of 1 week before the defence.

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. The chair of the committee will immediately notify the student of the decision reached.

Defence requests must be submitted to the Biology Graduate Office:
- M.Sc.: Minimum of 4 weeks (20 business days) before the defence
- Ph.D.: Minimum of 7 weeks (35 business days) before the defence

**M.Sc.**
When your supervisor has seen and approved your thesis, you must send a PDF copy of the thesis to the Faculty of Science Graduate Office (and cc the Graduate Coordinator) to be distributed to your supervisor and each committee members. It is the student’s responsibility to ensure that all members of the examining committee are available to attend the defence. Your thesis must be submitted to the Faculty of Science Graduate Office by NOON a minimum of 3 weeks (15 business days) before the scheduled defence.

**Ph.D.**
For Ph.D. students, the thesis defence committee must be comprised of at least three committee members in addition to the supervisor or co-supervisors, there will be an **External Examiner**, an **Internal/External** and the Chair (found by the Faculty of Science Graduate Office). Additional members may be appointed to the committee.

**External Examiner**
The **External Examiner** is expected to be a leader in their field related to the thesis topic, a tenured professor who had successfully graduated Ph.D. students, and must be able to review and write a report on the thesis which is due to the Faculty of Science Graduate Office 1 week
before the defence. Your supervisor should make informal enquiries to two or three scientists who would be appropriate examiners of your work. They should attend the defence in person, by teleconference or Skype. Having established the willingness and availability of these individuals, your supervisor will provide to the Associate Chair one name, along with 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 Associate Chair and the Associate Dean of Graduate Studies. If approved, the thesis defence may be set up. If not approved another candidate will need to be found and approved.

Your supervisor is responsible for initiating the process that leads to the selection of an External Examiner a minimum of 4 months before your proposed defence.

**Internal/External Examiner**
The Internal/External must be a faculty member from a department other than Biology but from within the University. Faculty that are cross-appointed to Biology meet this requirement. The non-Biology appointment to the committee should be made by the Supervisor prior to submitting an External Examiner for approval.

Once your supervisor has seen and approved your thesis, the External Examiner has been approved, and the defence date has been set and scheduled with the Biology Graduate Office, you must send a PDF copy of the thesis to the Faculty Of Science Graduate Office (and cc the Graduate Coordinator) to be distributed to your supervisor and each committee member, as well as two hard copies, one of which will be sent to your External Examiner.

Your thesis must be submitted by NOON at least 6 weeks (30 business days) before the defence date to the Faculty of Science Graduate Office.

**Thesis Defense Decisions**
For both M.Sc. and Ph.D. 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. TheExamining Committee shall report the reasons for this rejection. A student whose thesis has been rejected will be required to withdraw from the program.

**After the Defence**

After a successful thesis defence and any necessary changes to the thesis are made, you will need to submit “Page 2” of the report with outlines the required revisions and the names of the committee member(s) that is (are) required to approve your final copy of your thesis. You will receive this from the Science Graduate Office via Campus mail. Once signed, return the original form to the Science Graduate Office.

Students also need to submit their thesis electronically to UWSpace. To submit electronically, please refer to: [https://uwaterloo.ca/library/uwspace/submit-your-electronic-thesis-or-dissertation-etd](https://uwaterloo.ca/library/uwspace/submit-your-electronic-thesis-or-dissertation-etd).

Once the thesis format is approved by the Graduate Studies Office, you will need to arrange for the printing and binding of at least 1 copy (2 if you have co-supervisors), for your supervisor(s). The Department of Biology does not require a hard copy of your thesis.

If not already completed, students should submit their Intent to Graduate/Program Completion form ([http://www.grad.uwaterloo.ca/students/current/forms.asp](http://www.grad.uwaterloo.ca/students/current/forms.asp)) to the Biology Graduate Office.

**Academic Regulations and Student Discipline**

A summary of University of Waterloo disciplinary Policies can be found in the graduate Calendar ([http://gradcalendar.uwaterloo.ca/page/GSO-Policies-and-Guidelines](http://gradcalendar.uwaterloo.ca/page/GSO-Policies-and-Guidelines)). Any action 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 credentials 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
- Extended absences from work without approval
- Failure to maintain contact with or to respond to communication requests from your Supervisor, the Graduate Officer, or the Biology Graduate Office.

