

Department of Biology Course Outline

SC/BIOL 2050 4.00 Ecology
Fall 2019

Course Description

A study of the interactions between organisms and their abiotic environments, presented in an evolutionary context. Includes processes of evolution, ecosystems and communities, competition, predation, population ecology and current environmental problems such as habitat loss and extinction.

Prerequisites (strictly enforced)

Prerequisite: Both SC/BIOL 1000 3.00 and SC/BIOL 1001 3.00, or SC/ISCI 1110 6.00, or both SC/ISCI 1101 3.00 and SC/ISCI 1102 3.00. Prerequisite or corequisite: SC/BIOL 2060 3.00.

Course Instructor(s) and Contact Information

Course instructor: Dr. Birgit Schwarz, email: bsteach@yorku.ca, please include BIOL 2050 in your subject line, I teach several courses and this will allow me to help you more efficiently. Please see email policy below in the course policy section before sending an email.

Student drop-in hours: TBD, or by appointment

Lab coordinator: Stephanie Haas b2050lab@yorku.ca (lab administrative matters e.g. missed labs)

For lab-related academic issues please contact your TA (contact info TBA during your first lab)

Schedule

Lectures: Mon./ Wed. 8:30-10:00 CLH F

Laboratory Schedule: Please refer to the university online course information site and the laboratory schedule on the Moodle site for the course. Laboratory times and places vary by lab section and some weeks do not have labs. Labs are three hours long.

Evaluation

LECTURE:		
Mid-term test	15%	Oct 23
Final Exam (cumulative)	20%	Fall exam period
Participation (iclicker cloud polling, activities)	5%	Throughout the term
Study guides (group)	5%	Oct 11 or Dec 2 (topic-dependant)
Assignment:	15% - Podcast: 5% - Research Essay: 10%	Oct 2 (Podcast) and Nov 6 (research essay)
LABS:		
Laboratory reports (3)	30% - Labs 3-5 (one report): 10% - Lab 6: 5% - Lab 2: 15%	Due at start of your lab weeks of: Oct 7 (labs 3-5) Nov 11 (lab 6) Nov 25 (lab 2)
Lab quizzes (2)	10% (5% each)	Weeks of Oct 7 and Nov 11 in your labs*

Detailed information on assignments and lab reports will be posted on Moodle.

*Lab quiz 1 covers labs 3-5, lab quiz 2 covers labs 1,2 and 6

Format of the Midterm and Final Exam Tests:

- Approx. 60-70% of marks based on multiple choice questions; 30-40% based on short answer questions
- Exams will be 2-stage: You will write the exam individually first (counts for 85% of your exam grade). After handing in your individual exam, you will write the exam again as a team (counts for 15% of your exam grade). Should your team score be lower than your individual grade, then only the individual grade counts.
- The final exam will be cumulative (i.e. covers the whole course), but with a greater focus on materials covered in the second half of the course, after the first midterm.

In-class participation

- Will be assessed using the iClicker Cloud (formerly REEF) system that can be accessed through mobile devices and laptops. Additionally, I may ask you to hand in e.g. completed assignment sheets, answers to short questions or similar evidence, demonstrating your participation in classroom activities.
- **Questions will be marked for participation only**; there is no penalty for submitting an incorrect answer, as long as an answer is submitted.
- When I calculate your participation grades, I will drop the lowest 20% of polling or other activity participation sessions (= lectures). This is to account for dead cellphone batteries, classes missed for any reason, etc.. This means classes missed due to illness count among the 20% of lectures that are automatically dropped in calculating your participation grade and I cannot grant additional exemptions as participation is a crucial component of this course.

While I try to avoid this as much as possible, final course grades may be adjusted to conform to Program or Faculty grades distribution profiles should this become necessary.

Important Dates

Lectures	Start Wed Sept 4, last lecture: Mon Dec 2
Labs	Please see the detailed lab schedule on Moodle for times / locations. Formal labs begin week of Sept. 9, starting with lab #3. Labs #1 and 2 are independent assignments to be completed on your own time. Last day to switch lab sections: Sept. 8
Midterm test	Oct. 23
Final Exam	Will be held during the fall examination period, Dec. 5-20. The registrar's office schedules these and announces the date, time and location (usually by early Nov). Unfortunately, I will not learn this date any sooner than you do. Please do not book plane tickets, vacations etc. during this period until the exact date of the exam is known.
Fall reading week	Oct. 12-18
Drop deadline: Last day to drop course without receiving a grade	Nov. 8
Course Withdrawal Period: (withdraw from a course and receive a grade of "W" on transcript)	Nov. 9 - Dec. 3

For due dates of assignments and lab reports, please refer to the Evaluation section above.

