Department of Biology

Graduate Studies Regulations & Guidelines Handbook

University of Waterloo

Revised for 2024/2025

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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 enriching and rewarding.

This handbook will provide an overview and summarize how the graduate program operates and the 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 (gradcalendar.uwaterloo.ca/group/Gen-Info-Regs). All regulations in the Graduate Calendar apply and supersede the information in this booklet. If there are any discrepancies between this handbook and current (up-to-date) Biology or University websites, the websites will be taken as correct.

Another useful resource is the Guide for graduate research and supervision by Graduate Studies and Postdoctoral Affairs (GSPA) (uwaterloo.ca/current-graduate-students/academics/governing-rules-and-regulations/guide-graduate-research-and-supervision).

The Biology Graduate Office (BGO)

The Department of Biology graduate program is administered by the Associate Chair Graduate Studies (Associate Chair), the Departmental Administrative Coordinator Graduate Studies (Graduate Coordinator) and Graduate Office Assistant (see table below). For most enquiries, the Graduate Coordinator and the Graduate Office Assistant should be your first point of contact. Their primary duties include administering the Graduate Teaching Assistantship (GTA) applications and payroll, Graduate Research Studentship (GRS) payroll, scholarship and award processes, paperwork for meetings and all issues related to graduate courses and graduate student records.

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, Graduate Office Assistant, or the Associate Chair. We are always available for any questions.

Graduate students are welcome to approach the Associate Chair, the Graduate Coordinator, or the Graduate Office Assistant at any time for clarification of rules or advice. In the rare instance of a disagreement between a student and their supervisor and/or advisory committee, attempts at resolution should first be directed to the Associate Chair.

Title	Name	Office	Phone	Email (@ uwaterloo.ca)
Associate Chair, Graduate Studies	Paul Craig	B1-178A	Ext. 32035	pcraig
Administrative Coordinator, Graduate Studies	April Wettig	ESC 357A	Ext. 46392	awettig
Graduate Office Assistant	Ligaya Stinellis (to Feb 28/25) Katelyn Marques	ESC 351C	Ext. 48322	gradbio

New Student Information

Communication with Graduate Students

As per the University statement on official student email addresses (uwaterloo.ca/information-systems-technology/about/policies-standards-and-guidelines/email/statement-official-student-email-address), the Department of Biology sends all program-related messages to your University of Waterloo email account (@uwaterloo.ca) 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.

Required Training

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 (uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-34) is a key element of 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.

The mandatory training required by the University of Waterloo is found on the following page and includes four mandatory courses:

- Employee Safety Orientation (SO1001)
- WHMIS 2015 (SO2017)
- Workplace Violence Awareness (SO1081)
- Accessibility Training module

You will not be permitted to obtain keys to labs or rooms in the department until these four mandatory courses are completed.

Graduate students working in a research lab will also be required to complete the following:

- Laboratory Safety (SO1010)
- Chemical Waste Segregation (SO2070)
- Safe Chemical Handling (SO2032)

Graduate students may also be expected to complete hazard specific training including (but not limited to):

- Biosafety (SO1069)
- Cryogenic and Compressed Gas Safety (SO1030)

- Field Work Risk Management Program Training (SO2071)
- Fall Protection (SO1026)

Please speak with your supervisor or instructor (for GTA positions) regarding hazard specific training that you may need.

This training must be completed **before** beginning any laboratory work or Graduate Teaching Assistant (GTA) 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.

Your supervisor should also be training you on the aspects of safety within the lab that you work in. You should be aware of posters outlining pertinent safety information, SDS sheets, first aid kit, eye wash stations, etc. 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. Additional information can be found in Appendix III: Health and Environmental Safety.

Fees

You must pay your tuition to register each term even if you are not taking classes. Refer to the Graduate Academic Calendar.

Course Registration

Please refer to the Graduate Studies Academic Calendar for a listing of courses. Refer to the Schedule of Graduate Classes (classes.uwaterloo.ca/grad.html) for a list of courses that are being offered each term. Please be aware that not all courses are offered every year. You should discuss your course selections with your supervisor. If you have a question about a course (i.e. instructor, when it was last offered) please contact the BGO.

Courses at Other Institutions

You cannot enrol for a course at another institution through Quest. Students need to submit an Ontario Visiting Graduate Student (OVGS) Application to the Graduate Coordinator. OVGS forms are available on the Graduate Studies Forms website (uwaterloo.ca/current-graduate-students/forms). To enrol, you must ensure that a similar course is not offered at UWaterloo and that you are in good standing in your program.

The other option is the Canadian University Graduate Transfer Agreement (CUGTA). Once approved, this allows students to enrol in a graduate course at another Canadian University for credit towards your UW degree. It is recommended that this form be submitted 4 months before the course starts to allow for processing.

