BIOS 2300 Syllabus

Ecology | 3 Credits

Summer 2026

General Course Information

Description

This course will explore the theoretical and conceptual foundations for how individuals, species, and communities interact among themselves and with the environment. The course will stress processes that determine the structure and function of populations, communities, and ecosystems, often using quantitative tools. We also will examine applications of ecological principles to issues such as conservation and climate change.

This is an active-learning class that stresses active problem-solving as a way to understand ecology. We will rely on a mix of lecture, discussion, and problem-solving activities in class to sharpen your ability to understand, apply, and analyze ecological principles and quantitative measures. You are expected to prepare for each class period using the video or linked text to review fundamental principles of the topic (see class schedule in this document). A pre-class "quiz" will help direct you to these foundational concepts. We will then spend class time building your comprehension of the material. In-class activities/assessments will occur every class day.

Course Learning Outcomes

By the end of this course, you will be able to:

1. Identify and interpret basic ecological concepts through data derived from observation, experimentation, and model simulation
2. Develop predictions, based on real data, for how an ecological system should behave, and apply your knowledge to novel scenarios
3. Design and critique experiments and approaches to test hypotheses
4. Read, interpret, analyze, and explain primary literature that concerns ecology
5. Effectively communicate scientific findings in oral, written, and mathematical form

Required Course Materials

Required: Subscription to Learning Catalytics (No Purchase Required: we will provide an access code)

Optional: Elements of Ecology, Smith & Smith, 2015. Available as an ebook rental from Pearson, the bookstore, or your own bookstore choice.

Grading Policy:

Your final course grade will depend on the following combination of grades:

Participation: 25%

Midterm Exams: 50%

Final Exam: 25%

Final letter grades will be assigned using the following scale:

A: ≥ 90.0%, B: ≥ 80.0% and < 90.0%, C: ≥ 70.0% and < 80.0%, D ≥ 60.0% and < 70.0%, F < 60.0%

Course Policies

Attendance and/or Participation

Your participation grade is the combination of pre-class quizzes, in-class activities, and any follow-up assignments that may be given. These are designed to scaffold your studying and promote active attendance to class. Class activities are intended to be collaborative with your peers and TAs. Most of the points will be awarded for participation and a good faith attempt to solve the problem, not on the "correct" answer. Using a careful, deliberative, and logical process is more important than "guessing" the answer correctly.

Missed Participation: Pre-class quizzes and in-class activities are intended to prepare you and engage you in each class. LC sessions cannot be re-opened for any individuals per technical limitations. Therefore, we will apply a "Stuff Happens" adjustment to your grade: We will drop 6 quiz/activity scores to account for any absences you may have during the semester. There is no need to email us if you miss a session, just know that we will apply this adjustment for everyone at the end of the semester when calculating final course grades. If you have an extended absence or institute approved absence beyond the 6 drops, we will discuss accommodations with you.

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. Review Georgia Tech's Honor Code and the student Code of Conduct.

Any student suspected of cheating or plagiarism on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Note that we fully encourage you to study in groups to discuss the material. However, all individual assignments should be done without the direct aid of others. The most common problem in this type of class is plagiarism, both intentional and unintentional. Any time information or data are incorporated based on a published source, that source must be referenced. This includes assistive AI technology. Anytime words are used verbatim, the source must be referenced and quoted. Copying from resources or other students, even copying and then changing the wording, is not allowed. Please ask us if this is unclear to you.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services (404-894-2563) as soon as possible to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

Student-Faculty Expectations Agreement

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. The Student-Faculty Expectations articulate some basic expectations that you can have of me and that I have of you.