NOTE: for additional important dates such as holidays, refer to the "Important Dates" section of the Registrar's Website: <https://registrar.yorku.ca/enrol/dates/fw19>

Resources

Textbook:

T.M. Smith, R.L. Smith and I. Waters. 2014. Elements of Ecology, Canadian ed. Pearson, Toronto. ISBN-13: 9780321936592.

Secondary (optional) resource: W. D. Bowman, S. D. Hacker and M. L. Cain 2017. Ecology. Sinauer, ISBN: 9781605356181.

Both texts are available in the York University bookstore. A copy is on 2-hr reserve at Steacie library.

Lab materials:

There is no formal lab manual. Lab handouts will be available on the Moodle website. **Please read the lab manuals ahead of time** (before the day of your lab) as they contain important information about what to bring and prepare for the labs. You will have to purchase one online lab (\$6 US) and download it onto your own laptop or desktop (or on a USB key, if you do not have your own computer). There are two possible ways to buy the activation key: a) as a voucher from the York Bookstore OR b) directly from SimBio (online) using a credit card.

Website:

The course will be managed through a Moodle site – please visit this site often for important information and updates. Please log in at: <https://moodle.yorku.ca/moodle/>

Learning Outcomes

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

- Describe the types of studies and techniques, including basic statistical methods, used in ecological research.
- Explain how natural selection, and events that occur in evolutionary time, are influenced by events that occur in ecological time, using case studies as examples
- Describe how and why climatic conditions vary over the earth, and the effect of climatic variables on the distribution of populations, communities and ecosystems
- Define the term “niche” as used in ecology, explain what factors determine the niche of a species, and demonstrate how the niche concept can be used to understand the distribution of organisms
- Identify the constraints associated with living in terrestrial and aquatic environments and the adaptations of animals and plants for those environments
- Identify the features of the major terrestrial and aquatic biomes and what factors influence their distribution.
- Discuss the techniques used for measuring population size in different types of organisms.
- Define the term “life history strategy” and give examples of organisms that illustrate the range of different life histories seen in nature
- Apply appropriate population growth models to predict population size and growth rates
- Explain and contrast how species interact and how competition, predation and mutualism influence the size, structure and dynamics of populations and communities.
- Use food web diagrams to predict how populations within communities are regulated.
- Describe how energy and nutrients cycle through ecosystems and the impact of human activities on those cycles
- Link ecological principles to contemporary environmental issues
- Discuss the implications of climate change for the future of earth’s biodiversity
- Find, summarize and critically discuss primary research literature in the context of a review on an ecological topic
- Create a short podcast that makes an ecological topic accessible to a general audience
- Use identification keys to identify species
- Design and conduct an ecological field experiment
- Collect and analyze ecological data using appropriate statistical methods and present the results in a report

Course Content

There are now more than 7.5 billion people on Earth – more than two and a half times the number that existed in 1960. Since people take up space, the rate at which natural habitats are being lost has skyrocketed. Species extinction rates mirror this. At the same time, emissions of greenhouse gases are causing global climate change. What does this all mean and how do we make sense of it?

Ecology is the study of biology at the individual, population, community and ecosystem levels, focusing on interactions of organisms with one another other and with their abiotic environment. Ecologists try to understand what determines the patterns of distribution and abundance of organisms. Ecologists also aim to predict how ecosystems respond to "disturbance". The central ideas, theories and principles of ecology are, therefore, directly relevant to the issues described above.

We will consider: approaches to the study of ecology and experimental design; the link between ecology and evolution; biomes and climate; adaptations of animals and plants; properties of populations; population growth; competition, predation and mutualism; community structure and dynamics; factors that influence species richness and biodiversity; energy flux and nutrient cycling in ecosystems; sustainability; the biodiversity crisis; and the impact of climate change on biodiversity.

As in all courses, you are expected to spend time beyond the regular course hours in preparation, review, studying, completing assignments etc., related to the course.