Special Topics Courses (BIOL 680-MSc and BIOL 681-PhD)

Special topics courses are offered on an individual basis and typically allow students to investigate a subject area through self-directed study. Students can take only one Special Topics course for credit toward their degree. Students need to submit a Special Topics Course Form, available on the Biology

Website (uwaterloo.ca/biology/graduate-studies/program-information/forms) in order to register. The deadline to submit a Special Topics Course Form is the 15th of the first month of the term. Forms submitted after the deadline will not be accepted.

Biology Graduate Studies Bi-Weekly Digest

Every other week the BGO will send out a digest that provides information about upcoming thesis proposals, thesis defences, scholarships, student seminars, and important dates/deadlines. Please be sure to read the digest.

Program Requirements

Graduate Degree Level Expectations (GDLEs)

The M.Sc. program in the Department of Biology at the University of Waterloo is designed to give students the academic and technical skills to obtain placements in their chosen field, in a position requiring graduate training. The Ph.D. program in the Department of Biology at the University of Waterloo is designed to give students the academic and technical skills to become independent scientists and researchers. For details regarding the expectations of MSc and PhD candidates, please see the following link, which highlights degree level expectation for:

1. Depth and Breadth of Knowledge
2. Research and Scholarship
3. Level of Application of Knowledge
4. Professional Capacity/Autonomy
5. Level of Communication
6. Awareness of Limits of Knowledge

https://uwaterloo.ca/centre-for-teaching-excellence/teaching-resources/curriculum-development-and-renewal/program-review-accreditation/degree-level-expectations

Courses

Both the M.Sc. and Ph.D. programs are research-based and require a minimum number of courses. Your advisory committee may require courses in addition to the minimum prescribed for your program.

Normally, these courses are selected from the Biology listings, but you may take a course from any department on campus, or from other universities, provided that it is approved by your advisory committee and the proper forms are submitted. At least two of the required courses must come from within the Biology Department listings. However, M.Sc. students in the Water program must take one Biology course in addition to the two required Water courses.

Only students in the Biology M.Sc. programs are able to apply **one** 400-level course (0.5 credit) toward their program requirements, with the approval of their supervisor. Biology Ph.D. students **cannot** use a 400-level course towards their degree requirements. If you plan to take a 400-level course, you will be required to submit a Graduate Studies Drop/Add Form (located on the GSPA forms website), signed by your supervisor and the course instructor, to the Graduate Coordinator.

All programs require that graduate students take the Graduate Academic Integrity Module. This is an online course that must be completed within the first 8 weeks of your first term and will be listed on your transcript. You will be contacted by the Integrity Office to complete this online module.

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). These are in addition to the course requirements listed below.

Thesis Proposal

The completed thesis proposal body should be no longer than 12 pages of text, not including figures and references, double-spaced with 1-inch margins and size 12 font. Students must submit a copy of their proposal to their supervisor and each member of their advisory committee and one copy (preferably electronic) to the BGO at least two weeks in advance of a scheduled proposal meeting. Thesis proposals are open to the public. Refer to Appendix I for more information.

This requirement must be completed by (at the latest):

- For M.Sc. students – the second term of the program.
- For Ph.D. students (not transfer) - the third term of the program.
- For Ph.D. transfer students – the second term after the transfer (if not fulfilled at the transfer meeting)

Seminars

All Biology Graduate students are required to give a seminar based on their research. Students will be contacted by the BGO to begin scheduling the seminars.

Students in the Water program must also complete a Water Research seminar in addition to the Biology seminar.

Ph.D. Comprehensive Examination

Refer to the Graduate Academic Calendar (7.2.3 Minimum requirements for PhD degree: Comprehensive examination (uwaterloo.ca)) An impartial chair will be appointed by the Biology Graduate Office.

The subject matter of the examination must be declared to you in writing no less than 8 weeks prior to the exam. In order to continue in the Ph.D. program, you must pass this examination. The form to set up the comprehensive exam is available on the Biology website and should be submitted a minimum of 7 weeks before the exam.

Additional details regarding the structure and regulations governing the Ph.D. Comprehensive Examination are provided in Appendix II: Biology PhD Comprehensive Exams.

Thesis Defence

The thesis defence is the culmination of the student's research program. It exposes the work to scholarly criticism by members of the University community and gives the student the opportunity to defend it. Information regarding the examining committee, attendance, and the structure of the defence is available on the Science Graduate website (Thesis defence & submission information | Science | University of Waterloo (uwaterloo.ca)) as well as in the Thesis Submission and Defence section.

Program Descriptions

Please refer to the Graduate Studies Academic Calendar for program descriptions.

Transfer from M.Sc. to Ph.D.

