

Department of Biology Course Outline

SC/BIOL 3172 3.0 Community Ecology Winter 2022

Course Calendar Description

Using lectures and tutorials, this course explores the many ways that species interact over diverse spatial and temporal scales. Major themes include scales of interaction; mutualistic and antagonistic relationships; communities as coevolved relationships; community assembly, structure, and stability; responses to disruptions; ecological succession; measures of diversity; and methods for assessing the correlation between animal species distributions with plant species distributions. Three lecture hours per week, and one tutorial hour per week.

NOTES FOR W22:

(1) Due to the Omicron resurgence, the first three weeks will be remote (Lectures and Office Hours by Zoom). During this period, there are no tutorials.

(2) For the period beginning Monday January 31st: This is an in-person, on-campus course. A few of our Friday lectures may be remote (Zoom) and there will be one remote office hour per week (also Zoom), but otherwise, all activities (lectures, tutorials, office hours, midterm, final exam) will be on campus. (Readings quizzes will be by eClass). There is an intention to record lectures, but if any technical issues arise during such lectures causing a recording to fail, the lecture will not be repeated. So, if you are enrolled in this course, you must be committed to an in-person, on-campus offering.

Prerequisites

SC/BIOL 2050 3.00 Ecology;

SC/BIOL 2060 3.00 Statistics for Biologists.

Course credit exclusion: SC/BIOL 3170 Population and Community Ecology

Course Instructors and Contact Information

- Professor Alex Mills, ammills@yorku.ca
 - This is the address of first contact for all course-related matters
 - Please include "BIOL 3172" in the subject line
- Reply may take up to 48 hrs; email is active Mon-Fri, 8:00 am to 4:00 pm
- Office: 134 Chemistry Building

Expanded Course Description

In 2019-20, York offered BIOL 3170 *Population and Community Ecology* for the last time. That course has now been split into BIOL 3171 *Population Ecology* (F) and BIOL 3172 *Community Ecology* (W). Under the umbrella term *community ecology*, we will look at classical community ecology subjects (e.g. community succession, predator-prey interactions, trophic cascades.) But, we will also look at diverse subjects in the broader categories of behavioural ecology, evolutionary ecology, and natural history. We will focus on Ontario communities as we investigate these subjects, with a particular case study focus on Algonquin Provincial Park.

Course Learning Outcomes

Upon successful completion of this course students should be able to demonstrate an understanding of the following:

Area 1. Fundamental Understanding:

- Use terminology appropriate to the field of community ecology
- Contrast antagonistic and mutualistic species interactions
- Differentiate among consumption (predation, herbivory, parasitism), competition, mutualism, and commensalism
- Recognize key conceptual ideas central to Community Ecology, such as the competitive exclusion principle
- Using fundamental principles from evolutionary biology, demonstrate an understanding of co-evolution, including the identification of biotic factors as selective forces
- Demonstrate a knowledge of the effects of other species on population dynamics
- Apply the principles of community ecology to issues of conservation
- Distinguish between the view that community development is random and the view that communities develop in a predictable, orderly manner
- Identify and contrast different types of community succession, including the events that trigger succession
- Compare the effects on community structure when disturbances are minor and infrequent on one hand, and major and recurrent on the other
- Apply community ecology principles to wildlife management challenges
- Use natural history knowledge

Area 2. Critical Thinking Skills

- Employ case studies as exemplars of community ecology concepts
- Draw generalized concepts from the results of particular scientific studies or experiments (inductive reasoning)
- Present arguments that explain evolutionary phenomena such as co-evolutionary consequences of long-term species interactions
- Employ metaphors for conveying the principles of community ecology

Area 3. Problem Solving Skills

- Accept a position regarding a contentious theory in community ecology and formulate the argument in favour of that position
- Apply principles from the scientific literature to new fact situations
- Consider diverse field or lab methods for collecting data and apply appropriate methodologies to particular questions related to community ecology

Area 4. Effective Communication

- On tests and exams, clearly construct written answers to questions and clearly construct written explanations or arguments for scenarios or fact situations
- Demonstrate an ability to effectively and persuasively write about science for the public
- One short presentation to a small group of peers

Evaluation

1. Writing for the Public (20%)
 - a. Draft first paragraph and outline (Monday, February 14) (5%)
 - b. Finished article (Monday, March 28) (15%)
2. Foundational knowledge through Natural History interpretive writing (24%)
 - a. Multiple choice question (MCQ) quiz 1 (Friday, January 28) (6%)
 - b. Multiple choice question (MCQ) quiz 2 (Friday, February 18) (6%)
 - c. Multiple choice question (MCQ) quiz 3 (Friday, March 18) (6%)
 - d. Multiple choice question (MCQ) quiz 4 (Friday, April 8) (6%)
3. Community Ecology TREE journal papers (10%)
 - a. Short presentation to small tutorial group of one paper (8%)
 - b. Tutorial participation (2%)
 - c. Each student attends two tutorials, presenting at one tutorial
4. Course lecture content (46%)
 - a. Midterm (Friday, March 4) (20%)
 - b. Final Exam during April exam period (26%)

There will be no opportunities for extra credit assignments, etc.