Experiential Education and E-Learning

Lab 2: designing an ecological study; performing independent field work; collecting, analyzing and interpreting original data.

Labs 3, 4 and 5: plant identification; assessing diversity of different community types in the field; sample collection in the field; analyzing and interpreting original data.

Lab 6: using computer simulations to test ecological hypotheses.

Teamwork in class (activities, worksheets, case studies)

Other Information

Preparing for labs:

Labs include field work as well as indoor or computer-based labs. Some labs will require you to bring necessary items with you to the lab (e.g. appropriate clothing, and other equipment such as a fleece jacket to collect seeds, field notebooks, dissection kit, paper to draw on, etc.). This is why it is important that you read the lab manuals prior to the day of your lab so you come prepared with the items you need for that specific lab. Reading the instructions ahead of time will also really help in running the labs efficiently so that you can complete them successfully in the allotted time. You are of course expected to familiarize yourself with and adhere to all safety rules. Please also keep your own safety in mind when conducting field work for your independent ecological study (lab 2).

I strongly recommend starting on lab 2 (independent project) as soon as possible and collect your data early on as it may be very difficult to do field work and find your study subjects as it gets colder!

About active learning

I hope you actively participate in this course. Not only have studies found that active participation is a more effective learning strategy than passive listening, but I have also found that the various activities are the best way to engage my students in learning the material and making it more fun. Being able to communicate and work with others are important skills that are very much sought-after by employers. If you have concerns and would like to give feedback on a particular activity or have any questions – please come and talk to me! I hope we can all work together in a respectful, fun and academically stimulating environment!

What can you do to do well in this course?

My first advice would be not to overcommit. To complete it successfully, this course requires regular attendance and participation in lectures and labs, as well as a significant amount of time investment outside of formal class hours in the form of assignments and independent lab exercises. My other advice is to:

- Come into class with an open mind and prepared for active participation
- Read all assignment, lab instructions and grading criteria carefully
- Read, prepare, think critically about the material & practice problem solving
- Talk about the course material with others (your peers, TA's, me, even your friends and family) as much as possible. Ask questions, discuss & practice!!!
 - Form study groups early on
 - Use the Moodle discussion forum
 - Come to student hours
- Take charge of your learning: consciously plan your steps and reflect on your learning strategies (are they working? Where might you need to modify your approach?)
- Take care of yourself: get enough sleep, eat healthy foods, exercise & take breaks – don't underestimate the difference this makes!
- Get help early if you need it – there are lots of resources and services available at York University, make use of them!

Course Policies

I know that this part might seem really boring, but it's REALLY important that you read it ahead of time so that you are familiar with policies now rather than after the fact.

Course Contacts:

- **Dr. Birgit Schwarz:** bsteach@yorku.ca : for matters relating to lectures, tests/exams, and lecture assignments
- **Stephanie Haas** b2050lab@yorku.ca : for lab administrative matters (missed labs, make-up labs)
- **Your TA** (contact info TBA in your first lab): for academic questions about labs

Email etiquette:

This etiquette is meant to help foster a respectful and efficient correspondence, which ultimately benefits everyone!

- Please make sure to use your Yorku email address when emailing me and the TA's as other email addresses are filtered out by the university and will not reach us
- Subject line: please begin with "BIOL 2050", your name, followed by a brief, but reasonably detailed, indication of the subject of your email (e.g., "question about lecture 3", "missed midterm", etc.)
- Please remember to include your name at the end of every email. This also helps me address you by name when I respond!
- Whether you email me, TA's or classmates, please remember that this is a professional environment, so please be respectful and avoid e.g. all CAPS or text-messaging language, which can also make it very hard to read and understand your message
- Response time: I will do my best to respond within 48 hours (2 work days), please be patient (remember there are many of you, but only one of me)
- Before emailing I ask that you consider:
 - If you should consult another resource first (e.g. the TA if it is a question related to lab content, or Moodle or the syllabus if it is a technical/policy question, or a fellow student if you missed a class and want to know what was covered)
 - If this is a short question that can be easily answered over email, if not, please come to my student hours – often it is SO much easier to explain things in person and it is easier for you to keep asking follow-up questions until you can be sure you have fully understood a concept

Posting of lecture material online:

- Lecture slides (.pptx) will normally be posted on the class Moodle website within 24-48 hrs after each lecture. I will try to post a preview version of the lecture (usually about 1 hour prior to each lecture), but this may not always be possible.
- The course is not designed as a distance course. Some material will only be delivered during the lecture.