The option of transferring directly from the M.Sc. program to the Ph.D. program, without needing to write and defend an M.Sc. thesis, is open to students with:

1. good academic standing, which requires a minimum of 2 completed graded graduate courses; the student cannot be on probation or carry incomplete course grades
2. significant progress in a research project that could be expanded to a Ph.D. project
3. demonstrated scientific writing skills

An application for a transfer to the Ph.D. program must be done before the end of term four, and usually is initiated after the M.Sc. thesis proposal. The decision to allow a transfer is made at a meeting of the advisory committee, with the added presence of the Associate Chair or departmental delegate (chosen by the Biology Graduate Office). At this meeting, the student will give a short presentation of their PhD thesis proposal and then answer questions. The Committee will assess the student's ability to manage a PhD program by indicating "Accept" or "Deny". The discussion should be documented in the comments and must address progress and suitability with respect to all 3 criteria, whether Accepted or Denied. Failure to demonstrate sufficient progress in all 3 criteria will result in the transfer being Denied. In the case that the opinions of the committee and the Chair diverge, the Chair can, with documented concerns, suggest an alternative outcome to the Associate Chair, Graduate Studies. In this case, the decision of the AC Graduate Studies will be final. If approved for a transfer, the student must submit a Program/Plan Change form (available on the GSPA forms site).

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

Probationary Status (MSc only)

Refer to the Graduate Academic Calendar regarding Probationary status. **Students with probationary status are not eligible for a Graduate Teaching Assistantship (GTA) during the probationary term.**

Time Limits

The University of Waterloo allows a specific amount of time for students to complete their degrees (refer to the Graduate Academic Calendar).

Students beyond their time limits are **no longer eligible** for the Science Graduate Award (SGA), and most scholarships and awards are time-limited. In addition, your supervisor is not obligated to pay you a Graduate Research Studentship (GRS) once you have exceeded your program time limit. Students who go beyond their program time limits should discuss any funding possibilities with their supervisor.

Enrolment Status

Definition of graduate students (full-time; part-time; etc) can be found in the Graduate Academic Calendar.

Enrolment/supervision forms can be found on the Graduate Studies forms website (uwaterloo.ca/current-graduate-students/forms). A Change of Enrolment Status form is needed when your enrolment status changes (i.e. full-time to part-time; inactive; etc.):

Financial Support

Full-time Graduate Students without a major award or scholarship are supported by a Graduate Research Studentships (GRS), Graduate Teaching Assistantships (GTA), and the Science Graduate Award (SGA).

Beginning May 1, 2024 the minimum departmental funding for students not holding a major scholarship (NSERC / CIHR / etc.) is $27,130; per year during their program time/funding limits.

International Doctoral students can also receive the International Doctoral Student Award (IDSA), in addition to their departmental funding. International Masters students may be eligible for the International Master's Award of Excellence (IMAE). For more details, please refer to international student funding on the Graduate Studies and Postdoctoral Affairs (GSPA) website.

Additional information on funding can be found in the Graduate Academic Calendar.

Graduate Research Studentships (GRS)

The GRS is funding provided by your supervisor. Students with major scholarships normally do not receive GRS support. Studentships are paid as awards and thus are tax free.

Graduate Teaching Assistantships (GTA)

Biology graduate students normally assist in the running/supervision of undergraduate laboratories or otherwise help in the delivery of the undergraduate instructional program. In return for this, graduate students receive GTA support, which is part of their funding package. To be eligible for a GTA, you must attend the Biology TA workshop, which is held in September and January of each year; students will be contacted by the Biology Workshop Coordinator with additional information.

In addition, all students must complete the Conflict Management and Human Rights Office (CMAHRO) TA training on Harassment and Discrimination that is delivered online via LEARN. To access the course, you will need your WatIAM ID and password. If you do not have access to the TA training module, please contact the Graduate Coordinator. Once complete, you will need to print a screen shot showing you have successfully finished the training and passed the quiz (70% or higher) and submit it to the Graduate Coordinator.

Students are eligible for a maximum of four GTA units each year. Within program time limits, M.Sc. students are eligible for a maximum of 8 GTA units, Ph.D. students are eligible for a maximum of 16 GTA units, and those students who have transferred to the Ph.D. program (or are direct entry) are eligible for a maximum of 24 GTA units. Note: 1 GTA unit = 5 hours/week; 2 GTA units = 10 hours/week. Note that students are not permitted to do more than two TA terms in a row, meaning that the 3rd term in an academic year is a 0 GTA term. Graduate students who are within one year beyond their normal program limits (3 terms or less) will still be eligible for a GTA, if positions are available. Before applying for a position, please be sure that you have your supervisor's approval.

In general, applicants for GTAs will be expected to have sufficient expertise in the disciplinary area of the course to which they are assigned. The expertise can be acquired through previous education (including undergraduate) or through experience serving as a GTA. The assignment of a TA applicant to a GTA position is also dependent on satisfactory performance in previous GTA positions. In addition, in order to be eligible for a GTA, the student must also maintain a satisfactory academic standing (see above).

You are encouraged to read Policy 30 – Employment of Graduate Student Teaching Assistants (uwaterloo.ca/secretariat/policies-procedures-guidelines/policies/policy-30-employment-graduate-student-teaching-assistants), which governs all aspects of Graduate Teaching Assistants at the University of Waterloo.

