



BIOL 410.3 – CURRENT PERSPECTIVES IN ENVIRONMENTAL BIOLOGY 2017-18 Term 2

Schedule: Tues and Thurs 8:30 am – 9:50 am
Location: Biology 124
Start date: January 4, 2015

Instructors:

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Course Description

Course prerequisites

BIOL 228 (Introduction to Ecology and Ecosystems)
 BIOL 301 (Critical Issues in Biology)
 and Permission of the Department

This course consists of modules taught by faculty in the environmental sciences. Students will participate together in weekly seminars, assigned readings, essays and oral presentations to learn about current issues in the environment and cutting-edge research with an environmental focus. BIOL 410.3 is designed to be a capstone course at the fourth year for students in the BSc ENVB program (4 year and Honours) and will be relevant for future career paths in environmental sciences. It will allow students to interact with faculty and learn about current research in the environment being conducted at the University of Saskatchewan. Students will have a chance to apply their diverse interdisciplinary knowledge to current environmental issues in biology, extend their knowledge to the community, refine communication and analytical skills and develop a sense of community with their peers.

Course Rationale

The Earth is currently experiencing unprecedented rates of environmental change brought on by the activities of an expanding human population. This change is creating conflicts and challenges in the management of environmental resources to sustainably support human societies and other biotic communities. Methods in environmental biology and applied ecology form a central tool in effectively dealing with these issues. The aim of this course is to expose students



to the theoretical frameworks and practical skills needed to address current challenges in environmental biology using a scientific approach.

This course complements other courses in biology that focus on applied ecology and environmental issues. It is intended to serve as a capstone course for an undergraduate major in Environmental Biology. Within each module of the course, students will be exposed in depth to a different problem or issue in environmental biology, and will conduct research or data analysis exercises to explore issues and possible solutions. Students will gain valuable experience in assessing the current scientific literature on an issue, identifying knowledge gaps, and proposing means to address gaps or apply knowledge to existing problems. Group research activities and discussion will also facilitate the expression and integration of different viewpoints and management priorities as related to environmental issues. In addition, students will be exposed to different ways and career paths for applying skills in environmental biology to managing and predicting change in Earth's ecological systems.

Course aims and objectives
 The aim of this course is to expose students to the theoretical frameworks and practical skills needed to address issues in environmental biology using a scientific approach. As biologically literate and informed citizens or employees, little of your time will be spent watching lectures; rather you are more likely to be involved in *application* of information using the following skills:

- decision-making
- problem-solving
- investigation
- policy analysis
- debate
- critical and creative thinking
- information-retrieval
- communication

This course is structured to address many of these skills and to integrate knowledge from your Environmental Biology degree major. Instruction by faculty will expose students to a range of different issues and areas of expertise. An emphasis will be placed on examining current issues in applied ecology that have the potential to inform and influence how we manage our impacts on diverse ecosystems.

Learning Outcomes

By the end of this course, students will:

- ❖ Develop familiarity and expertise in current issues related to 6 different topics of environmental biology. This expertise will be built by integrating information derived from a variety of sources, such as introductory lectures, assigned readings of primary research or synthesis articles, and independent research to survey the scientific literature or directly analyze ecological datasets.
- ❖ Be able to compile, summarize, and interpret scientific knowledge obtained from a literature review or primary data analysis.
- ❖ Gain experience in presenting research results through oral and written formats.
- ❖ Develop skills in the management and implementation of individual or small group exercises and research projects, such as setting and meeting project timelines, formulating research objectives, and integration of components into a final presentation.
- ❖ Apply your skills and extend them to the wider community
- ❖ Appreciate the complexity of addressing management issues in socio-ecological systems.



- ❖ Identify tools, processes, and roles for biologists to make positive contributions to addressing issues in environmental biology.

Format and Procedures

The course is structured around 2 – 1.5 hour sessions of in-class activities per week. The format of those activities will vary, and is likely to include introductory topic lectures by a faculty member or guest practitioner, group discussions, tutorials for research activities, and active group work on research topics. There is no required text, but there will be recommended and required readings for each topic. Access to these readings will be posted through online venues (e.g., on Blackboard). Modules taught by the various faculty will each address a different topic or issue in environmental biology. The topics of the modules change from year-to-year, depending on the instructors and the issues of the day. Students will frequently be engaged in conducting some sort of research or analysis exercise for individual modules. In class exercises may be based on independent or group work, or a combination of the two. To facilitate collaborative work, students are asked to come prepared to class and be considerate and respectful of their classmates in all discussions. Students who are experiencing difficulties with group work are encouraged to bring any issues to the attention of the instructor, who will work with the students to develop a solution to the problem.

