

Department of Biology Course Outline

SC/BIOL 4095 3.00 Applied Plant Ecology
Fall 2016

Course Description

This course concentrates on how invasive species, pollution, including acid precipitation and climatic change, and activities such as overgrazing have affected plant growth and productivity. Three lecture hours. One term. Three credits.

Prerequisites

SC/BIOL 2050 4.00 or permission of the instructor; SC/BIOL 4090 4.00 is recommended.
Course Credit Exclusion: SC/ENVB 4095 3.00

Course Instructors and Contact Information

Professor Dawn R. Bazely
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Schedule

LECTURES
Mondays, Wednesdays & Fridays: 10:30-11:30 SC 224: Stong College

Evaluation

Project #1 Give a class lecture (in a group)	20%
Project #2 Class research project write-up	20%
Project #3 Individual research essay related to your group lecture topic	25%
Project #4 Class participation	
– learning science communication skills	10%
<u>Final exam (during exam period)</u>	<u>25%</u>

Important Dates

- | | |
|------------------------------------|------------------------------|
| 1. Class participation (12 hrs) | throughout term |
| 2. Research Essay (24 hrs) | 21 October midnight |
| 3. Group research project (18 hrs) | 5 December midnight |
| 4. Give a class lecture! (6 hrs) | 2 nd half of term |

Final exam during exam period (12 hrs studying)

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

No specific text required: we will read and dissect the primary, peer-reviewed literature, and also grey literature (what’s that?).

Relevant reference articles supporting the lectures will be posted every week.

Background texts will be placed on reserve in the library:

Myers, J. and Bazely, D. Ecology and Control of Introduced Plants. CUP

Jonathan Silvertown and Deborah Charlesworth. 2001. *Introduction to Plant Population Biology*. 4th Edition.

Learning Outcomes

Upon successful completion of this course, students should be able to:

1. Explain about current issues in applied (plant) ecology.
2. Read, summarize and explain primary literature journal papers.
3. Understand the difference between primary, secondary peer-reviewed literature and grey literature.
4. Link science and society by generating new data that can be used to answer questions and evaluate policies relating to applied ecological issues (class project).
5. Explain the issues covered in the course clearly and succinctly to non-scientists.
6. Be familiar with how to do field work.
7. Understand the challenges and best practices of doing group work (e.g. developing your scheduling &

communication skills), be comfortable making presentations and be confident in providing input to course content.

8. Practice working collaboratively in groups and learn how to accept, reflect on and incorporate feedback.

EXPECTATIONS: Attendance is **expected** and all in-class information (even material not written on lecture slides) is considered testable material.

Course Content

LECTURE OUTLINE and IMPORTANT DATES for Plant Ecology

Lecture schedule for the week of:

WEEK	MONDAY	WEDNESDAY	FRIDAY
F Sept 9			Introduction to the course outline, student-led lectures & science communication skills. Course expectations.
M Sept 12 W Sept 14 F Sept 16	Class group project & student lecture team formation. What is habitat restoration?	Guest talk by Helen Pthasas & Tim Haagsma. Introduction to the class group project - Restoration of Glendon College Don River riparian habitats.	Management models for invasive plant species and landscape ecology
M Sept 19 W Sept 21 F Sept 23	Training session 1: Steacie Science Library. Select the reading you will assign the class, related your group lecture topic Location TBD	Training session 2: advanced research techniques Steacie Science Library Location TBD We will get your research essay sorted out.	Lecture: Invasives - ecosystems and plant communities & Integrating the invasive issue into research, policy & communications
M Sept 26 W Sept 28	Glendon College visits this week		