Declining your GTA

Students do have the option of declining their GTA offer, however neither the supervisor nor the Department are required compensate the student for the subsequent decrease in funding. Students will be required to fill out and sign a 'Decline TA funding' form (available from the BGO). The GTA is funding is $5,756 for 2 units in the 24/25 year. The supervisor's signature is required on the form before it is submitted to the Grad coordinator.

Science Graduate Award (SGA)

The SGA is given to eligible students who are full-time, within time-limits and in good standing. Students with a major scholarship that includes the Presidents Graduate Scholarship (PGS), with the exception of transfer students who are eligible for 15 terms of funding, are also eligible for the SGA.

As of May 1, 2021, the SGA is valued at $3,375/year for International MSc and PhD students; $3,750/year for domestic MSc students; and $6,000/year for domestic PhD students.

Sample Funding Breakdown

These apply to students that do not hold a major scholarship (i.e. NSERC, CIHR).

	GTA	***GRS***	***GTA***	***SGA***	***Total***
Domestic M.Sc. students	0 units	$7,794	$ 0	$1,250	$9,044
	2 units	$2,037	$5,756	$1,250	$9,043
	2 units	$2,037	$5,756	$1,250	$9,043
	Yearly totals	**$11,867**	**$11,513**	**$3,750**	**$27,130**

	GTA	***GRS***	***GTA***	***SGA***	***Total***
Domestic Ph. D. students	0 units	$7,044	$ 0	$2,000	$9,044
	2 units	$1,287	$5,756	$2,000	$9,043
	2 units	$1,287	$5,756	$2,000	$9,043
	Yearly totals	**$9,617**	**$11,513**	**$6,000**	**$27,130**

	GTA	GRS	GTA	SGA	Total
*International M.Sc. and Ph.D. students**	0 units	$7,919	$ 0	$1,125	$9,044
	2 units	$2,162	$5,756	$1,125	$9,043
	2 units	$2,162	$5,756	$1,125	$9,043
	Yearly totals	**$12,242**	**$11,513**	**$3,375**	**$27,130**

*Note, the above numbers do not take into account any additional funding provided to help cover the tuition differential between international and domestic students.

These examples are for students that hold an OGS or QEII scholarship:

	GTA	GRS	GTA	SGA	OGS/QEII	PGS	Total
Domestic M.Sc. students	0 units	$251	$ 0	$1,250	$5,000	$1,667	$8,168
	0 units	$251	$ 0	$1,250	$5,000	$1,667	$8,168
	1 unit (min)	$ 0	$ 2,878	$1,250	$5,000	$1,666	$10,794
	Yearly totals	**$502**	**$2,878**	**$3,750**	**$15,000**	**$5,000**	**$27,130**

Note: For Domestic MSC students, the SGA + 1 GTA unit (minimum) = the Department/Faculty matching portion of the PGS. If the GTA is declined, then that part of the matching funds are declined.

	GTA	GRS	SGA	OGS/QEII	PGS	Total
Domestic Ph.D. students	0 units	$378	$2,000	$5,000	$1,667	$9,044
	0 units	$378	$2,000	$5,000	$1,667	$9,043
	0 units	$376	$2,000	$5,000	$1,666	$9,043
	Yearly totals	**$1,130**	**$6,000**	**$15,000**	**$5,000**	**$27,130**

Note: For Domestic PhD students, the SGA is the Department/Faculty matching portion of the PGS. A GTA is not required but can be held.

	GTA	GRS	GTA	SGA	OGS/QEII	PGS	Total
International students	0 units	$440	$ 0	$1,125	$5,000	$1,667	$8,232
	0 units	$437	$ 0	$1,125	$5,000	$1,667	$8,231
	1 unit (min)	$ 0	$2,878	$1,125	$5,000	$1,666	$10,669
	Yearly totals	**$877**	**$2,878**	**$3,375**	**$15,000**	**$5,000**	**$27,130**

Note, the above numbers do not take into account any additional funding provided to help cover the tuition differential between international and domestic students. Again, the SGA + 1 GTA unit (minimum) = the Department/Faculty matching portion of the PGS. If the GTA is declined, then that part of the matching funds are declined.

Scholarships

UW and External Scholarships

Graduate Studies and Postdoctoral Affairs (GSPA) maintains a database of scholarships and awards information for postgraduate and postdoctoral studies. Information can be found on the Graduate Studies Scholarship website (uwaterloo.ca/current-graduate-students/awards-and-funding)

The main competitions are for the Natural Sciences and Engineering Research Council (NSERC), Canadian Institutes of Health Research (CIHR), Ontario Graduate Scholarship (OGS), Queen Elizabeth II Graduate Scholarship in Science and Technology (QEII-GSST), and University of Waterloo (UW) scholarships.

Endowment Scholarships

The Department holds a number of endowment scholarships. These are also listed in the GSPA funding and awards database (uwaterloo.ca/current-graduate-students/catalogs/graduate-funding-and-awards-database)

The Department also has a small budget to assist students going to conferences. Please contact the BGO for the form. The Department award is only a subsidy, so the supervisor must provide some funding. Students must submit their claims upon returning from the trip. It is recommended that the claim be submitted no later than 30 days from the end of the conference as any funds provided by the Department will expire 4 months from the end of the conference.

