

BIOLOGY 537

Research in Biology: The Honours Thesis

Fall Term 2022 – Winter Term 2023

CALENDAR DESCRIPTION

Individual research projects under the supervision of a staff member; reported in the form of a thesis, poster, and seminar.

LEARNING HOURS

444 (8L;36S;300Pc;100O)

APPLICATION

In the preceding spring, students must establish projects in consultation with potential supervisors. Applications are made through the Biology Undergraduate Assistant via forms and instructions posted to the BIOL 537 webpage. Registration is subject to availability of a supervisor. Work on the project during summer may be essential if field studies are required.

PREREQUISITES

Admission to the final year of a BSCH program in Biology and a minimum GPA of 2.0 in the Biological Foundations List and permission of the project supervisor and course coordinator.

EXCLUSIONS

No more than 1 course from BIOL 537/12.0 and BIOL 541/12.0.

Teaching team 2022/23

Dr. Adam Chippindale (co-coordinator), chippind@queensu.ca, 613-533-6139, Biosci 2420

Dr. Sharon Regan (co-coordinator), regans@queensu.ca, Biosci 3422

Learning outcomes

The Honours Thesis Course (BIOL 537/12.0) is one of the main capstone experiences offered in the Biology undergraduate program. It provides students the opportunity to develop and work on their own independent research project under the supervision of a faculty member in the Biology Department (or cross-appointed to the Biology Department). Students gain experience in the full range of activities involved in doing original research in Biology, including project design, data analysis and interpretation, literature review, scientific writing, oral presentation and interactive collaboration with colleagues.

By the end of this course, the student should be able to:

1. Apply fundamental scientific principles and critical thinking skills to independently develop and conduct a novel and discrete biological research study.
2. Demonstrate key professional skills, such as advanced laboratory and/or field biological techniques, effective proposal and manuscript writing, oral communication, critical evaluation of the literature, lab team-work, and problem solving.
3. Verbally synthesize the study and defend the main research findings and their interpretation at a standard appropriate for a professional scientific conference.
4. Analyse and interpret the study results, and present them and an evaluation of their significance in writing at a standard appropriate for a peer-reviewed science journal.

5. Constructively critique the strengths and weaknesses of other students' studies to refine and improve their scientific value.

Learning Hours

<i>Teaching method</i>		<i>Average hours per week</i>	<i>Number of weeks</i>	<i>Total hours</i>
In-class hours	Lecture	2	4	8
	Seminar	2	8	36
	Laboratory			
	Tutorial			
	Practicum	12.5	24	300
	Group learning			
	Individual instruction			
Other	Online activity			
	Off-campus activity			
	Private study	4.17	24	100
Total hours on task				444

Course Material

Organizational and background material and marks will be provided on OnQ. Project-specific material will be provided by the supervisors.

Course Schedule

The current course schedule will be posted on OnQ for students enrolled in the course. A general schedule will be available through the course website.

Website

<https://biology.queensu.ca/academics/undergraduate/courses/course-listings/>

UPDATED WEBSITE UNDER CONSTRUCTION!

Assessment

Component	Value (%)	Marker(s)
Research Proposal (F)	15	Supervisory committee (supervisor[s] and committee member); teaching assistant
Lab/Field Skills	5	Supervisor(s)
Seminar (F or W)	15	Supervisory committee; TA; peers
Poster (W)	15	Supervisory committee; graduate students
Thesis - First Draft (W)	10	Supervisor(s)
Thesis - Final Draft (W)	30	Supervisory committee (moderated by course instructors)
Thesis Defence (W)	10	Supervisory committee (moderated by course instructors)

Academic Integrity and Queen's Code of Conduct

Students are responsible for familiarizing themselves with the regulations concerning academic integrity and for ensuring that their assignments and conduct conform to the principles of academic integrity. Information is available in the Arts and Science Calendar (see Academic Regulation 1 - <http://www.queensu.ca/artsci/academic-calendars/regulations/academic-regulations>, on the Arts and Science website (see <http://www.queensu.ca/artsci/academics/undergraduate/academic-integrity>), and at Biology's website (<http://www.queensu.ca/biology/undergrad/integrity.html>) and from the instructor of this course. Departures from academic integrity include plagiarism, use of unauthorized materials, facilitation, forgery and falsification, and are antithetical to the development of an academic community at Queen's. Given the seriousness of these matters, actions which contravene the regulations on academic integrity carry sanctions that can range from a warning or the loss of grades on an assignment to the failure of a course to a requirement to withdraw from the university.

In summary, departures from academic integrity include plagiarism, use of unauthorized materials, facilitation, forgery and falsification, and are antithetical to the development of an academic community at Queen's. Given the seriousness of these matters, actions which contravene the regulation on academic integrity carry sanctions that can range from a warning or the loss of grades on an assignment to the failure of a course to a requirement to withdraw from the university.

The BIOL537 teaching team are committed to fully pursuing investigations of breaches of academic integrity. Regrettably, we have reported to the Dean several findings of academic integrity breaches in both the lab and lecture sections of this course in the past, so please be very careful to ensure you are clear on your responsibilities.

Accommodation Policy, Exam Conflicts, and Other Conflicts

Students who feel they need accommodations for disabilities or extenuating circumstances, or have a conflict between exams or other commitments should consult the Biology Department's website for details about how to proceed (<http://www.queensu.ca/biology/undergrad/integrity.html>). In general, the earlier a course coordinator is apprised of an extenuating circumstance, the more likely an accommodation can be made. Students are encouraged to be proactive in anticipating difficulties, when it is possible to do so.

Students may apply to write a make-up or deferred exam if they have an exam conflict as defined in the Academic Regulations of the Faculty (See Arts and Science Calendar Regulation 8 - <http://www.queensu.ca/artsci/academic-calendars/regulations/academic-regulations>). In this case, the student should report to the Exams Office first to verify that there is a genuine exam conflict. Biology professors will not consider your situation to be a conflict unless it meets the criteria set out by the Faculty of Arts and Sciences.

Students may request a make-up or deferred exam if they have an exam conflict with off-campus travel associated with a field course (e.g BIOL-307/3.0 or 407/3.0) that is held during the fall or winter terms.

Extenuating Circumstances

The issue of extenuating circumstances and extensions is a difficult one for both instructors and students. On the one hand, unforeseen events and critical personal circumstances arise from time to time. On the other hand, a small number of students abuse the instructor's goodwill in various ways including frequently requesting extensions for trivial reasons. The teaching team in this course is committed to being understanding and sensitive, but also responsible and firm in assessing requests for accommodations. Each request will be considered in the context of fairness to all the other students on the course. See the Biology Department's website for information about our policy and the form that you will need for missed labs and/or for large assignments or presentations:
<http://biology.queensu.ca/academics/undergraduate/prepare-yourself/>

Copyright

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Accommodation of Disabilities

Queen's University is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a disability and think you may need accommodations, you are strongly encouraged to contact the Disability Services Office (DSO) and register as early as possible. For more information, including important deadlines, please visit the DSO website at: <http://www.queensu.ca/hcds/ds/>

Grading Method

In this course, most or all components will be graded using numerical percentage marks. Your course average will then be converted to a final letter grade according to Queen's Official Grade Conversion Scale:

Grade	Numerical Course Average (Range)
A+	90-100
A	85-89
A-	80-84
B+	77-79
B	73-76
B-	70-72
C+	67-69
C	63-66
C-	60-62
D+	57-59
D	53-56
D-	50-52
F	49 and below