Grading Scheme

Students will receive a final mark for the course that will be a number grade from 0 to 100% allocated based on the activities described below. Grading of assignments and participation will be done by the instructor covering that module topic in the course and each module will have equal weighting. Each module will have at least one written assignment and any participation marks are given upon completion of the section of the course led by each instructor. A more detailed breakdown of the assignments in each model will be given by the instructor at the start of the module

Activity	Date	Title	Marks
Module 1a (Dr. Lane)	Jan 9 to Jan 18	Wildlife Disease 1. Research grant application – due Jan 23 2. Research grant review – due Jan 30	10% 6.5%
Module 1b (Dr. Lane)	Jan 23 to Feb 1	Climate change influences on wildlife populations 1. Infographic speed presentation – due Feb 1 2. Infographic and write up – due Feb 6	6.5% 10%
Module 2 (Dr. Malaj)	Feb 6 to Mar 8 (Reading Week Feb 19-23)	Multiple stressors in freshwater ecosystems 1. Report on a case study – due Mar 9 2. Class participation, discussion and in class team work	23.3% 10%
Module 3 (Dr. Hudson)	Mar 13 to April 5	Human Impacts on Marine Ecosystems 1. Essay 16.3% 2. Oral Presentation 12% 3. Assigned paper presentation and class participation 5%	16.3% 12.0% 5.0%
Total			100%



Submitting Assignments

Each instructor will state at the beginning of their module the due dates of various assignments. Late penalties will be associated for overdue assignments (please check with each module instructor for details).

Attendance and Participation Expectations

The class is based in large part on active learning and class discussions. Therefore, it is expected that students will attend all classes and come prepared for each class by completing the reading or other material in advance. Marks are assigned to each student after each module based on the student's attendance, preparation, participation and level of engagement in class and group activities.

Criteria That Must Be Met to Pass

A final grade of 50% or higher is required to pass the course. Because this is a research and writing-intensive course, there is no final exam. There will be marks assigned as laid out above with additional details provided in rubrics and during class.

Student Feedback

The instructors welcome informal student feedback throughout the course. Formal opportunities for feedback of the course, material and instructors may be provided during or at the end of the course.

Academic Honesty

Each student is expected to abide by the University of Saskatchewan Guidelines for Academic Honesty (see <http://www.usask.ca/honesty/>). Any written work submitted by a student in this course for academic credit will be the student's own work, unless it is submitted as a group project report. Collaboration is allowed on group project reports, but documentation of individual students' roles and contributions to the project may be required. Students are encouraged to work together and to discuss information and concepts covered in the course with other students.

The College of Arts & Science and the University of Saskatchewan have a zero-tolerance policy regarding plagiarism and other forms of academic dishonesty and are committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct (<http://www.usask.ca/secretariat/student-conduct-appeals/StudentAcademicMisconduct.pdf>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (<http://www.usask.ca/secretariat/student-conduct-appeals/StudentNon-AcademicMisconduct.pdf>) For more information on what academic integrity means for students see the Student Conduct & Appeals section of the University Secretary Website at: <http://www.usask.ca/secretariat/student-conduct-appeals/forms/IntegrityDefined.pdf>

Accommodations for Students with Disabilities

Instructors are open and available to discuss appropriate academic accommodations that may be required for students with disabilities. Requests for academic accommodations should be made during the first three weeks of the semester, except for unusual circumstances. Students are encouraged to register with Access and Equity Services (AES) to verify their eligibility for appropriate accommodations. If you would like more information about the services please contact



Access and Equity Services (AES) for Students at 966-7273 or check out the website at <https://students.usask.ca/health/centres/access-equity-services.php>

Writing Help

Centre for Writing Help at the University of Saskatchewan <http://www.usask.ca/ulc/?q=node/9> offers services to assist students enhance their writing proficiency, style, and effectiveness. All students are encouraged to make use of available resources and services. In addition, the library offers training sessions on use of reference software and databases that can be important for completing class assignments involving research and writing.

University of Saskatchewan Grading System (for undergraduate courses)

Exceptional (90-100) A superior performance with consistent evidence of

- a comprehensive, incisive grasp of the subject matter;
- an ability to make insightful critical evaluation of the material given;
- an exceptional capacity for original, creative and/or logical thinking;
- an excellent ability to organize, to analyze, to synthesize, to integrate ideas, and to express thoughts fluently.

Excellent (80-90) An excellent performance with strong evidence of

- a comprehensive grasp of the subject matter;
- an ability to make sound critical evaluation of the material given;
- a very good capacity for original, creative and/or logical thinking;
- an excellent ability to organize, to analyze, to synthesize, to integrate ideas, and to express thoughts fluently.

Good (70-79) A good performance with evidence of

- a substantial knowledge of the subject matter;
- a good understanding of the relevant issues and a good familiarity with the relevant literature and techniques;
- some capacity for original, creative and/or logical thinking;
- a good ability to organize, to analyze and to examine the subject material in a critical and constructive manner.

Satisfactory (60-69) A generally satisfactory and intellectually adequate performance with evidence of

- an acceptable basic grasp of the subject material;
- a fair understanding of the relevant issues;
- a general familiarity with the relevant literature and techniques;
- an ability to develop solutions to moderately difficult problems related to the subject material;
- a moderate ability to examine the material in a critical and analytical manner.

Minimal Pass (50-59) A barely acceptable performance with evidence of

- a familiarity with the subject material;
- some evidence that analytical skills have been developed;
- some understanding of relevant issues;
- some familiarity with the relevant literature and techniques;
- attempts to solve moderately difficult problems related to the subject material and to examine the material in a critical and analytical manner which are only partially successful.

Failure <50 An unacceptable performance