The Advisory Committee

Information on the advisory committee can be found in the Graduate Academic Calendar under regulations (7.1 Graduate students' supervisors and committees (uwaterloo.ca))

If a Biology graduate student is supervised by a faculty member whose primary appointment is not in Biology (i.e. is cross-appointed), then the student must be co-supervised by a Biology faculty member. It is important to keep in mind that committees can only have one adjunct or retired faculty member.

Your advisory committee should be established by the end of your first term but no later than the end of your second term. Students cannot hold a thesis proposal or a committee meeting until their committee has been approved by the Associate Dean of Graduate Studies. If you have an adjunct member on your committee, approval may take longer, so it is critical to ensure timely submission of all paperwork.
Additional information can be found in the Guide for graduate research and supervision: Guide for graduate research and supervision | Current Graduate Students | University of Waterloo (uwaterloo.ca)

Scheduling Committee Meetings

You are required to meet with your committee at least once per year. Meetings are monitored by the BGO and the Associate Chair. At your committee meeting, you are expected to present your research activity. 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 are free to consult your committee members on a more casual basis at any time.

Types of meetings are listed below and the meeting request forms are available on the Biology website.

Deadlines for submitting meeting request forms to the Biology Graduate Office are:

Minimum time required	Form
Min 1 week	Committee meetings Pre-defence meetings
Min 2 weeks	Thesis proposal
Min 4 weeks	MSc defence request*-20 business days before the defence
Min 7 weeks	PhD Comprehensive exam PhD defence request*-35 business days before the defence

* The Faculty of Science Graduate Office has blackout periods each term that may affect when your defence can be held. Refer to the Faculty of Science webpage (uwaterloo.ca/science/graduate/thesis-defence-submission-information).

Please ensure that you keep these deadlines in mind so that the appropriate paperwork will be ready.

Meetings can be fully remote, in-person, or hybrid. We recommend you use MS Teams or Zoom for remote or hybrid meetings. You are welcome to arrange a practice session with your committee the day before your meeting to make sure all connections work and to get familiar with any equipment.

For in-person meetings, 30 minutes is added to the start time to allow you to set up. If you will be requiring remote connections (Teams, Zoom, etc.), then 1 hour is added to the start time to allow for set up. Therefore, the earliest you can have a meeting start (with an 8:30 a.m. set up) is 9:00 a.m. (all committee members attending in person) or 9:30 a.m. (one or more committee members attending remotely - hybrid). For hybrid options that require the TV and OWL, the student will be responsible for setup and tear down. Meetings must be held during regular University business hours (8:30am-4:30pm) to allow access to equipment and rooms. *Your supervisor (and co-supervisor if applicable) must be present for all in-person or hybrid meeting.*

The BGO will arrange a room, equipment (if applicable) and the required paperwork once you submit a meeting request form. If a meeting request is received after the deadlines (i.e. less than the minimum times provided in the table above), you will need to reschedule the meeting.

All regular committee meetings will provide a 'picture' of your progress in the program. The supervisor and advisory committee members will adjudicate your performance, with an outcome of satisfactory or unsatisfactory. The committee members will also provide feedback that will allow you to adjust for any complications and help keep you on track. All parties to the meeting, including the student, are required to sign the committee meeting report form.

M.Sc. and Ph.D. Committee Issues

If a decision of unsatisfactory is received at a committee meeting, the committee must clearly explain their expectations. In this case, the student will be given a minimum of one term in which to satisfy the concerns of the committee. The committee will then reconvene and review the progress of the student. If the student receives two unsatisfactory evaluations, they will be required to withdraw from the program. Please refer to the Graduate Academic Calendar (14.1 Guidelines for evaluating and providing feedback on graduate student progress in PhD and research Masters programs (uwaterloo.ca))

Feedback on Thesis Material

Students should expect timely feedback on thesis material from supervisors and committee members. It is expected that comments on written material for thesis and publications will be provided within three weeks. However, there may be exceptions to this due to extenuating circumstances (illness, travel, fieldwork, etc.). These circumstances should be discussed in advance between the student and the committee member or supervisor and a more appropriate timeline agreed upon. If there are concerns regarding timely feedback, students should notify the Associate Chair at the earliest opportunity.

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.

More information can be found in the Guide for graduate research and supervision (Guide for graduate research and supervision | Current Graduate Students | University of Waterloo (uwaterloo.ca)).

Pre-Defence Meeting

A pre-defence meeting is required for all students. This meeting is to ensure that everyone agrees that the student has progressed sufficiently to proceed with completion of their degree. This meeting gives the student an opportunity to present their data, highlight major findings, ask questions of their committee, and receive suggestions on key points. This meeting should take place when the student has substantially completed their research. It is recommended that M.Sc. students schedule this meeting prior to their last term and that Ph.D. students organize this meeting at least two terms prior to the term they wish to defend in.