Copyright and Intellectual Property:

- Photographs or video recordings of any portions of the lectures (including the slides) are prohibited. Images and material presented are subject to Canadian copyright law.
- Personal audio recordings are permitted during lectures provided they are used ONLY as a personal study aid, and are NOT sold, passed on to others, or posted online. The same applies to any lecture recordings provided by me. **Lectures are the intellectual property of the instructor and cannot be distributed without permission.** For labs you need to have permission from your TA prior to recording audio as a study aid, the same rules about not sharing apply.

Missed tests / exams

Students who miss the test or the final exam due to an illness or emergency must provide supporting documentation to the instructor in a timely manner. Please submit documentation using the online document submission system: <https://science.apps01.yorku.ca/machform/view.php?id=84113>

- Tests missed due to medical circumstances must be supported by an Attending Physician's Statement, which can be downloaded from:
 - <http://www.registrar.yorku.ca/pdf/attending-physicians-statement.pdf>or a statement by a psychologist or counsellor:
 - <http://myacademicrecord.students.yorku.ca/pdf/counsellors-statement.pdf>
- Students are NOT expected to disclose the nature of the illness. The document must specify: 1) date of consultation; 2) contact information (e.g. phone number of the hospital; legible name of the health provider) that would allow verification of the document; 3) a statement that the student would not have been able to attend class (or carry out activities) during the relevant period of time. Appropriate documentation must be submitted as soon as possible after the test.
- Death of an immediate family member: submit death certificate, letter from funeral home or hospital records.
- For students who submit approved documentation, a makeup test/exam will be arranged. Details will be posted on the course Moodle site.
- Please do not submit medical documentation for missed iclicker polling sessions; the lowest 20% of lectures will be dropped automatically in calculating your participation grade (see Evaluation section above).

Lab attendance and missed labs:

- **Attendance is required and will be taken at all laboratory classes.** You will not be excused
- from any lab.
- Each student must attend his/her registered lab section.
- If you miss a session for a valid reason you might be able to make it up, but you must contact the Laboratory Coordinator within 24 hours of your absence to determine if rescheduling is possible (usually this is only possible if there is another lab section later that week).
- The Lab Coordinator will decide whether a makeup lab can be granted for your circumstance. Appropriate documentation supporting the event(s) (typically medical or emergency related) preventing your lab attendance is always required and must be submitted to the lab coordinator as soon as possible. We cannot consider makeups without appropriate documentation.
 - Personal illness: submit Attending Physicians Statement form or statement by a psychologist or councillor: see "Missed Tests/exams" above
 - Death of an immediate family member: submit death certificate, letter from funeral home or hospital records
 - Other: consult with the Lab Coordinator, b2050lab@yorku.ca
- You may permanently change your lab section only if space is available in another lab section. All lab switches must be done through the enrolment system by 11:59 pm on Sept 8th, 2019.

Religious observance days:

- Should the dates for tests or exams pose a conflict with a religious observance day for your particular religion, please complete an **Examination Accommodation Agreement Form**, available at
 - http://www.registrar.yorku.ca/pdf/exam_accommodation.pdfand submit it to me **at least 3 weeks before the date of the test.**

Accommodation

- Please submit CDS Accommodation letters to me by Sept 18 via the Document Submission site: <https://science.apps01.yorku.ca/machform/view.php?id=84113>
- **If you are writing with Alt Exams:** because tests are 2-stage tests, if you want to participate in the group portion, you will need to be back in our classroom in time for the group part of the exam. Typically, the individual part is 45-50 minutes, so you should schedule with Alt Exams accordingly.
- 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 the Course Director **as soon as possible**.

Turnitin.com:

- In this course, in addition to submitting a hard copy of your work, you will be asked to submit electronic copies of the three lab reports and the research essay to Turnitin.com. This will ensure that your hard work, once added to the database, cannot be plagiarized in the future by students at any university!
- Details on how to register for Turnitin will be provided in class

Clickers:

- You must register for iClicker Cloud to receive marks for the in-class activities.
- You should bring a web-enabled device to each class. Please make sure it is charged before class. There are limited outlets in our lecture halls.
- You must use your own account. Use of an account not registered to you is a breach of academic honesty and results in a visit to the Associate Dean's office for an exploratory hearing.
- "Clicker" and worksheet marks are gained on the basis of participation. Because the nature of clicker/worksheet/etc. marking scheme takes into account missed classes for various reasons (by dropping the lowest 20%), doctor's notes and other documentation will NOT be accepted for missed classes. It also takes into account (temporary) technical glitches with software.

