

**Biology in Environmental Management: BIOL 4265 3.0
Winter 2016**

Course Description

This course summarizes our progress in recognizing, understanding and solving large-scale ecological problems caused mainly by pollutants and non-indigenous species. The course is built on a simple, conceptual framework of the ecological management process. Using mainly aquatic examples, to contrast with many other ecology courses, it highlights the fundamental roles applied ecologists play in solving ecological problems.

Prerequisites

Prerequisites: BIOL 2050 (Ecology), BIOL 2060 (Biometrics); or permission of the instructor.

Course Instructors and Contact Information

Course Instructor: Dr. Noreen Kelly
Office: Farquharson 108A
Email: kellyne@yorku.ca
Office hours: Generally available Tuesday mornings. Please email to set up an appointment.
Class website: Activate and consult your moodle account for course materials.

Schedule

Lectures from 2:30 - 5:30 pm, Tuesdays, Room CB 129

Evaluation

There will be no final exam. Rather there will be a written critique, mid-term test, a case study and presentation on applying ecological management, participation in discussions, and a poster presentation on non-indigenous species, prepared in groups of two students. This assignment plan is summarized as follows:

Description	Marks	Due Date*
Written Critique	10	Feb. 9
Test	30	Mar. 8
Written case study and presentation on Applications of Ecological Management	25	Throughout semester
Participation in Discussion	5	Throughout semester
Poster on invaders (groups of 2 students)	30	Mar. 29

*Assignments will not be accepted for marking beyond 5:30 pm on the due date.

Important Dates

Assignment Schedule

Date**	What's Due
Jan. 5	
Jan. 12	
Jan. 19	Case Study - Ecological stressors and indicators
Jan. 26	Case Study - Normality
Feb. 2	Case Study - Applying normality
Feb. 9	Critique ; Case study - Climate Change
Feb. 16	
Feb. 23	Case Study - Causes of environmental problems
Mar. 1	Case Study - Integrating Science and Management
Mar. 8	TEST
Mar. 15	Case Study - Invasive Species
Mar. 22	Case Study - Invasive species
Mar. 29	Poster and Presentation

**Last date to drop course without receiving a grade: March 4th.

NOTE: for additional important dates such as holidays, refer to the "Important Dates" section of the Registrar's Website at <http://www.yorku.ca/yorkweb/cs.htm>

Resources

Required and recommended readings are provided on the course moodle site. If these articles are available on line through York's library eservices, you will be able to download them from www.library.yorku.ca by selecting course reserve materials, then the course number. If readings are not available online, hardcopies are on reserve on a 2-hour loan in the Science library.

Learning Outcomes

Upon successful completion of BIOL 4265 3.0, students will be able to:

- describe the large-scale environmental problems of the current century
- identify classes of major environmental stressors
- use and apply statistical tools to evaluate field data and detect environmental problems
- understand the use of environmental indicators employed in detecting degradation and monitoring recovery of natural aquatic systems
- interpret the primary literature within various subfields of biology
- critically evaluate peer-reviewed publications in the field of environmental biology
- facilitate discussions of scientific topics among their peers
- communicate scientific concepts to a broad audience

Course Content

Environmental problems are very complex, as they vary across spatial and temporal scales, have many causes, comprise a mix of facts and values, and solving them involves cooperation among many societal players. In this course, we will emphasize the role of ecologists and applied science, in addressing the major environmental problems of the 21st century. Specifically, we will examine the roles ecologists play in conceptualizing, understanding, and in working to solve large-scale ecological problems caused by the introduction of pollutants, climate change, and non-native species to the environment. Further, this course will focus on the development of students' reading, writing, and oral presentation skills through group and individual work in class. There is no final exam; instead four marked projects will comprise student evaluation, which involves a test, a critique of a scientific paper, and presentations of a case study and a poster. Lecture topics are summarized as follows:

Date	Theme***
Jan. 5	Introduction; Large environmental problems that we have solved
Jan. 12	Ecological Stressors and Indicators
Jan. 19	What is "normal"?
Jan. 26	Applying what is "normal" in the real world?; How to write a critique
Feb. 2	Climate Change
Feb. 9	Identifying causes of environmental problems: the eutrophication example
Feb. 16	NO CLASS
Feb. 23	Integrating Science and Management: the Lake Simcoe example
Mar. 1	Invasion Biology I
Mar. 8	TEST
Mar. 15	Invasion Biology II
Mar. 22	Multiple Stressors
Mar. 29	Invasive Species Poster Presentations

***Instructor reserves the right to amend or correct the syllabus.

Experiential Education and E-Learning

E-Learning components:

- Moodle Website

Course Policies

Missed Exam

You MUST email your Instructor at kellyne@yorku.ca within TWO days (48 hours) of missing the test (the sooner the better).

