

BIOL 442

Evolutionary Medicine

Fall Term (2016-17)

CALENDAR DESCRIPTION

An exploration of human disease, illness, and injury, and the symptoms and treatments of medical conditions, with an evolutionary framework.

LEARNING HOURS 120 (24L;20T;10O;66P)

PREREQUISITE BIOL 206/3.0 and a minimum GPA of 2.0 in the Biological Foundations List

EQUIVALENCY BIOL 522/3.0.

SCHEDULE

Refer to SOLUS for details

Instructor	Dr. Peter Boag
Instructor Contact	boagp@queensu.ca Phone: 613-633-6394
Office Hours	Monday 130-230, Wednesday 930-1030, Thursday 130-230, Friday 1130-12 and 130-230
TA:	TBA
TA Contact Information	TBA
Office Hours	TBA

Learning Objectives

The goal of Biology 442 is to guide students in applying an evolutionary framework to better understand human medical conditions and illnesses, and to deepen students' understanding of fundamental evolutionary concepts. In the process, students will improve their critical thinking and communication skills through participation in discussions, preparing independent and group projects, and delivering oral presentations to their tutorial section.

Learning Hours

<i>Teaching method</i>		<i>Avg. hours per week</i>	<i>Number of weeks</i>	<i>Total hours</i>
In-class hours	Lecture	2	12	24
	Seminar			
	Laboratory			
	Tutorial	2	10	20
	Practicum			
	Group learning	2	8	16
	Individual instruction			
Other	Online activity	1	12	12
	Off-campus activity			
	Private study	4	12	48
Total hours on task				120

Course Outline

This course was inspired by collaborations between physicians and evolutionary biologists, most notably Randolph M. Nesse and George C. Williams. Western medical practice focuses on the symptomatic treatment of human illness and injury. This course encourages students to integrate their undergraduate training in biology, to understand better medical conditions ranging from fever to infection, mental illness and obesity. Modern evolutionary theory is used to explore if the body's response to illness or injury is adaptive, and if so, whether traditional medical treatments make evolutionary sense. Through a combination of lectures, student seminars, and written assignments, students review the principles of evolution by natural selection, and become acquainted with many of the biological challenges facing medical practice in the coming decades.

Textbooks/Readings

Required text: Nesse, R. M. and G. C. Williams. 1996. *Why We Get Sick: The New Science of Darwinian Medicine*. Vintage Books, Random House, New York. Available from campus bookstore or commercially. One copy will be on 24 hr reserve in Stauffer Library.

Other readings from the primary literature to be provided on Moodle site and/or course web site. Some background books will be on reserve in Stauffer library.

Grading Scheme (subject to minor changes)

Component	Weight (%)
Participation	6%
Quizzes online or in class/tutorial	8%
Radio interview assignment	10%
Book Review, oral & written	18%
Seminar	18%
Major paper	40%

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 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/>