

PCB 5338: Principles of Ecosystem Ecology

Course Information

Instructor: Amanda Subalusky

Office hours: Group office hours after every class. Individual meetings by appointment by Zoom or in my office in Carr 518a

Course website: Canvas (<https://elearning.ufl.edu/>)

Please use Canvas Mail for all course-related e-mails.

Class will meet in Chemical Engineering 316 at the following times:

Wednesday periods 4-5 (10:40-12:35)

Friday period 4 (10:40-11:30)

There also will be a synchronous online option available. The Zoom link is available on the course Canvas site.

Course Description

Overview: We will learn about the basic principles that govern the structure and function of ecosystems, with an emphasis on carbon and nutrient cycling in the context of climate change and other global change drivers (e.g., nitrogen deposition, land use change, and altered disturbance regimes). Examples of the questions we will address include: How is ecosystem carbon storage responding to climate change? How has land use change influenced nitrogen and phosphorus cycling in aquatic and terrestrial ecosystems? How does biodiversity influence ecosystem function? How can conservation and restoration practitioners incorporate principles of ecosystem ecology in their practice? We will cover both fundamental principles and recent, cutting-edge research. We will cover terrestrial, freshwater, and marine systems to gain a holistic and global perspective on ecosystem ecology.

Format:

- I will be teaching this course in a Hy-Flex format. I will give in-person lectures in the assigned classroom and provide a Zoom link for synchronous online attendance. Class attendance is required, and students are expected to ask questions and participate in discussions.
- Roughly 1/3 of class time will be lecture, and 2/3 will be discussions of journal articles, readings, or exercises. These discussions will include small-group interactions and whole-class discussions.
- We will typically read/discuss the equivalent of two full-length (e.g., 10 page) papers per week.
- Each student will lead one discussion during the semester.
- For most readings, there will also be a written homework assignment due before class.
- There will be two take-home exams and one written report.

Textbook:

The textbook I selected for the course is *Fundamentals of Ecosystem Science, Second Edition*, by Weathers et al. (<https://www.elsevier.com/books/fundamentals-of-ecosystem-science/weathers/978-0-12-812762-9>). This textbook should be available in UF All Access for a reduced price for the electronic

version. The final price is still being processed, so you should wait to purchase this textbook until we discuss it during the first week of class.

An alternative textbook that could be used as a resource is available for free through UF in a pdf format, *Principles of Terrestrial Ecosystem Ecology, Second Edition* by Chapin et al. You can download it at the link below, although you may need to be on the UF network (either on campus, or via VPN) to do so: <https://link.springer.com/book/10.1007%2F978-1-4419-9504-9>

Reading assignments:

There will be a reading assignment for most weeks. Please come to class prepared to discuss each assignment. Most assignments will require at least one hour of careful reading and thinking. Often, you will need to spend several hours to get a good grasp of a reading assignment, including time spent looking up unfamiliar terms or concepts. You are not expected to understand every detail of every assigned reading, but you should aim to understand the context and main points. You do not need to read supplementary sections of papers (Appendices, Supplementary Material, etc.) unless these are specifically assigned.

Homework:

Most readings are paired with a homework assignment. Homework assignments are due before class unless stated otherwise. These assignments are intended to help you learn more from the reading and prepare to participate in class discussions. You are encouraged to discuss readings with other students outside of class, but homework should be written in your own words and should reflect your own understanding of the material. **Homework should always be written in your own words. Please do not include direct quotes.** Homework will often include a 25-word summary according to the instructions and rubric explained here: <http://peterdoolittle.org/strategies/25-Word-Summary.pdf>.

Leading a discussion:

Each student will lead one discussion during the semester. Typically, about 45 minutes will be allocated for these discussions. Each discussion will target one full-length paper or two shorter papers. Detailed instructions will be posted on the course website prior to the discussion sign-up period.

Exams:

There will be two take-home exams that cover lectures and readings. Exams are cumulative but will emphasize material since the previous exam. We will adopt a two-stage test strategy, which has been shown to improve student learning outcomes.