- Valid and appropriately detailed **documentation** supporting the events (typically medical or emergency related) preventing your attendance must be submitted to your Instructor within SEVEN (7) days of the missed test. Documentation should cover the date of the missed test.
- Medical (illness) related: You MUST see a Physician within 24 hours of the missed test – ideally on the same day - so that the Physician can confirm you are too ill to attend the test based on medical examination. Valid documentation for medical situations consists of an “Attending Physician’s Statement” from the registrar petitions package http://www.registrar.yorku.ca/pdf/petitions/petition_package.pdf or letter/document of similar detail. **A note that simply says you were seen in the clinic will not be accepted.**
- Death of an immediate family member: death certificate or letter from the funeral director
- Contact your instructor (kellyne@yorku.ca) to determine the appropriate documentation required for other circumstances.

If appropriate documentation is NOT provided within seven (7) days, a zero will be earned on the missed exam.

Where appropriate and possible, makeup tests will be scheduled. These may differ in format from the original test (*i.e.*, include more short/long answer questions).

In order to be fair and consistent with regards to the entire class, individual grades are not negotiable. Contact the Instructor about marks **ONLY** if there is a clear error in your grade (calculation, clerical, etc.) within **ONE** week of the test score being made available to you.

University Policies

Academic Honesty and Integrity

York students are required to maintain the highest standards of academic honesty and they are subject to the Senate Policy on Academic Honesty (<http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/>). The Policy affirms the responsibility of faculty members to foster acceptable standards of academic conduct and of the student to abide by such standards.

There is also an academic integrity website with comprehensive information about academic honesty and how to find resources at York to help improve students' research and writing skills, and cope with University life. Students are expected to review the materials on the Academic Integrity website at - <http://www.yorku.ca/academicintegrity/>

Access/Disability

York University is committed to principles of respect, inclusion and equality of all persons with disabilities across campus. The University provides services for students with disabilities (including physical, medical, learning and psychiatric disabilities) needing accommodation related to teaching and evaluation methods/materials. These services are made available to students in all Faculties and programs at York University.

Students in need of these services are asked to register with disability services as early as possible to ensure that appropriate academic accommodation can be provided with advance notice. You are encouraged to schedule a time early in the term to meet with each professor to discuss your accommodation needs. Please note that registering with disabilities services and discussing your needs with your professors is necessary to avoid any impediment to receiving the necessary academic accommodations to meet your needs.

Additional information is available at the following websites:

Counselling & Disability Services - <http://cds.info.yorku.ca/>

Counselling & Disability Services at Glendon - <http://www.glendon.yorku.ca/counselling/personal.html>

York Accessibility Hub - <http://accessibilityhub.info.yorku.ca/>

Ethics Review Process

York students are subject to the York University *Policy for the Ethics Review Process for Research Involving Human Participants*. In particular, students proposing to undertake research involving human participants (e.g., interviewing the director of a company or government agency, having students complete a questionnaire, etc.) are required to submit an *Application for Ethical Approval of Research Involving Human Participants* at least one month before you plan to begin the research. If you are in doubt as to whether this requirement applies to you, contact your Course Director immediately.

Religious Observance Accommodation

York University is committed to respecting the religious beliefs and practices of all members of the community, and making accommodations for observances of special significance to adherents. Should any of the dates specified in this syllabus for an in-class test or examination pose such a conflict for you, contact the Course Director within the first three weeks of class. Similarly, should an assignment to be completed in a lab, practicum placement, workshop, etc., scheduled later in the term pose such a conflict, contact the Course director immediately. Please note that to arrange an alternative date or time for an examination scheduled in the formal examination periods (December and April/May), students must complete an Examination Accommodation Form, which can be obtained from Student Client Services, Student Services Centre or online at

http://www.registrar.yorku.ca/pdf/exam_accommodation.pdf (PDF)

Student Conduct in Academic Situations

Students and instructors are expected to maintain a professional relationship characterized by courtesy and mutual respect. Moreover, it is the responsibility of the instructor to maintain an appropriate

academic atmosphere in the classroom and other academic settings, and the responsibility of the student to cooperate in that endeavour. Further, the instructor is the best person to decide, in the first instance, whether such an atmosphere is present in the class. The policy and procedures governing disruptive and/or harassing behaviour by students in academic situations is available at - <http://secretariat-policies.info.yorku.ca/policies/disruptive-and-or-harassing-behaviour-in-academic-situations-senate-policy/>