Please also refer to the Student Discipline Policy 71 ([https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-71](https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-71))
Further Information

If you need information about any aspect of the graduate program in Biology or you are unsure about how a specific regulation might affect you, please contact the Graduate Coordinator or the Associate Chair. We are always available for any questions.
APPENDIX I: THESIS PROPOSAL GUIDELINES

I. Thesis Proposal Requirement
As a graduate student in the Department of Biology, you are required to write and defend a thesis proposal. This requirement has been formalized as a milestone credit. The thesis proposal is most helpful when it is completed in the first term, especially for M.Sc. students, but it must be completed by the end of the second term of your graduate program at the latest.

If you would like to try to transfer form the M.Sc. program to the Ph.D. program without first completing the M.Sc. degree, and you have the approval of your Graduate Supervisory Committee to attempt the transfer, then you must also defend a Ph.D. thesis proposal by the end of the third term of your program. Your performance in the thesis proposal along with your performance in the first year of the M.Sc. program form the basis for determining whether a transfer is warranted. Your Graduate Supervisory Committee, along with the Graduate Officers and an additional arms-length committee member, will base the decision on three criteria: excellent academic performance, a M.Sc. research project of sufficient breadth and depth that it can be expanded into a Ph.D. project and evidence that your analytical and writing skills are very strong.

II. Evaluation of the Thesis Proposal
The purpose of the thesis proposal is the clearly identify the scientific question(s) that will be the focus of your graduate research, explain why the question(s) are important, and describe how you will go about answering them. Your Graduate Supervisory Committee will evaluate the written proposal, which they should receive at least two weeks before your scheduled defense of it. The defense normally consists of a short (20 minute) oral presentation followed by questions from the committee. Spectators are not only permitted but invited to the defense and are entitled to ask reasonable questions after the committee has finished its questioning. The committee will take both your written and oral presentation as well as your responses to all questions into account in reaching its decision. The decision may be pass, fail, or deferred. A failure requires withdrawal from the program. A deferred decision requires a written explanation by the committee and a fixed date for a revised proposal and subsequent defense. Decisions cannot be deferred a second time.

At the defense you should show the committee that you have suitable knowledge of your field, grasp of the necessary methods, understanding of the scientific context of the work, and a credible plan for bringing the project to completion within the normal time limits for your program. The depth and sophistication of both knowledge and study design is naturally expected to differ between M.Sc. and Ph.D. proposals. Both should include clearly identified questions, or hypotheses, and an explanation of how the questions will be addressed. The committee will also probably expect to see a defined time line, showing the major milestones and planned completion dates for your project. Progress in your research to date is an additional consideration.

III. Thesis Proposal Format
A good model for the thesis proposal might include the following sections.

1. Introduction and review of prior knowledge. This would typically take the form of a concise literature review to show that you know the background for your work and to show the reader the context and importance of your questions. With limited space (see below) you have to be very judicious in selecting the references. You want the review to be up-to-date and representative of the field; it should not be limited to the writings of those associated with just one or two research groups.
2. Research progress to date. A separate section to describe your own contributions to date may be appropriate, particularly in the case of those attempting to transfer from M.Sc. to Ph.D. In other cases, it may be necessary only to indicate how you have managed to progress relative to the time line for your project.


4. Proposed experiments (from “How to get and keep an NSERC research grant” by I.H. Witten and J.I. Glasgow of Queens University)

“A majority of your proposal should be devoted to a careful description of your research objectives and the methodology by which these objectives will be achieved. For the research plan, you should at least know how you are going to start out and have some ideas for future options. Be prepared to describe alternative scenarios for the later stages, which hinge on how the early research turns out. Be mindful of the need to evaluate your ideas, not just develop and implement them. If successful, what will be the effect of the research? Remember that your methodology must include a clear description of your overall experimental design and some indication of the statistical methods you will undertake to analyze your data.”

