

Ecology 8000: Topics in Modern Ecology

Fall, 2022

Course details

Meeting time and place: 12:45 - 2:00 pm, Tuesday and Thursday, Ecology room #12

Instructors:

Ford Ballantyne (fb4@uga.edu) - Coordinator, Craig Osenberg - Module 1 Lead (osenberg@uga.edu), Jeff Beauvais - Module 2 Lead and TA (beauvais@uga.edu), Richard Hall - Module 3 Lead (rjhall@uga.edu), Jill Anderson - Module 4 Lead (jta24@uga.edu)

Course webpage: <http://courses.ecology.uga.edu/ecol8000-fall2022/>

Overarching goals

This course will provide an introduction to the practice of Ecology as a basic science. You will be immersed in discussions, exercises and activities that will force you to think about ecological questions and concepts from multiple perspectives, across scales and levels of organization. This will not be a survey of Ecology, but rather an opportunity to become more comfortable and facile addressing challenging questions in Ecology.

Course organization and assignments

The course will be divided into 4 modules with transition days between modules.

What to expect in a module

Some combination of the following:

- Discussing primary literature
- Small group activities that require in class and out of class work
- Working with real data
- Formulating and analyzing models
- Short writing assignment, e.g. recommendation for management, short proposal
- Designing an experiment
- Debate
- Peer evaluation

What we expect of you

- Active engagement in discussions and full participation in group work, in and out of class
- Thorough reading of assigned papers
- A constructive and considerate, but critical attitude
- Completion of short research project before the start of the third module
 - The research project can be conducted during the field trip (strongly encouraged)
 - The research project can be conducted independently if you can't attend the field trip
- A short paper in the form of a Synthesis or Review, due at the end of the semester

First day (8/18): Introduction

A brief overview of the course, introductions, 3 questions discussion.

Module 1 (8/23-9/08): Inference and ecological controversies

This module will focus on making inference in ecology. We will emphasize examples in which controversies exist, in part, because of the application of inferential tools and associated assumptions. As the first module of the course, we also will stress skills required to critically read the literature and effectively lead and participate in discussions.

Module 2 (9/15-10/04): Power, inequity, and scientific inquiry

This module will critically examine how power operates within academic institutions to shape individual experiences, scientific inquiry, and the relationship between science and the public. We will engage with readings from within and outside the ecological literature to begin the process of building a more equitable and responsive scientific establishment.

Field Trip (10/14-10/16): UGAMI, Sapelo Island, GA

On the field trip, you will conceive, conduct, and present the results from a study at Sapelo.

Module 3 (10/18-11/03): Ecological modeling

This module will focus on what mathematical models are (and aren't) useful for, some common terminology associated with most formal models, and understanding and underlying assumptions. We will build some models, refine them, and perform elementary analysis of their behavior (e.g. graphs, equilibrium and stability).¹

Module 4 (11/10-12/01): Global change biology

This module will focus on ecological and evolutionary consequences of global change for natural populations, aiming to link population persistence, the strength of novel selection, genetic variation, gene flow/migration, and phenotypic plasticity. We will discuss how to translate general concepts into specific hypotheses and experimental manipulations.

As a University of Georgia student, you have agreed to abide by the University's academic honesty policy, A Culture of Honesty, and the Student Honor Code. All academic work must meet the standards described in A Culture of Honesty found at: <https://ovpi.uga.edu/academic-honesty/academic-honesty-policy>. Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation. Questions related to course assignments and the academic honesty policy should be directed to the instructor.

Special needs: Students with disabilities or health related issues who may need class accommodation should consult with the instructor as soon as possible. Accommodations cannot be provided until a student has gone through The Disability Resource Center (DRC) (<http://drc.uga.edu/about/registerforservices.php>; 542-8719) and we have discussed appropriate accommodations for this course. Accommodations cannot be provided retroactively. All conversations will be strictly confidential.

The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.