

Biology 5XX Level Advanced Honours Seminar Courses Application Form – 2025-26

Name: _____ Student #: _____ E-mail address: _____

Plan: BIOL-M-BSH BTEC-P-BSH BIPS-P-BSH BIMA-P-BSH EBIO-P-BSH

Have you previously completed a BIOL 5XX seminar course? Yes No

Are you enrolling in, or have you previously taken BIOL 537? Yes No

From the course descriptions, choose the topics which interest you most. We will endeavour to satisfy everyone who has not previously taken a BIOL 5XX or BIOL 537 a first or second choice. The enrollment is normally limited to 16 students per course. Students taking BIOL 537 may take one advanced honours seminar course if space allows. Preference will be given to students who require an advanced Honours seminar course(s) for their degree plan (i.e. students not doing a BIOL537 thesis project).

The requirement for the MAJ BIOL degree plans is 6.0 units in BIOL @400 or above. There may be room for some students to be registered in two seminar courses.

Do you wish to register for: one (3.0 unit) seminar course or two (6.0 units)

Please indicate three choices from each term (in order of preference), type a '1', '2', or '3' in the first column/line beside the courses you want. Please make sure you have (or will have) the prerequisites/corequisites. **Students without the prerequisites/corequisites will not be placed in the course.**

FALL TERM 2025				
Choice Order	Course	Title	Instructor	Pre/Co-req Completed?
	503	Plant Biotechnology	Snedden	
	530	Origins of Biodiversity	Martin	
	535	Selected Topics in Biology	TBD	

WINTER TERM 2026				
Choice Order	Course	Title	Instructor	Pre/Co-req Completed?
	501	Selected Topics in Molecular Biology and Genetics	TBD	
	504	Selected Topics in Ecology and Evolution: Urbanization & Biodiversity	Bonier	
	505	Cell Signaling in Development and Disease	Chin-Sang	
	527	Paleolimnology and Global Environmental Change	Cumming	

Student Comment/Note:

Make your selections using this form and send to **Rachel Batson @ ug.biology@queensu.ca** no later than **Friday May 9, 2025**. Decisions will be made in June and will be available on **Solus** when you register for your courses.

Biological Foundations List: BIOL 102/3.0; BIOL 103/3.0; BIOL 200/3.0;/3.0; BIOL 205/3.0; BIOL 206/3.0; BIOL 212/3.0; BIOL 300/3.0; BIOL 330/3.0; BIOL 334/3.0; BIOL 339/3.0; BIOL 341/3.0;

FALL TERM

BIOL 503 (3.0) → Plant Biotechnology

This discussion-based seminar course will explore the recent, primary literature on topics related to the use of plants in commercial applications of interest to the biotechnology industry. Examples of topics covered might include expressing recombinant proteins such as human insulin in plants, enhancing stress and disease tolerance in crops, biofortification of crops, and engineered phytoremediation. Students will examine the various methods of genetic engineering of plants, current challenges and future potential of plant biotechnology, and ethical considerations and limitations of these technologies.

LEARNING HOURS: 120 (36S;84P)

PREREQUISITE: Level 4 and registration in a Biology Honours Plan (BIOL-M-BSH, BIOL-P-BSH, BIMA-P-BSH, BIPS-P-BSH, BTEC-P-BSH, EBIO-P-BSH) and a minimum GPA of 2.0 in the Biological Foundations List and (BIOL 330/3.0 or BIOL 334/3.0 or BIOL 341/3.0 or BIOL 430/3.0) or permission of the Department.

BIOL 530 (3.0) → Origins of Biodiversity

This course uses the latitudinal increase in diversity towards the equator as a launching point to explore how diversity forms, is maintained, and disappears, and why we find such dramatic variation in diversity around the world. Discussions will focus on both evolutionary and ecological perspectives of diversity, and we will review various hypotheses to explain latitudinal diversity gradients.

LEARNING HOURS: 120 (9L;9S;18G;84P)

PREREQUISITE: Level 4 and registration in a Biology Honours Plan (BIOL-M-BSH, BIMA-P-BSH, BIPS-P-BSH, BTEC-P-BSH, EBIO-P-BSH) and a minimum GPA of 2.0 in the Biological Foundations List or permission of the Department.