5. Milestones/Time line. Provide a term by term list of objectives for your planned graduate program, including coursework, important goals for your experiments, data analysis and writing and defense of the thesis.

The completed thesis proposal should be no longer than 12 pages of text, not including figures and references, double-spaced with 1inch margins and size 12 font. Figures may be presented on additional pages only if they are informative and are mentioned in the text. References should be presented in full (no abbreviations other than initials and journal titles) in a format similar to a journal in your field of study. Deliver a copy to each committee member and one copy to the Biology Graduate Coordinator, who will handle the details of your defense, at least two weeks in advance of your scheduled defense.

IV. Research Ideas
The supervisor and supervisory committee should be important resources as you develop your research questions and the rest of the proposal. Your questions, and even the major methods, may already be largely formulated for you by your supervisor, or you may be expected to develop them mainly on your own. Generally, more responsibility for formulation of the main questions and the approach to their solution is expected from Ph.D. candidates. In any case, you have the right to expect helpful discussion and guidance from your supervisor and the committee as you develop your proposal.

The following material is modified from “How to get and keep an NSERC research grant” by Witten and Glasgow, which was aimed at professional researchers who deal with the Natural Science and Engineering Research Council (NSERC) of Canada funding. There are important similarities between a good thesis proposal and a good NSERC proposal, and so the comments below may help you in designing your study and carrying out your research.

To do research well, you must formulate a question or hypothesis that forms the basis for your work. This should not be an isolated question, but one related to a particular field of inquiry and one designed to increase our understanding within that field. How do you generate specific, interesting and relevant research questions? Read current research papers and reviews in areas
that are relevant to your field. Read more widely in general journals or in areas that overlap your field of research. Good ideas often come from reading, discussing and explaining what someone else is doing. Group discussions can be fertile breeding grounds for new ideas. Force yourself to understand new ideas, perhaps by presenting and explaining them to others, and ideas will strike you. When you think about these papers, it is worthwhile to capitalize on your own detached position to escape from the authors’ mindset and think more laterally.

By its very nature, research is unpredictable, and any avenue of inquiry – no matter how good the idea was originally – may turn out to be sterile, infeasible, or simply incorrect. Propose a mix of questions to work on – some short-term and obviously answerable, others long-term, more risky, but potentially more valuable. On the other hand, beware of promising to work on too many things, for your proposal will be criticized as being “unfocused”. Reviews of proposals sometimes state explicitly that the evaluation would have been higher if fewer ideas had been included. You can spoil a good proposal by adding more to it.

You have to evaluate your own ideas, assess their strengths and weaknesses, sharpen them, and present them clearly. When you specify a goal, how will you know if you reach it? Many research proposals state goals that are so vague they could never be reached. Thus, it is essential to formulate goals precisely and to be able to explain why they are worthwhile. If you do succeed, it is reasonable to ask what contributions will have been made to scientific knowledge or to practice. It is also essential to have some idea of what methods you will attempt to solve your proposed problem. You must plan something concrete. However, because research in unpredictable, it is also useful to think about alternative approaches to solving the problem of proving the hypothesis.

Your proposal will be evaluated by experienced researchers. They understand the difficulty of proposal writing and conducting research. They do not expect to glean every last detail of what you want to do by reading the proposal. However, they can tell a lot about you, and the way you think, from your writing. They expect you to have thought pretty hard about your ideas, and to have worked conscientiously to explain and present them as clearly and straightforwardly as possible. It is up to you to provide evidence for a positive decision.

Revised February 2003
APPENDIX II: Regulations for the Comprehensive Exam

All candidates for the Ph.D. degree are required to pass a comprehensive examination designed to reveal a broad knowledge and understanding of the student's field. At least eight (8) weeks before the date of the examination, the supervisory committee will identify 4-6 specific fields (topics) on which detailed questions will be asked; these fields will reflect the student's chosen area of research. The committee may elect to make some of the topics more general and some of the topics highly specific to the actual research area. The student will be notified, in writing, of these topics; it is recommended that appropriate textbook chapters and/or review papers be specified. Normally, members of the supervisory committee will comprise the examination committee but, at the discretion of the committee, other faculty members from this or other departments may be invited to participate. The graduate officer may attend a comprehensive examination as non-voting (unless, of course, the graduate officer is also a member of the supervisory committee) participants.