F Sept 30			
M Oct 3 W Oct 5 F Oct 7	Glendon College visits this week		
M Oct 10 W Oct 12 F Oct 14	Thanksgiving - no class	Glendon College visits this week	
M Oct 17 W Oct 19 F Oct 21	Lecture: Invasives - ecosystems and plant communities	Integrating the invasive issue into recovery planning for rare species	Invasives - population ecology RESEARCH ESSAY DUE TODAY AT MIDNIGHT
M Oct 24 W Oct 26 F Oct 28	Invasives - introduced plant diseases	Invasives - models of invasive plant populations	Co-curricular day - no lectures
M Oct 31 W Nov 2 F Nov 4	Invasives - habitat management and restoration - revisiting what we learned	Student Lecture planning: how to create a lecture	Student Lecture planning
M Nov 7 W Nov 9 F Nov 11	Student Lecture planning	<u>Student lecture:</u> Loss of plant biodiversity - the extinction crisis	<u>Student lecture:</u> rare plant conservation - COSEWIC and Rio (CBD)
M Nov 14 W Nov 16 F Nov 18	<u>Student lecture:</u> habitat fragmentation and loss (urban ecology - green roofs etc.)	<u>Student lecture:</u> sustainable forestry	<u>Student lecture:</u> Herbivores: plant population effects
M Nov 21 W Nov 23 F Nov 25	<u>Student lecture:</u> Herbivores: ecosystem and community effects	<u>Student lecture:</u> acid deposition	<u>Student lecture:</u> impacts of mining (heavy metal pollution)
M Nov 28	<u>Student lecture:</u> ozone	<u>Student lecture:</u>	Dawn wrap: Bringing it home to Carolinian

W Nov 30	depletion	climate change	Canada: are non-native species just a symptom of major abiotic disturbances?
F Dec 2			
M Dec 5	Last day of classes -		

E-learning aspects include Wikipedia, Twitter, and Blogging assignments.
This course makes extensive use of Moodle.
There is a hands-on field project.

Other Information

In 2014, I got back to teaching this course for the first time since 2005-06. I had been on secondment for 7 years, as director of York University's Institute for Research and Innovation in Sustainability. I originally designed the Plant Ecology course in 1990: well before most of you were born.

Because of the 10-year gap since I last taught this course, I spent a lot of time updating Applied Plant Ecology with new content. I added social media and Moodle. I first used Moodle in 2010, and I like to take advantage of its many cool features.

In 2013, I won the York University President's Senior Professor's Teaching Award. A whole bunch of my former students nominated me for that award which is for all tenured professors across York University. But, before that, I was regularly nominated for, and I won teaching awards, like the Faculty of Science (and Engineering) Teaching Award in 2003. This means that I take teaching, learning and pedagogy very seriously (if you don't know what pedagogy means, please don't hesitate to google it).

This course emphasizes showing initiative, and teamwork. You have all had at least 2 years as undergraduate students, so I want you all to demonstrate and implement what you have learned in previous courses. This means that you should be reviewing your notes from previous courses – this is how it is in the real world – life after university. You will be expected to bring previously learned knowledge and skills to the table.

This course also transitions you from lower year courses, which are more in line with high school science thinking, to upper year courses, where we expect you to ask and find the answers to science questions that may not be straightforward.

How much time should you expect to spend on this course?

There are 3 hours of lectures & labs per week. In addition to attending all lectures, you should expect to put in a minimum of an additional 6 hours per week. That's 9 hours per week of time spent on this course, in order to pass it with a respectable mark in the >70% range.

There are 13 weeks in the term: 12 weeks of classes and 13 of term (including co-curricular days). In the course grading breakdown, I have suggested approximate times that should/could be spent on each assignment and activity.

You have probably heard about the need to "work smarter, not harder". There's no doubt that our top performing university students produce more, better quality work, in the same amount of time, than the rest of our students. These top students may be procrastinating less, and being more focused and better time managers. They are probably showing lots of initiative, and going above and beyond minimum expectations. Everyone can learn these skills. I address this "soft skill" side by including all kinds of skills development and training exercises in the course that is aimed at helping every student to improve her or his performance. These are also skills that you will be expected to have in the real world, after graduation.

Course Policies

- This is an upper year course. You are all adults and I trust you. I am very flexible on extensions in this course, because I emphasize the pedagogy related to learning how to collaborate and incorporate feedback.

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-andor-harassing-behaviour-in-academic-situations-senate-policy/>