

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

**Course Description**

This course summarizes our progress in conceptualizing, understanding and in solving large-scale ecological problems caused by the introduction of pollutants and exotic species to the environment.

**Prerequisites**

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

**Course Instructors and Contact Information**

Course Instructor: Dr. Sapna Sharma  
Office: Lumbers 326  
Email: [sharma11@yorku.ca](mailto:sharma11@yorku.ca)  
Office hours: Generally available before and after classes. Please email to set up an appointment.  
Class website: Activate and consult your moodle account for course materials.

**Schedule**

Lectures from 8:30-9:45, Tuesdays and Thursdays, Stong College 218

**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	15	Oct. 20
Test	30	Nov. 3
Written case study and presentation on Applications of Ecological Management	20	Throughout semester
Participation in Discussion	5	Throughout semester
Poster on invaders (groups of 2 students)	30	Nov. 29 & Dec. 1

\*Assignments will not be accepted for marking beyond 8:30 am on the due date.

## Important Dates

### Assignment Schedule

Date	What's Due
29-Sep	Case Study 1: Ecological Indicators
06-Oct	Case Study 2: Normality
13-Oct	Case Study 3: Applying normality
20-Oct	Case Study 4: Science of Climate Change; Written Critique Due
01-Nov	Case Study 5: Climate Change Adaptation
03-Nov	Test
10-Nov	Case Study 6: Meta-analysis
17-Nov	Case Study 7: Invasion Biology
24-Nov	Case Study 8: Invasion Biology
29-Nov	Invasive Species Meta-analysis Presentations
01-Dec	Invasive Species Meta-analysis Presentations; Poster Due

\*\*Last date to drop course without receiving a grade: November 11<sup>th</sup>.

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](http://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:

<b>Class</b>	<b>Date</b>	<b>Theme</b>
1	08-Sep	Course introduction
2	13-Sep	How to read a paper?
3	15-Sep	Large environmental problems we have solved
4	20-Sep	Categories of ecological stressors
5	22-Sep	Case Study 0: Ecological Stressors
6	27-Sep	What are ecological indicators? What is normal?
7	29-Sep	Case Study 1: Ecological Indicators
8	04-Oct	Environmental management in the real world.
9	06-Oct	Case Study 2: Normality
10	11-Oct	Applying what is normal in the real world: How to write a Critique
	13-Oct	Case Study 3: Applying normality
11	18-Oct	Science of Climate Change
12	20-Oct	Case Study 4: Science of Climate Change; Written Critique Due
13	25-Oct	Climate Change Adaptation
14	27-Oct	NO CLASS – Reading Week
	01-Nov	Case Study 5: Climate Change Adaptation
15	03-Nov	Test
16	08-Nov	How to make a poster & meta-analysis on your data?
17	10-Nov	Case Study 6: Meta-analysis
18	15-Nov	Invasion Biology
19	17-Nov	Case Study 7: Invasion Biology
20	22-Nov	Invasive Species Management - Zebra mussels
21	24-Nov	Case Study 8: Invasion Biology
22	29-Nov	Invasive Species Meta-analysis Presentations
23	01-Dec	Invasive Species Meta-analysis Presentations; Poster Due

\*\*\*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 [sharma11@yorku.ca](mailto:sharma11@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](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 ([sharma11@yorku.ca](mailto:sharma11@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, one makeup test will be scheduled on December 6<sup>th</sup> at 8:30 am. The makeup test may differ in format from the original test (*i.e.*, include more short/long answer questions). If the makeup test is missed, makeup oral examinations will be scheduled during the examination period.

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.

Student's 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](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-andor-harassing-behaviour-in-academic-situations-senate-policy/>