BIOL 510
Biogeochemistry and Global Change

Winter Term (2017-18)

CALENDAR DESCRIPTION

BIOL-510 (3.0) Biogeochemistry and Global Change
This ecology course is aimed at identifying and critiquing potential mechanisms by which our civilization could most effectively move toward more sustainable living. This topic incorporates biogeochemical, ecological, economic, social, genetic and behavioral features and constraints. Each iteration of the course will focus on a specific thematic question related to at least some of those components. 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, to write and speak effectively, and to develop their understanding of global change issues and sustainability.

Professor: P. Grogan **PREREQUISITES** BIOL302 and 303 strongly recommended.

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

SCHEDULE
Seminars: Tuesday 10:00-11:30, Friday 11:30-13:00. 3112 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 Hours

Teaching method		*Average hours per week*	*Number of weeks*	*Total hours*
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

The 2017 course iteration will focus on the theme of 'deep ecology' interpreted in two distinct but inter-related ways. The first half of the course will highlight the ecological and social significance of what 'goes on beneath our feet' – i.e. the biological activities in the soil environment that are the fundamental basis for terrestrial ecosystems. The second half of the course will investigate the development and significance for our civilisation's sustainability of the philosophical concept entitled 'deep ecology' that proclaims "All life (human and nonhuman) has value in itself, independent of its usefulness to humans".
The principal question that this course will address is:
What is the 'deep ecology' concept, can it be meaningfully applied to the soil environment, and how can it be most effectively used to promote sustainable ecological behaviour?

This course is for final year undergraduates and is specifically aimed at enhancing their capacities for critical thinking, intelligent open discussion, group work, and independent learning. The course will 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.

Learning Outcomes

By the end of the course the student should be able to:

- Demonstrate a comprehensive understanding of the soil environment in terms of it wondrous biology as well as its ecological and societal significance
- Describe and critically assess the concept of 'deep ecology' and its relevance to society's responses to global change issues, especially as applied to the management and conservation of soils
- Search, analyse, and synthesize primary and secondary literature in the natural and social sciences
- Develop and present a cohesive, original synthesis essay on the potential of deep ecology and other philosophical perspectives to influence the future sustainability of our civilisation

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.

Website: http://post.queensu.ca/~biol510/index.html

Grading Scheme

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