The primary objective of the examination is to evaluate the candidate’s understanding and knowledge of areas related to his/her research field; therefore, the student will be expected to show detailed and comprehensive knowledge of the selected topics. A secondary objective of the examination is to identify areas of weakness that may be filled by appropriate course work or additional reading. The competence with which the student answers questions on the selected topics will be the main basis for evaluating the performance in the examination. The committee may ask general questions in fields that were not previously identified to the student; the candidate’s responses to these questions will contribute to the overall evaluation but will not necessarily determine the ultimate pass/fail decision.

The examination must be held within 15 months of the student's initial registration in the Ph.D. program; it should not take place in the first six (6) months. A delay of an examination beyond the initial 15 month period requires permission of the graduate officer.

A special meeting for the sole purpose of holding the examination must be arranged; it must not be held as a part of a regular committee meeting. The graduate officer will appoint a disinterested faculty member to chair the examination. The format of the exam is variable but, usually the chairperson will invite each member of the examining committee to question the candidate for 15-20 minutes; a second or third round of such questions is common but usually for shorter duration.

Immediately after the examination, the candidate will leave the room. The decision regarding the success or failure of the candidate should be taken only after discussion of the candidate’s performance by all examiners. The purpose of the discussion is to evaluate the overall performance, and to identify weak areas in which re-examination and/or remedial work is required. The decision regarding the category into which the exam falls shall normally reflect the majority opinion of the committee.

In the case of a conditional pass, the supplementary program of study should be discussed and decided upon. Options include written assignments, coursework, presentation of a seminar, or whatever the committee feels would be useful and appropriate. A date for completion of these requirements should be provided. In the case of a deferred decision, an approximate date for a second examination should be scheduled, and the form and scope of that examination should be decided upon. The second exam may be written rather than oral. Justification for the second examination will vary, but might include unacceptable performance on one or more topics with excellent performance on others, or enervating nervousness. A general unsatisfactory
performance should not be grounds for re-examination. The decision cannot be deferred a second time.

In the case of Failure, the student will be asked to withdraw from the program.

The chair of the examination shall record the decision, including the nature of remedial work, or the form and time of another examination if appropriate, on the examination report and transmit that report to the graduate officer through the graduate coordinator. They should also inform the student as to the outcome of the examination.

Issued October 2011
APPENDIX III: Health and Environmental Safety

As a Graduate Student, you are considered an employee of the University. All employees (or workers) are required by the Employee Standards Act to be adequately and properly trained in Workplace Safety. Under the Occupational Health and Safety Act (OSHA) of Ontario the University has a general duty to take reasonable precautions for the protection of workers and to have in place a system to ensure that offenses under OSHA and associated legislation do not occur. Supervisors and workers have roles in ensuring they are aware of, disseminate, and practice, the appropriate measures to protect themselves and others. Policy 34, concerning Health, Safety and Environment (https://uwaterloo.ca/safety-office/policies-and-legislation/health-safety-and-environment-management-system#policy-34) is a key element the University’s Health, Safety and Environment Management System (HSEMS) to ensure compliance with OSHA. As part of this system, the University has developed a number of safety training modules that must be successfully completed by all employees of the University. There are five online courses that are required by all Department of Biology grad students:

- Employee Safety Orientation (SO1001)
- Workplace Violence Awareness (SO1081)
- WHMIS 2015 (SO2017)*
  (* note, WHMIS training you may have received as undergrad is different; you must complete this course as a grad student)
- Laboratory Safety (SO1010)
- Biosafety (SO1069)

Information and access to these course modules can be found here: https://uwaterloo.ca/safety-office/training/training-programs.