Course Materials

- Course text: *The Best of the Raven Vol 3* (about \$15; order from the York bookstore)
- https://www.bookstore.yorku.ca/site_textbook_landing_page.asp
- Any additional course readings are posted on eClass

Important Dates

- Reading Week: February 19 to 25
- Last Day to drop the course without receiving a grade: March 18th, 2022
- Last day to drop a course where a W will show as the grade: April 8th, 2022
- Final Exam period: April 12th to 29th, 2022
- *For additional important dates such as holidays, visit "[Important Dates](#)"*

Tutorial

- Wednesdays in ACW 305: T01 is from 2:30 to 3:20 PM, and T02 is from 3:30 to 4:20 PM
- Tutorial classes will be sub-divided into groups of about 12
- Each group of ~12 will attend two tutorials, one before Reading Week and one after Reading Week

Experiential Education and E-Learning

E-Learning:

- The first 3 weeks of lectures will be by Zoom™
- A few additional Friday lectures may be by Zoom™

Course Content and Format

The course content will be delivered through five means:

1. Lectures MWF 13:30, for 50 minutes each; on campus every MW and some Fridays; by Zoom some Fridays
2. Tutorials twice per semester
3. Readings required in the course text
4. Any additional readings posted on eClass.
5. Office Hours

The lecture schedule and materials (other than the textbook) will be posted on eClass.

Course Policies

- Email etiquette:
 - Include BIOL 3172 in the subject line & your name and student number in each email.
 - Professionalism: Please don't use text-messaging language or block capital messages.
 - Please allow 48 hours (2 work days) for a response.
- Missed midterm:
 - If you are ill and therefore cannot write the midterm, please advise Professor Mills by email on or before the day of the missed midterm (March 4)
 - If you miss the midterm because of a legitimate documented reason, the value will be added to the Final Exam during the April exam period.
 - If you miss a Quiz because of schedule confusion, sleeping in, personal endeavours (including a job), busy lives (including too many assignments or tests that same week/day, etc.), personal travel, you will earn a zero and not be permitted to write a make-up test.
- Missed quiz:
 - If you are ill and therefore cannot write one of the four quizzes, please advise Professor Mills by email on the day of the missed quiz
 - If you miss the quiz because of a legitimate documented reason, you will be able to write a make-up quiz set at a mutually agreeable time
- Accommodations:
 - Submit your Student Accessibility Services accommodation letter to Professor Mills by January 15th through the link on eClass
 - If you are entitled to extra test writing time, you will be accommodated via extended time set up through eClass, provided you have given sufficient notice
 - Please provide Professor Mills and your TA three weeks' notice of any [religious observance conflicts](#) during the term, for which accommodations are required.
 - Students who feel that there are extenuating circumstances that may interfere with their ability to successfully complete the course requirements are encouraged to discuss the matter with Professor Mills as soon as possible.
 - Manage your workload: "Senate policy states that students are expected to monitor their progress in courses, taking into account their personal and academic circumstances, and to make the necessary adjustments to their workload to meet the requirements and deadlines."

Copyright and Intellectual Property

- PowerPoints used during lectures are the © property of Professor Mills, as are the recorded lectures
 - Permission is granted to copy them for your own use
 - It's a breach of copyright to upload them to the internet, including sites like One Class, Course Hero, WeChat, Chegg, etc.
- Tests are the © property of Professor Mills
 - It's a breach of copyright to copy them in any form, and it is a breach therefore to upload them to the internet, including to sites like One Class, Course Hero, WeChat, Chegg, etc.
 - It's a breach of York's Policy on Academic Honesty to upload tests or assignments to third party sites on the internet, including to sites like Once Class, Course Hero, WeChat, Chegg, etc.

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/spark/academic_integrity/index.html

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 (Glendon) - <http://www.glendon.yorku.ca/counselling/personal-counselling/what-is-counselling/>
- 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

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/>