BIOL 535 (3.0) → Selected Topics in Biology

Topics vary from year to year. Please consult the Department of Biology website for more information.

NOTE This course is repeatable for credit under different topic titles.

Learning Hours: 120 (9 Lecture, 9 Seminar, 18 Group Learning, 84 Private Study)

Requirements: Prerequisite Level 4 or above and registration in a Biology Honours Plan (BIOL-M-BSH, BIOL-P-BSH, BIMA-P-BSH, BIPS-P-BSH, BTEC-P-BSH, EBIO-P-BSH) and a minimum GPA of 2.0 in the Biological Foundations List and permission of the Department.

WINTER TERM

BIOL 501 (3.0) → Selected Topics in Molecular Biology and Genetics

Topics vary from year to year. Please consult the Department of Biology website for more information.

NOTE This course is repeatable for credit under different topic titles.

Learning Hours: 120 (9 Lecture, 9 Seminar, 18 Group Learning, 84 Private Study)

Requirements: Prerequisite Level 4 or above and registration in a Biology Honours Plan (BIOL-M-BSH, BIOL-P-BSH, BIMA-P-BSH, BIPS-P-BSH, BTEC-P-BSH, EBIO-P-BSH) and a minimum GPA of 2.0 in the Biological Foundations List and permission of the Department.

BIOL 504 (3.0) → Selected Topics in Ecology and Evolution: Urbanization & Biodiversity

This course reviews the many ways that organisms respond to urbanization and the challenges of living in urban areas, encompassing physiological, behavioural, and life history responses of individuals, evolutionary adaptations of populations, and changes in composition and dynamics of ecological communities. Discussions will focus on broad patterns that help us better understand how cities impact biodiversity, and why some organisms tolerate urban challenges so much better than others.

LEARNING HOURS: 120 (9L;9S;18G;84P)

PREREQUISITE: Level 4 and registration in a Biology Honours Plan (BIOL-M-BSH, BIMA-P-BSH, BIPS-P-BSH, BTEC-P-BSH, EBIO-P-BSH) and a minimum GPA of 2.0 in the Biological Foundations List or permission of the Department.

BIOL 505 (3.0) → Cell Signaling in Development and Disease

This seminar-based course investigates the genetic and molecular underpinnings of cell signaling in developmental biology and disease, with a focus on how single cells coordinate behaviours such as cell division, cell differentiation, pattern formation and cell shape changes and movements. Students will engage in three core components: (1) critical analysis of primary research articles through weekly discussions, (2) a writing assignment involving a concise mini-review of a recent peer-reviewed study, and (3) a student-led seminar presentation exploring topics such as signaling pathways in embryogenesis, or dysregulated mechanisms in cancer/metabolic disorders. Content is tailored to class interests, allowing flexibility to delve into cutting-edge

themes at the intersection of cell biology, genetics, and pathology. Lecture notes, curated scientific literature, and online resources replace a traditional textbook. Designed for students in molecular cell biology or related fields, the course prioritizes scientific rigor, communication skills, and connecting mechanistic insights to broader developmental and disease contexts.

LEARNING HOURS: 120 (24L;12S;12I;24O;48P)

PREREQUISITE: Level 4 and registration in a Biology Honours Plan (BIOL-M-BSH, BIOL-P-BSH, BIMA-P-BSH, BIPS-P-BSH, BTEC-P-BSH, EBIO-P-BSH) and (a minimum GPA of 2.0 in the Biological Foundations List) and BIOL 330/3.0 or permission of Department.

EXCLUSION(S) BIOL 535/3.0.

BIOL 527 (3.0) → Paleolimnology and Global Environmental Change

This course is mainly to provide students with a background in studies of long-term environmental change, with a focus on research that is especially relevant to today's environmental problems. Key topics include: climatic change, lake pollution, atmospheric deposition of contaminants and related topics.

LEARNING HOURS: 132 (21L;15S;96P)

RECOMMENDATION: BIOL 335/3.0.

PREREQUISITE: Level 4 and registration in a Biology Honours Plan (BIOL-M-BSH, BIMA-P-BSH, BIPS-P-BSH, BTEC-P-BSH, EBIO-P-BSH) and a minimum GPA of 2.0 in the Biological Foundations List or permission of the Department.