Your Supervisor may request additional safety training, depending on your field of study and expected experimental work. For instance, courses on radiation safety, or the safe use of compressed gases may be appropriate training in some labs. The exact safety training requirements to complete should be discussed with your Supervisor. This training must be completed before beginning any laboratory work or Teaching Assistant (TA) duties. Your Supervisor will require a copy of your Safety Training record for the lab’s files. These are typically examined during Safety Inspections that are conducted by the Department’s Health and Safety Committee, the University’s Joint Health and Safety Committee, the University Safety Office, or Ministry of Labour personnel.

Safety is an extremely important aspect of working in the lab or field, and of your teaching while working as a TA. Prevention of injury to you or others in your research group, and instilling of proper safety practices in the junior students you may teach are important goals. TAs, like course instructors, may be held liable for problems that may arise from failure to enforce safety procedures. Your Supervisor is responsible for ensuring that you are informed of dangers or potential dangers to your health and safety that are associated with your work, and that you receive adequate training. It is up to you to absorb and apply the provided information, and work safely. Don’t depend on others; take responsibility for being aware of potential hazards. If you observe a potentially dangerous situation, or encounter a defect in a piece of equipment, don’t ignore it - notify your colleagues (others in the lab, Supervisor) and take steps to rectify the problem. Ensure that you know the location of your lab’s SDS (Safety Data Sheets) file, and are familiar with the information on safe handling of every chemical you use (before you use it!), the appropriate equipment (e.g., goggles, gloves, fumehoods) that may be needed for safe handling, and locations of various safety items (e.g., spill kits, eye wash, fire extinguishers, fire alarms, first...
aid kit) in your area. When working as a TA, become familiar with where these items are in your teaching lab, and also the nearest building exit. If the fire alarm sounds while you are teaching, it is your responsibility to ensure your students are safely evacuated.

The University of Waterloo’s Safety Office maintains a website (https://uwaterloo.ca/safety-office/) containing a wealth of information. Posters outlining pertinent safety information are required to be posted in campus laboratories and classrooms as well. Your research lab should maintain an “Emergency Contacts” list posted in a readily visible location (e.g., inside the lab door). Read and familiarize yourself with the provided information, so that you are prepared to respond to a safety hazard or emergency situation should one occur.

**Working alone in the lab:** Consult the University’s guideline (https://uwaterloo.ca/safety-office/programs-and-procedures/working-alone-guideline) and your Supervisor about her/his policy. Working alone should be avoided wherever possible, especially outside of normal business hours. If necessary, it is essential that your Supervisor knows of and approves the activity, and that high risk work is not conducted. Risk assessments should be conducted, and appropriate mitigating controls should be worked-out, before the contemplated activity takes place. A similar series of steps should be followed with respect to **planning and conducting field work**.

**Forms:** If travelling off campus on University-related business (field work, conference attendance) there may be forms that must be completed and filed prior to departure. Consult your Supervisor. If needed the field work risk management form is accessible here: https://uwaterloo.ca/safety-office/programs-and-procedures/field-work.

**Accident or injury:** All accidents or injuries, no matter how minor, should be reported to your Supervisor. An **injury/incident report form must be completed** and submitted to the Dept of Biology’s Administrative Officer (Jennifer Lehman, ESC 350B). It will be forwarded to the University’s Safety Office. The form is accessible here: https://uwaterloo.ca/safety-office/emergency-procedures/injury-reporting; hard copies are available in the Dept of Biology Office (ESC 350).

**First Aid:** First Aid kits are available in all research labs, prep rooms and teaching labs. In addition, there are departmental first aid stations in the Biology main office (ESC 350) and in the 3rd floor lounge (ESC 356) as well as in the greenhouse (B1 290). Individuals in the Dept trained to give first aid include Karen Miinch (B2 354C or B1 373, ext. 32375, Susan Whyte (ESC 350C, ext.36394), Lynn Hoyles (B1-290, Biology Greenhouse, ext. 32353).

**Serious injury:** If there is any doubt about how to handle the injury call an **ambulance (911)** on any hard wired campus phone incl pay phones (no charge)). Provide your exact location (building name, floor, room number). UWWaterloo Police are automatically notified and the exact location of the call is registered. However, after calling 911 it is recommended to also call **UWaterloo Police at ext. 22222 or 519-888-4911** to confirm your location.