- **Stage 1:** Each student will complete the take-home exam on their own. During this stage, you cannot work with other students, but you can consult any other resources (your own notes, articles, websites, etc.).
- **Stage 2:** This stage is collaborative and will apply to select exam questions (roughly half of the questions, which will be indicated on the initial take-home exam). For these designated questions, Stage 2 includes: (i) reading answers submitted by your peers (identities will be anonymous); (ii) in-class group discussion of the questions/answers; and (iii) the option to submit revised answers following the in-class discussion. Your final grade for revised answers will be the average of the two grades (initial and revised).

For both stages, your answers must be written in your own words. Please do not include direct quotes from any sources. To learn more about two-stage collaborative assessments, check out this podcast:

<https://podcasts.apple.com/us/podcast/two-stage-collaborative-assessment/id1275179298?i=1000418589527>

Written report:

There will be a written report assigned during the last third of the course that will give you the opportunity to explore an area of ecosystem ecology more deeply. You will use primary literature to address a question of your choice. Reports will be ~2500 words. Detailed instructions will be posted on the course website prior to the assignment.

Course Policies

Grade distribution:

Your final semester percent grade will be the percent of points earned out of the total possible. Points are distributed as follows:

- **Homework:** Typically 10 points per assignment (roughly 150 total points)
- **Leading a discussion:** 50 points
- **Exam 1:** 50 points
- **Exam 2:** 50 points
- **Written report:** 100 points

Grade scale:

A \geq 92.5%; A- \geq 89.5%; B+ \geq 86.5%; B \geq 82.5%; B- \geq 79.5%; C+ \geq 76.5%; C \geq 72.5%; C- \geq 69.5%; D+ \geq 66.5%; D \geq 59.5%; D- \geq 56.5%; E < 56.5%

Grades will not be rounded; e.g., 89.50 is an A-, and 89.49 is a B+.

Absences:

Please notify the instructor ahead of time if you plan to miss class. Unexcused absences will result in a 50% penalty for any homework submitted on that date. Absences will be excused according to standard UF policies (illness, religious holidays, etc.) and for academic and career-related reasons (attending conferences, job interviews, etc.). You are welcome to schedule a meeting with the instructor (by zoom, phone, etc.) to discuss excused absences if you would like. But you should ***always send a written explanation by e-mail to document an excused absence.***

Missed assignments and deadlines:

- Homework: You are expected to submit all homework assignments. If you know ahead of time that you will miss class, please plan to submit your homework before the missed class. If this is not possible, or if you miss class due to an expected reason, please contact the instructor. Homework cannot be submitted late except under special circumstances (e.g., documented illness).
- Exams: Exams are take-home. If you know ahead of time that you will not be able to turn in your exam on the specified due date, contact the instructor in advance. If you miss the submission deadline for an unexpected reason, contact the instructor as soon as you can. Without a documented and acceptable excuse, late exams are subject to a 10% grade penalty per day (up to a maximum of 7 days). If you do not submit your exam on time, you may forfeit your opportunity to participate in the collaborative exam stage.

Additional Information and Resources

Students Requiring Accommodation:

Students who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with me and discuss their access needs, as early as possible in the semester.

Course Evaluations:

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

University Honesty Policy:

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code." On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (<https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor in this class.

Resources Available to Students:

Health and Wellness

- *U Matter, We Care*: <https://umatter.ufl.edu/>; umatter@ufl.edu; 392-1575
- *Counseling and Wellness Center*: <http://www.counseling.ufl.edu/cwc/Default.aspx>; 392-1575
- *Sexual Assault Recovery Services (SARS)*: Student Health Care Center; 392-1161
- *University Police Department*: <http://www.police.ufl.edu/>; 392-1111 (911 for emergencies)

Academic Resources

- *E-learning technical support*: Learningsupport@ufl.edu; <https://lss.at.ufl.edu/help.shtml>; 352-392-4357 (opt. 2)
- *Career Resource Center*: Reitz Union; <http://www.crc.ufl.edu/>; 392-1601
- *Library Support*: <http://cms.uflib.ufl.edu/ask>
- *Teaching Center*: Broward Hall; 392-2010 or 392-6420
- *Writing Studio*: 302 Tigert Hall; <http://writing.ufl.edu/writing-studio/>; 846-1138