Grading, assignment/lab report 'grace' days and late penalties:

- In order to be fair and consistent to the entire class, individual grades are not negotiable and individual "extra credit" assignments are not provided at any point during or after the course. Please only contact me about a grade if there is a clear error (calculation, clerical, etc.) within two weeks of the grade being made available to you.
- I understand that life happens, and unexpected things sometimes come up or multiple deadlines in different courses make it difficult to complete things on time. I am therefore offering a total of **two 'grace' days for selected assignments** (see below): you can submit **ONE of these assignments up to TWO days late** without penalty OR a maximum of **TWO assignments ONE day late**.
 - You can use these days for lab reports or the research essay
 - You can NOT use them for tests, exams, lab quizzes, the podcast or the study guides
 - It is your responsibility to keep track of whether or not you have already used up your grace days
 - I count in calendar days: if you submit e.g. 1 hour late, it still counts as one day
 - You only get a total of two grace days for the entire term, so once these are used up any assignments that are late will incur the late penalty (see below)
- In all other cases or if you have already used your assignment grace days, a penalty of 5% per calendar day will apply to all material handed in late. Since the 'grace' days allow for some flexibility, I will strictly apply the late penalty, so choose wisely and please do not ask me for further exceptions as this would be unfair to everybody else.

Forum code of conduct:

- We encourage you to participate in the online Moodle Forums to discuss course concepts, organize study groups, and ask questions relating to Ecology. I expect you to keep your discussions polite and respectful. Please follow the rules:
 - Please be respectful: I provide this space for you to discuss course material with your classmates. Posts containing personal insults/attacks/intimidation/inappropriate language/profanity will be removed.
 - Please post only material relevant to BIOL 2050/Biology. Other posts are likely to be deleted.
 - While it is appropriate to engage in debate/discourse on biological topics, such discussions should be respectful and evidence-based. Evidence should be from trusted sources—consult with the library or with me if you are not sure. (See: <http://www.yorku.ca/webclass/module4a.html>)
 - Any posts that appear to violate our code of conduct may be edited, moved to a hidden forum, or deleted at the discretion of instructors/moderators. If posts give indications of violations of academic honesty or the York University Student Code of Conduct (<http://www.yorku.ca/oscr/codeofrr.html>) further action will be taken.
 - If you notice any inappropriate threads/posts please contact me as soon as possible

Disclaimer: While I will attempt to remove/edit objectionable/inappropriate material as soon as it comes to my attention, I may not be able to review every post in a timely manner (remember there is only one of me). Forum posts express the views and opinions of the post's author and not the moderators/instructors (except for posts by these people) and they cannot be held liable.

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/>

Important A note from the Faculty of Science Committee on Examinations and Academic Standards: Numerous students in Faculty of Science courses have been charged with academic misconduct when materials they uploaded to third party repository sites (e.g. Course Hero, One Class, etc.) were taken and used by unknown students in later offerings of the course. The Faculty's Committee on Examinations and Academic Standards (CEAS) found in these cases that the burden of proof in a charge of aiding and abetting had been met, since the uploading students had been found in all cases to be willfully blind to the reasonable likelihood of supporting plagiarism in this manner. Accordingly, to avoid this risk, students are urged not to upload their work to these sites. Whenever a student submits work obtained through Course Hero or One Class, the submitting student will be charged with plagiarism and the uploading student will be charged with aiding and abetting.

Note also that exams, tests, and other assignments are the copyrighted works of the professor assigning them, whether copyright is overtly claimed or not (i.e. whether the © is used or not). Scanning these documents constitutes copying, which is a breach of Canadian copyright law, and the breach is aggravated when scans are shared or uploaded to third party repository sites.

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 - <https://www.glendon.yorku.ca/counselling/>

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

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 and submit an [Examination Accommodation Form](#) at least 3 weeks before the exam period begins. The form 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/>

I wish you great success in BIOL 2050!

If you need any help, please do not hesitate to contact me (or the lab coordinator or your TA, depending on your question).