Cell phone calls to 911 will not register with UWaterloo Police. Therefore follow these procedures: do not hang up until told to do so by the 911 dispatcher; state exactly where you are, (i.e. University of Waterloo, building name, any street address and room number); immediately call UW Police at 519-888-4911 after being told to hang up by the 911 dispatcher.

**Less serious injury:** If medical attention is required for an injury (e.g., a deep cut requiring stitches) but an ambulance is not necessary, **Health Services** (ext. 84096 or 519-888-4096) is open during the day, Mon-Fri. They provide a listing of several after-hours clinics and local
hospitals on their website: https://uwaterloo.ca/health-services/student-medical-clinic/after-hours-clinics.

Note that all research and teaching laboratories have posters outlining Emergency Procedures for First Aid Emergency and Fire/Evacuation. Familiarize yourself with the provided information, and note the Emergency Entrance location for your building. In the event of a serious emergency, this is where the ambulance, emergency personnel will arrive.

UWaterloo Police has officers on duty 24 h/day. They can be contacted at ext 22222 or 519-888-4911 or from the Bell pay phones on campus (via a direct dial button).

Chemical spills: All research labs, teaching labs and prep rooms have materials of kits for control of spills. Spill control can be contacted at ext. 519-888-4911 or ext. 22222.

Other resources: in compliance with the University’s HSE management system, the Dept of Biology has a Dept Health & Safety Committee comprised of several faculty, staff and grad students¹, and a Health & Safety coordinator (interim: Barb Butler, B1-279; Simon Chuong, B1-267A). The Safety Office can be contacted at 519-888-4567, ext. 33587. The Plant Operations 24 Hour Maintenance, Repair and Service Line is ext. 33793.

¹ as of July 2016: Barb Butler, Simon Chuong (on sabbatical), Lynn Hoyles, Laura Hug, Jen Lehman, Scott Liddycoat, Marcel Pinheiro, Casey Remmer, Terence Tang, Susanne Vesely
APPENDIX IV: USEFUL WEBSITES

Academic Integrity @ UW
    http://www.registrar.uwaterloo.ca/students/academic_integrity.html
    http://www.adm.uwaterloo.ca/infoacad/Students/index.html

Biology Grad Courses
    http://www.ucalendar.uwaterloo.ca/SA/GRAD/0708/GRDcourse-BIOL.html

Biology Grad Student Association
    https://uwaterloo.ca/biology-graduate-student-association/

Biology TA Exam Policy:
    %20Policy_0.pdf

Biology Thesis Proposal Guidelines:
    uidelines_0.pdf

Centre for Teaching Excellence
    https://uwaterloo.ca/centre-for-teaching-excellence/about-cte

Counselling Services
    https://uwaterloo.ca/counselling-services/

Conflict Management & Human Rights - (A Crash Course) Sexual Harassment

ESL Courses
    http://uwaterloo.ca/renison/english-language-institute

Graduate Student Association
    http://www.gsa.uwaterloo.ca/

Schedule of Classes
    http://www.adm.uwaterloo.ca/infocour/CIR/SA/grad.html

Student Accounts website
    https://uwaterloo.ca/finance/student-accounts/payment-options

Fees
    http://www.adm.uwaterloo.ca/infofin/students/stdfees.htm

Fee Payment Instructions
    http://www.adm.uwaterloo.ca/infofin/students/Payment.html
    https://uwaterloo.ca/finance/student-accounts/promissory-note-other-forms

Grad Student Housing
    http://www.housing.uwaterloo.ca/grad-housing/index.html
GSO Forms
  http://www.grad.uwaterloo.ca/students/current/forms.asp

GSO Registration Information:
  https://uwaterloo.ca/graduate-studies/course-enrolment/registration-and-fees

Health & Dental
  https://uwaterloo.ca/graduate-student-association/services/health-and-dental-insurance

Off Campus Housing (includes cost of living estimates, listing search, etc.)
  http://www.och.uwaterloo.ca/students/index.html

Writing Centre
  https://uwaterloo.ca/student-success/current-graduate-students/writing-centre