**BIOL 510**

**The Biology of Sustainability**

Winter Term (2020-21)

**CALENDAR DESCRIPTION**

**BIOL-510 (3.0)    The Biology of Sustainability**This ecology course is aimed at identifying and critiquing potential mechanisms by which our civilization could most effectively move toward more sustainable living.  Biology can explain current environmental sustainability issues, but is also at the fundamental root of their underlying causes – human behaviour.  Therefore, the biology of sustainability incorporates biogeochemical, ecological, economic, social, genetic, and philosophical features and constraints.   Each iteration of the course will focus on a unique specific thematic question related to at least some of those components.

The 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.  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 speak and write effectively, and to develop their understanding of the philosophies underlying human behaviour and how they relate to global change issues, and the sustainability of our current civilisation.

**Professor**:   P. Grogan  **PREREQUISITES** BIOL 300 strongly recommended.

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

**SCHEDULE**

**Seminars: Monday 1:00-2:30, Wednesday 11:30-13:00. 3112 Biosciences.**

|  |  |
| --- | --- |
| **Instructor** | **Dr. P. Grogan** |
| **Instructor Contact** | ([groganp@queensu.ca](mailto:groganp@queensu.ca%20) – 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 2020 course is subtitled: **Biology and Sustainability: Linkages to buddhist and indigenous philosophical perspectives**

The principal question that the 2020 course will address is:  
***What conceptual linkages between Biology and the philosophical perspectives of Buddhism and indigenous cultures would be most useful in promoting sustainable living?***

Students will lead informal seminar discussions on some component of this theme that is of particular interest to them. The 2020 course will be largely focussed on reading and discussion of biology professor David Barash's 2013 book *Buddhist Biology. Ancient Eastern Wisdom meets Modern Western Science*, but will also include a substantial North American indigenous component including associated readings and activity exercises/workshops.

**Learning Outcomes**

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

1. Critically assess the constraints (ecological, economic, social, behavioural and political) that underlie society’s current responses to global change issues
2. Discuss, explain, and critique the similarities and differences in fundamental philosophical concepts between contemporary Buddhism and Indigenous cultures that relate to Biology and Sustainability
3. Formulate clear, original, challenging, and concise thematic questions from study reading material that are likely to lead to focussed and intellectually probing seminar group discussions, student-led seminar topics or short essay writing pieces
4. Search, critically assess, and synthesize primary and secondary literature in the natural and social sciences
5. Develop and present a cohesive, original, synthesis essay on the potential of contemporary Buddhist and Indigenous philosophical perspectives to promote more sustainable living

**Textbooks/Readings**

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:** <https://www.queensu.ca/terrestrial-ecosystem-ecology/teaching/biol-510-biogeochemistry-and-global-change>

**Grading Scheme**

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