

BIOL 510

Biogeochemistry and Global Change

Winter Term (2013-14)

CALENDAR DESCRIPTION

This ecology course will introduce students to the biogeochemical aspects of a wide range of global change issues. Emphasis will be on interactive discussions and student-led seminars in which participants will have ample opportunities to explore, analyze and synthesize scientific information, to learn how the scientific process works, and to develop their understanding of global change issues.

LEARNING HOURS 120 (36S; 12T; 12G; 36I;12O; 12P)

SCHEDULE

Lectures: Monday 11:30-1:00, Thursday 13:00-14:30. 3110 Biosciences.

Instructor	Dr. P. Grogan
Instructor Contact	groganp@queensu.ca – Phone 613-533-6152)
Office Hours	TBA
TA:	Not applicable
TA Contact Information	Not applicable
Office Hours	Not applicable

Learning Objectives

Each iteration of this course focusses on a different global change issue. By the end of the course the student should be able to:

- Demonstrate an understanding of major global change issues that integrates ecological, economic and social perspectives
- Explain the biogeochemical contexts and processes that make certain human activities global change issues
- Develop, present, and write cohesive, original syntheses on some aspect of a global change issue that is of particular interest to the student
- Describe the history of human influences on the earth's biogeochemistry
- Discuss the role of ecology in influencing and predicting the future of our civilization

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			
	Seminar	3	12	36
	Laboratory			
	Tutorial	1	12	12
	Practicum			
	Group learning	1	12	12
	Individual instruction	3	12	36
Other	Online activity	1	12	12
	Off-campus activity			
	Private study	1	12	12
Total hours on task				120

Course Outline

This ecology course will examine the underlying causes of global change issues at levels ranging from biogeochemical processes through to human behaviour. The aim of the course is to develop students' perspectives on the relationship between ecology and the sustainability of our current civilisation. Students will lead informal seminar discussions on some component of this theme that is of particular interest to them.

Initial sessions will provide an overview of the history of human impacts on the structure and functioning of the Earth's ecosystems, and the background to the particular global change topic that will be the focus the course. New topics are chosen for each year's iteration of this course. For example, the central question addressed in the course for 2012 was: What are the implications of anthropogenic phosphorus use for our civilisation's sustainability?

This course is for final year undergraduates and is specifically aimed at enhancing their capacities for critical thinking, group discussion, and independent learning. By the end of the course, students should be able to apply fundamental ecological perspectives toward understanding the Earth's ecosystems and how they are being affected by human activities.

Since the student choose their seminar topics on some aspect of the global change issue that is of particular interest to them, the precise material covered cannot be itemized beforehand. See course website for outlines of previous years' courses (<http://post.queensu.ca/~biol510/index.html>). However, initial sessions cover the following broad topics each year:

1. Introduction to the topic of Global Change

What is Global Change? What is Biogeochemistry? Historical perspectives on global change – natural variability versus anthropogenic impacts. Course learning outcomes. Course structure and logistics.

2. Introduction to the Global Change issue for the current iteration of the course

Textbooks/Readings

No required textbook. Reading list to be provided at beginning of the course and further required readings will be chosen by the students as the course progresses.

Grading Scheme

Component	Weight (%)	Date
Active participation in discussions (questions, comments, suggestions)	15%	Ongoing
Seminar written questions	10%	Ongoing
Seminar presentation	35%	TBA
Term paper	40%	TBA

Grading Method

All components of this course will receive numerical percentage marks. The final grade you receive for the course will be derived by converting your numerical course average to a letter grade according to Queen's Official Grade Conversion Scale.

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.

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/>

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