If the committee finds a student does not appear to be ready to defend (i.e. receives a “no” on the form), it has no implications in terms of their standing in the program, nor does it imply failure in anyway.

Thesis Writing

General instructions on the writing of a thesis (including formatting, copyright, and submission) can be found on the GSPA website (uwaterloo.ca/current-graduate-students/academics/thesis-and-defence).

Thesis Submission and Defence

Both M.Sc. and Ph.D. students are required to defend the thesis in an oral examination attended by their Thesis Examination Committee. Information on the defence, thesis examination committee, request to restrict thesis circulation, thesis submission, after the defence, etc. can found on the Science thesis defence and submission page (uwaterloo.ca/science/graduate/current-graduate-students/thesis-defence-submission-information). Students should also review the Graduate Academic Calendar (View Regulations (uwaterloo.ca))

For full details, please review the Thesis Defence Checklists available on the Biology graduate website:

uwaterloo.ca/biology/graduate-studies/program-information/forms/biology-defence-checklist-masters-degree

uwaterloo.ca/biology/graduate-studies/program-information/forms/biology-defence-checklist-doctoral-degree

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

Blackout Dates and Holidays

There are blackout dates for defences in the Spring, Fall and Winter terms. During these periods, defences cannot be scheduled. The blackout period is arranged by the Faculty and GSPA, based on the normal end-of-term reduced availability of faculty members to chair examinations. Please contact the BGO to see when the blackout dates are and if they will affect the date you wish to defend and/or submit your thesis. These dates are listed on the Science Graduate students webpage (uwaterloo.ca/science/graduate/thesis-defence-submission-information) and also provided in the Biology Graduate Studies Bi-Weekly Digest. If you are defending close to a blackout period, please confirm with the Biology Graduate Office when your defence request and thesis will be due.

Academic Regulations and Student Discipline

A summary of University of Waterloo disciplinary policies can be found in the Graduate Calendar (uwaterloo.ca/graduate-studies-academic-calendar/general-information-and-regulations).

Please also refer to the Student Discipline Policy 71 (uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-71)

APPENDIX I: Dept of Biology MSc & PhD Thesis Proposal Guidelines

The Spirit of the Proposal

- The proposal is an opportunity for your committee to provide input on your study, and on sampling design (if relevant), and to involve them early in the research design process. Their expertise and input are not valuable after you have made all the decisions and research is already under way. This is why we encourage you to have your proposal meeting as early as possible.
- Strive to be succinct. Be selective about the content you include. Do not discuss everything you know about the topic, but only include information that is needed for the reader to understand the "knowledge gap", the research question or objective, the hypotheses (if you have them) and the methods.
- Produce an outline first and discuss it with your supervisor before fleshing out a first draft of the full document. This way, you will avoid wasting time fleshing out a section that you might later delete.
- Headers and sub-headers are helpful, as they allow you to avoid long blocks of text.

The major difference between the MSc and PhD proposals is in their length, with the MSc proposal limited to 12 pages and the PhD proposal limited to 20 pages. This mirrors the 6-term length of the MSc program compared to the 12-term timeline for the PhD program, in addition to other program differentiators described in the Biology Graduate Student Handbook.

Overall Proposal Structure

Research proposals, regardless of discipline, will begin with a general introduction that sets the stage for the overall research question (or research objectives) that will connect to your data chapter(s). Whether you have questions or objectives, hypotheses or predictions, will all be specific to your field, so it is critical that you discuss the structural elements of the proposal with your supervisor.

Using the elements described below, you will be laying a foundation for your particular research project(s). The formatting will vary widely, depending on the disciplinary area in which you are working. For example, in ecology and evolutionary biology, it is customary to describe a single data chapter for a MSc thesis proposal, while a PhD thesis proposal will describe three data chapters. In the basic biomedical research areas, the proposal will outline a research problem and then describe multiple possible avenues of enquiry, with the depth and breadth of the proposed approaches dependent on the program, whether MSc or PhD. As you prepare your proposal please also keep in mind that you are sculpting a proposal, not a contract, and that the output you achieve may vary from your expectations!

Guidelines for the Proposal

- **MSc proposals have a maximum page limit of 12 pp. for the main text, while PhD proposals have a maximum page limit of 20 pp. for the main text;** this does NOT include figures, tables, literature cited and milestones & timelines.

