
BIOL 439

Natural Selection and Microevolution

Fall Term (2013-14)

CALENDAR DESCRIPTION

The mechanisms of evolutionary change - from genes to societies. How natural selection interacts with genetic and population processes to make organisms adapted to their environment and to create biological diversity.

PREREQUISITE BIOL 302/3.0 or BIOL 303/3.0.

SCHEDULE

Lectures: Monday 14:30-15:30, Tuesday 16:30-17:30, Thursday 15:30-16:30. BIOSCI 1102.
Labs: Please refer to SOLUS for scheduling details.

Instructor	Dr. P. Boag
Instructor Contact	boagp@queensu.ca Phone: 613-533-6394
Office Hours	TBA
TA:	Esteban Rodriguez
TA Contact Information	See Course Website
Office Hours	TBA

Learning Objectives

The goals of Biology 439 are to integrate material on organismal evolution introduced in courses such as Biol 103, Biol 201/2*, Biol 206* and Biol 302/3*. The main focus is on mechanisms of evolutionary change, at levels of organization from genes to societies. We ask how natural selection interacts with genetic and population processes to adapt organisms to environments and to create biological diversity.

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	3	12	36
	Seminar	0.5	12	6
	Laboratory	1.5	12	18
	Tutorial			
	Practicum			
	Group learning			
	Individual instruction			
Other	Online activity			
	Off-campus activity			
	Private study	5	12	60
Total hours on task				120

Course Outline

Lectures are combined with student seminars, movies, and lab material and simulation exercises. Emphasis is placed on the development of independent study skills, modern library research methods, critical thinking and writing, and effective oral presentation and discussion skills, and basic computer simulation and data management. The course is designed for senior undergraduates and assumes familiarity with the courses listed above, especially Biol 206*. The text is the same one used in Biol 206*, and provides both review and background reading for new or expanded topics. Additional reading is provided as journal articles and chapters from more specialized texts. See web site for additional details

Textbooks/Readings

Freeman, S. and J.C. Herron. *Evolutionary Analysis* (4th ed). Pearson Prentice Hall

Grading Scheme

Component	Weight (%)	Date
Midterm	14	TBA
Lab assignments	21	All term
Seminar	15	TBA
Final exam	25	TBA
Term paper	20	Dec. 5
Popular article	5	Dec. 5

Grading Method

In this course, some components will be graded using numerical percentage marks. Other components will receive letter grades, which for purposes of calculating your course average will be translated into numerical equivalents using the Faculty of Arts and Science Letter Grade Input Scheme.

When letter grades are employed, the following scale will be employed for purposes of calculating your course average:

Arts & Science Letter Grade Input Scheme

Assignment mark	Numerical value for calculation of final mark
A+	93
A	87
A-	82
B+	78
B	75
B-	72
C+	68
C	65
C-	62
D+	58

D	55
D-	52
F48 (F+)	48
F24 (F)	24
F0 (0)	0

Your course average will then be converted to a final letter grade according to Queen's Official Grade Conversion Scale:

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

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.

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.

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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/>