

Biology 5XX Level Honours Seminar Courses Application Form – 2026-27

Name: _____ Student #: _____ Queen's Email: _____

Selection your degree plan from the list below:

- New Modular Plans: BIOL-S-3, BIMA-S-3, BIPS-S-3, BTEC-S-3, EBIO-S-3, BIOL-M-3
- Old Non-Modular Plans: BIOL-M-BSH, BIMA-P-BSH, BIPS-P-BSH, BTEC-P-BSH, EBIO-P-BSH

Do you need a 500-level course for your degree plan? Yes No

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 courses. Students taking BIOL 537 may take one seminar course if space allows. Preference will be given to students who require an honours seminar course for their degree plan.

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

Please indicate your top three choices from each term in the 'Choice Order' column beside the courses you want by typing 1, 2, and 3. Please make sure you have (or will have) the prerequisites/corequisites for these courses.

| FALL TERM - 2026 | | | | |
|------------------|---------------------------------------------------|----------------|--------------|-----------------------|
| Course | Title | Instructor | Choice Order | Pre/Co-req Completed? |
| 501 | Selected Topics in Molecular Biology and Genetics | TBA Instructor | | |
| 503 | Plant Biotechnology | Snedden | | |
| 511 | Applied Bioinformatics for Biologists | Colautti | | |
| 535 | Urbanization and Biodiversity | Bonier | | |

| WINTER TERM - 2027 | | | | |
|--------------------|------------------------------------------------|------------|--------------|-----------------------|
| Course | Title | Instructor | Choice Order | Pre/Co-req Completed? |
| 502 | Careers in Biotechnology | diCenzo | | |
| 509 | Limnological Environmental Studies | Arnott | | |
| 527 | Paleolimnology and Global Environmental Change | Smol | | |
| 535 | Aquaculture, Biotechnology and Environment | Wang | | |

Student Comment/Note:

Send applications to **Rachel Batson @ ug.biology@queensu.ca** no later than **Friday May 8, 2026**.
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; 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 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)

Prerequisite: (Level 4 or above and registration in a Biology Honours Plan and a minimum GPA of 2.0 in the Biological Foundations List) or permission of the Department

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)

Requirements: Prerequisite (Level 4 or above and registration in a Biology Honours Plan and a minimum GPA of 2.0 in the Biological Foundations List) or permission of the Department.

BIOL 511 (3.0) → Applied Bioinformatics for Biologists

This course examines common bioinformatics tools and their applications in biological research, through a combination of in-class coding tutorials and discussions of published research articles chosen by students. Students may choose primary research articles from any area of biology including (but not limited to) molecular genetics, cell biology, physiology, ecology, population genetics, molecular evolution, and conservation biology.

Learning Hours: 120 (36 Lecture, 84 Private Study).

Recommended: BIOL 331/3.0 and BIOL 343/3.0.

Requirements: Prerequisite (Level 4 or above and registration in a Biology Honours Plan and a minimum GPA of 2.0 in the Biological Foundations List) or permission of the Department.

BIOL 535 (3.0) → 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 or above and registration in a Biology Honours Plan and a minimum GPA of 2.0 in the Biological Foundations List) or permission of the Department.

WINTER TERM

BIOL 502 (3.0) → Careers in Biotechnology

This course will cover a variety of topics related to careers in the field of biotechnology. This will include discussions of biotech career options within and beyond R&D; emerging and established research fields within the realm of biotech; and environmental, economic, ethical, legal, and social aspects of biotechnology. Through a mix of lectures, student-guided discussions, and direct conversations with key opinion leaders, you will be exposed to the breadth of possibilities that your Biology degree sets up for you.

Learning Hours: 120 (36S;84P)

Prerequisite (Level 4 or above and registration in a Biology Honours Plan and a minimum GPA of 2.0 in the Biological Foundations List) or permission of the Department.

BIOL 509 (3.0) → Limnological Environmental Studies

This course will explore ecological and evolutionary aspects of species invasions, with an emphasis on aquatic invaders. Course discussions will include such topics as invasive species and factors that influence their arrival, establishment, and spread, as well as management strategies that can be employed to reduce the arrival, establishment, and spread of invasive species.

Learning Hours: 120 (9L;9S;18G;84P)

Recommended: BIOL 335/3.0.

Prerequisite (Level 4 or above and registration in a Biology Honours Plan and a minimum GPA of 2.0 in the Biological Foundations List) or permission of the Department.

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)

Recommended: BIOL 335/3.0.

Prerequisite (Level 4 or above and registration in a Biology Honours Plan and a minimum GPA of 2.0 in the Biological Foundations List) or permission of the Department.

BIOL 535 (3.0) → Aquaculture, Biotechnology and Environment

Aquaculture has evolved during human civilization allowing us to divorce the traditional hunting- fishing and-gathering lifestyle. With the fast-growing human population, more intensive aquaculture is gradually overtaking the traditional fishery to meet our ever-increasing demands for dietary protein and nutrition. The introduction of modern technologies including biotechnology in aquaculture is having profound impact on this fast-growing "industry" and its operation. In return, the industry also creates new challenges concerning environment quality, human and ecosystem health, conservation, and sustainable development of natural resources. This module will discuss issues influenced by biotic and abiotic factors as well as the socio-economic aspect of aquaculture practice in today's world. We will also explore the application of different biotechnologies in aquaculture industries.

Learning Hours: 116 (10L, 26S, 90P)

Prerequisite (Level 4 or above and registration in a Biology Honours Plan and a minimum GPA of 2.0 in the Biological Foundations List) or permission of the Department.