- The proposal will be double-spaced, with 1-inch margins, using 12-point font.
- Number your pages and include continuous line numbers for ease of reference.
- Email a copy to each committee member and to the Biology Graduate Coordinator at least one week in advance of your scheduled meeting.
- Consult your supervisor regarding the structure, citation formatting, and disciplinary norms for your subject area. The following is general guidance for a common overall structure, including headings that may be further sub-divided into sub-sections, with sub-headers as needed:

Proposal Structure

Main Text - Background and Research Questions & Hypotheses:

- Summarize the current state of knowledge in your research area. Only discuss the knowledge necessary to frame the knowledge gap your research will address i.e. provide your committee with the information they will need to understand your proposal.
- Make sure your Knowledge Gap(s) and Research Question(s) (or Research Objective(s)) are stated and clearly identifiable by the reader. To that end, consider putting them in bold or italics. Whether you have questions or objectives will be specific to your field, so discuss this with your supervisor.
- 'Motivate the gap' - explain why it is important to fill that knowledge gap, either from a theoretical or applied perspective, or both. There are an infinite number of questions we could study - why is it important to address this specific knowledge gap?
- Strong introductions strike a balance between acknowledging the past work that has been done by others (which shows that you are aware of the current state of knowledge) and highlighting what we still do not know, i.e. the Knowledge Gap (which shows that you know why it is important to do the proposed work). It is important to not give the reader (i.e. committee members) the impression that we know nothing about the subject of study - this would suggest that you are not properly informed. However, do avoid listing everything that we know about the subject, as this would suggest that you do not know how your specific research fits into the literature.
- Be sure to introduce the key ideas and concepts structuring your research and to explain any relevant terminology you will use in the proposal. Your audience is (most likely) a group of biologists who are not experts in your specific area of research, so please adjust your writing accordingly.
- When applicable, present the hypotheses and predictions you are testing. For ease of reference, consider numbering your research questions/objectives (Q1, Q2 or O1, O2...) and corresponding hypotheses (H1, H2...) or Predictions (P1, P2...).
    - Do not force hypotheses and predictions if your research does not lend itself to them. If you are doing exploratory work, you may not have them.
    - If different frameworks call for different expectations, consider listing them as alternative hypotheses.
    - Remember that a hypothesis is a general statement about how nature works. You can think of hypotheses as stating the role of different processes or mechanisms. For example: X causes Y; Increased A decreases B, or; M controls N.
    - Remember that a prediction is a specific statement of the data you will observe, given your experimental design, if your prediction holds true. A prediction is born at the intersection of your hypotheses and your experimental design.

Main Text - Methods:

Norms in communicating methods will differ among subdisciplines, so consult your supervisor about disciplinary expectations. At a bare minimum the methods should provide adequate detail for your committee members to assess the feasibility of your proposed approach and the capacity of your proposed approach to address your research questions, objectives, or hypotheses. Citation of published studies that employed similar methods can help bolster your methodological decisions. Content common to the methods section *might* include, depending on discipline:

- Description of the types of experiments you will use to ask/answer your research questions, with enough detail to convey that these are the appropriate approaches for your research. (Molec Cell Bio, Biochem, Genetics)
- Description of your overall experimental design, whether that be a modeling study, a mensurative or manipulative experiment, or descriptive. This should include explanation of any controls, replicates, and/or gradients. This should articulate your anticipated sample size and define your sampling unit. (Eco-Evo)
- Description of your study region or study system. (Eco-Evo)

- Description of any measurements you will take in the field and/or in the lab or other parameters you will model. (Eco-Evo)
    - Be certain to state *why* each measurement (or category of measurements) will be taken. For example, “In order to _, we measured _ on X individuals at Y sites”.
- Description of statistical analyses, numerical modeling, or experimental comparisons you will make with the data (when/if applicable).

Main Text - Research progress to date (if applicable):
Report what work has already been done so far, if any.

Milestones & Timeline
Present a Gantt chart or a table of milestones that outlines the tasks you will perform during each academic term. This should include not only your thesis work, but also TA duties, coursework, data analysis and writing, conferences, workshops, and obligations. Include your degree milestones (such as committee meetings, your departmental seminar presentation, etc.).

This is a living document that you will update for every committee meeting as you progress through your work and as life happens and plans change. It helps you spread your work over time and to manage during overly busy semesters. It also helps your committee assess whether your thesis is too ambitious, or not, by judging whether you have enough time to complete all the necessary tasks within your term limits.

Figures
If your proposal includes figures or tables, they must be numbered sequentially. They must also have informative captions/legends with sufficient detail that the reader does not need to refer to the main text to understand what is depicted. If tables run over multiple pages, be sure to repeat the header row on each new page. Please keep in mind that a “picture is worth a thousand words” and figures are often very helpful, especially in the Introduction, and essential in presentation of preliminary results.

Literature Cited/References
In-text citations are required for statements that are supported in the literature; usually those that are key to building your argument require a citation. Regardless of what citation format you use to reference published work in the body of the Main Text, all cited references must be listed in the Literature Cited/References section with its complete bibliographic details. Students are strongly encouraged to use a reference manager to help them track their citations and to facilitate formatting consistency. Consult your supervisor about their preferences for in-text citation and formatting; it is common to use the citation style of a reputable journal in your field.

Revised:
May 2024

APPENDIX II: Biology Ph.D. Comprehensive Exams

All candidates for the PhD degree in the Department of Biology 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.

The primary objective of the examination is to evaluate the candidate's understanding and knowledge of areas related to their 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 completed no later than the end of the seventh term in the PhD program; it should not take place in the first two terms of enrolment. A delay of an examination beyond the initial seven-term period requires permission of the Associate Dean (Graduate Studies).

If the PhD thesis proposal is successful, the date and topics for the comprehensive exam should be discussed at this meeting to ensure timely completion of this milestone. The date for the comprehensive exam should be noted on the **PhD Advisory Committee Report**. The topics, if available, can also be communicated to the student at this time. A **Comprehensive Exam Meeting Request Form** will be included in the folder for the PhD proposal examination and can be completed at this meeting. If this form is not completed at the time of the PhD proposal examination, the graduate student is responsible for filling out the webform (uwaterloo.ca/biology/graduate-studies/program-information/forms) with the date, time, and topics for the exam. A chairperson for the exam will be assigned by the Biology Graduate Office.

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 of 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 areas of weakness in which re-examination and/or remedial work is required. The decision regarding the category (Pass, Conditional Pass, Decision Deferred, Fail) 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. These conditions must be completed within one calendar year of the conditional pass. Students who fail to meet these conditions will be required to

withdraw from the program. Completion of the supplementary program of study must also be communicated to the Biology Graduate Office within this time-frame.

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/anxiety. A generally unsatisfactory performance should not be grounds for re-examination, because the decision cannot be deferred a second time. A second examination must be completed within one calendar year of the unsuccessful attempt and students who fail to meet these conditions will be required to withdraw. In the case of Failure, in the first or second attempt, the student will be required to withdraw from the program.

Normally, members of the supervisory committee will comprise the PhD comprehensive examination committee but, at the discretion of the committee, other faculty members from Biology or other departments may be invited to participate. The Associate Chair (Graduate Studies) or delegate may attend a comprehensive examination as non-voting participant at the request of the committee or the student. The comprehensive examination committee must be approved by the Faculty of Science Graduate Office.

The chairperson 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. They should also inform the student as to the outcome of the examination.

Issued May 2017
Revised May 2019
May 2021

APPENDIX III: Health and Environmental Safety

Working alone in the lab: Consult the University's guideline (uwaterloo.ca/safety-office/programs-and-procedures/working-alone-guideline) and your Supervisor about their policy.

Fieldwork: 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 on the Safety Office website (uwaterloo.ca/safety-office/programs-and-procedures/fieldwork).

Accident or injury: All accidents or injuries, no matter how minor, should be reported to your Supervisor. An **injury/incident report form** (uwaterloo.ca/safety-office/emergency-procedures/incident-and-hazard-reporting) **must be completed** and submitted to the Department of Biology's Administrative Officer (Jennifer Lehman, ESC 350B). It will be forwarded to the University's Safety Office.

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 Department trained to give first aid include Karen Miinch (B2 354C or B1 373, ext. 32375 and Susan Whyte (ESC 350C, ext.36394).

Serious injury: If there is any doubt about how to handle the injury, call an **ambulance** (**911** on any hard wired campus phone). Provide your exact location (building name, floor, and room number). UWaterloo 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 (available 24 hrs/day, 7 days/wk).

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, Monday to Friday. A listing of several after-hours clinics and local hospitals is also available on the Health Services website (uwaterloo.ca/campus-wellness/after-hours).

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.

Chemical spills: All research labs, teaching labs and prep rooms have materials or 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 Department of Biology has a **Department Health & Safety Committee** comprised of several faculty, staff and grad

students, and a **Health & Safety coordinator** (Dr. Todd Holyoak, ESC 357C). The **Safety Office** can be contacted at 519-888-4567, ext. 33587. The **Plant Operations** 24 Hour Maintenance, Repair and Service Line is ext. 43793. For non-urgent issues, email details (building and room number in the subject line) pltops.maintenance@uwaterloo.ca.

APPENDIX IV: USEFUL WEBSITES

Academic Integrity @ UW: www.registrar.uwaterloo.ca/students/academic_integrity.html

Biology Grad Courses-Academic Calendar:
uwaterloo.ca/academic-calendar/graduate-studies/catalog#/course

Biology Grad Student Association (BGSA):
uwaterloo.ca/biology/graduate-studies/biology-graduate-student-association

Biology forms: uwaterloo.ca/biology/graduate-studies/program-information/forms

Graduate Studies and Postdoctoral Affairs (GSPA):
uwaterloo.ca/graduate-studies-postdoctoral-affairs-new

Guide for graduate research and supervision:
uwaterloo.ca/current-graduate-students/academics/governing-rules-and-regulations/guide-graduate-research-and-supervision

Career Hub: careerhub.uwaterloo.ca

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

Counselling Services: uwaterloo.ca/campus-wellness/counselling-services

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

Student Financial Services website: uwaterloo.ca/finance/student-financial-services

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

Grad Student Housing: uwaterloo.ca/campus-housing/graduate-housing

Graduate Studies Forms: uwaterloo.ca/current-graduate-students/forms

Off Campus Housing: www.och.uwaterloo.ca/students/index.html

Writing Centre: uwaterloo.ca/writing-and-communication-centre/