



## Ecology of North America (ECOL 4160-4160L) Summer 2022



### Course Description:

Ecological survey of North American ecosystems taught in the field from coastal Georgia to southwest deserts and the Pacific Northwest. Application of ecological principles such as biodiversity and ecosystem function, climate change, disturbance, pollution, and trophic food web interactions. Consideration of human interaction with the environment, past, present, and future.

### Course Instructors in the Field:

**Carolyn Cummins**

Odum School of Ecology



[ccummins@uga.edu](mailto:ccummins@uga.edu)

**Nate Tomczyk**

Odum School of Ecology



[nathan.tomczyk25@uga.edu](mailto:nathan.tomczyk25@uga.edu)

**Dr. Aaron Thompson**

Crop & Soil Sciences



[aaront@uga.edu](mailto:aaront@uga.edu)

### Course Coordinator:

Dr. Kait Farrell, Odum School of Ecology

### Course Objectives:

This course is designed to give you a broad understanding of North American ecology, organismal adaptations, and human-environment interactions, specifically focusing on the continental United States (U.S.), including the Southeastern coast, desert Southwest, temperate rain forest of the Northwest, Intermountain West, and grasslands of the Great Plains.

Specifically, by taking this course, you will be able to:

- Explain basic ecological principles (e.g., biodiversity and ecosystem function, climate change, competition, disturbance, evolution, pollution, succession, thermodynamics/ecosystem energetics, and trophic food web interactions) and apply these concepts to visited field sites using a place-based lens;
- Compare and contrast the ecological systems in different regions, including how the abiotic environment shapes biotic communities and their adaptations;
- Appraise how the distribution of water, mineral, soil, and vegetation resources across the U.S. has shaped past and current human occupation of different ecosystems and affected human-environment interactions; and
- Apply your understanding of current environmental challenges to propose possible solutions to help mitigate current and future environmental problems.

### Course Details

#### Credit

4 credits,  
CRNs 68223 (lecture),  
68226 (lab)

#### Prerequisites

ECOL 3500-3500L or  
POD

#### Required resources

None

#### Primary format

Field Study;  
In-person lecture + lab

### Textbook & Field Guide:

You will be provided with a digital reading packet ("course pack") that contains assigned readings from a variety of professional and popular journals, and excerpts from textbooks and popular press books. The course pack also includes maps and figures that provide helpful context as we travel. We will

announce assigned readings throughout the course and we expect you to carefully read those materials and be prepared to discuss them.

## Assignments

Our course assessments include a mixture of oral presentations and discussions, written exams, and practical lab exercises including field observations, field research projects, and related presentations. Detailed descriptions and relevant grading guidelines for each assignment will be provided during class.

- **Exams:** We will have four exams during the semester. All exams are closed-book assessments of the material introduced prior to the date of the exam. Exams are cumulative, since we will be revising concepts throughout the course and making connections between and among the places we visit.
- **Projects:** You will be completing three lab projects during our trip. For each project you will collect class data, analyze the data, and turn in a brief written report. As students enrolled in ECOL 4160, you are expected to be team leaders during the data collection and analysis portion of the project and you will be evaluated on your organization of the field project data and analyses.
- **Oral presentation & Discussion lead:** You will co-lead 2 separate group discussions throughout the course based on peer-reviewed scientific papers. For each discussion, we expect you to prepare a brief overview/summary of the paper to present to the group, develop a set of prepared discussion questions, and then lead the group in a discussion of the assigned reading.
- **Field Notebooks:** During the summer, you will keep a field notebook with detailed observations of the geology, ecology, & anthropology that you observe. Your notebook will be regularly evaluated for clarity, detail, thoroughness and how well you connect your observations to the scientific concepts that you are learning.

## Grading

Course grades will be based on the following assignments and activities:

- Exams (4): 40%
- Lab projects & reports (3): 24%
- Field notebook checks: 24%
- Presentation & discussion co-lead (2): 5%
- Participation & engagement: 7%

You should keep a record of your grades and save your graded assessments until the end of the term. If you have a concern about a grade, you must bring it to the instructor's attention within 3 calendar days of the assignment being returned.

Final grades will be **rounded to the nearest whole number** (e.g., 93.49 rounds down to 93; 93.50 rounds up to 94) and assigned based on the UGA plus/minus scale below:

A 94-100	B+ 87-89	C+ 77-79	D 65-69
A- 90-93	B 84-86	C 74-76	F 0-64
	B- 80-83	C- 70-73	

## Topical Outline

Core ecological principles: Organisms to ecosystems

- Organism adaptations and evolution
- Community dynamics: competition, food webs
- Thermodynamics and ecosystem energetics

- Disturbance and succession
- Biodiversity and ecosystem function
- Global change ecology
- Comparison of ecosystems across North America

#### Human-environment interactions across North America

- Effects of climate and resource availability on development patterns of past and current human populations and their cultures
- Legacies of human actions on ecosystems, including Native American habitation, European colonization and westward expansion, agricultural intensification, mining, urbanization, and future development
- Modern use of energy, mineral, water, soil, and vegetation resources, and their various impacts on ecological systems
- Environmental challenges facing various regions of the U.S.
- Current and future resource and environmental needs of the U.S. human population
- Strategies and policies to meet future resource demands sustainably

Since course content is taught in a place-based way, the order in which topics are covered will depend on our field travel schedule.

## University policies & resources

### **University Honor Code & Academic Honesty**

As a University of Georgia student, you have agreed to abide by the UGA academic honesty policy, “A Culture of Honesty”, and the Student Honor Code (“I will be academically honest in all of my academic work and will not tolerate academic dishonesty of others.”). All academic work must meet the standards described in the [Academic Honesty Policy](#).

You are responsible for informing yourself about the university’s standards before performing any academic work. Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation. All instances of suspected or potential academic dishonesty, including plagiarizing, lying, cheating, falsifying data, obtaining unauthorized assistance, stealing, or other forms of academic dishonesty detailed as [Prohibited Conduct](#) in the Academic Honesty Policy, will be reported to the UGA Office of the Vice President for Instruction. Please ask before submitting your assignment if you ever have questions related to course assignments and the academic honesty policy.

### **Course Accommodations**

If you are eligible for course accommodations, it is essential that you register with the Disability Resource Center (Clark Howell Hall; <https://drc.uga.edu>; 706-542-8719 [voice]; 706-542-8778 [TTY]). I will gladly work with you to make sure our course meets your needs. Please note that accommodations cannot be provided retroactively.

### **Campus Mental Health and Wellness Resources**

We are living through challenging times. The resources below are available through UGA to help you navigate struggles you may be experiencing in your academic and/or personal life:

- If you or someone you know needs assistance, you are encouraged to contact Student Care and Outreach in the Division of Student Affairs at 706-542-7774 or visit <https://sco.uga.edu>. They will help you navigate any difficult circumstances you may be facing by connecting you with the appropriate resources or services.
- UGA has several resources for a student seeking mental health services (<https://www.uhs.uga.edu/bewelluga/bewelluga>) or crisis support (<https://www.uhs.uga.edu/info/emergencies>).

- If you need help managing stress anxiety, relationships, etc., please visit BeWellUGA (<https://www.uhs.uga.edu/bewelluga/bewelluga>) for a list of FREE workshops, classes, mentoring, and health coaching led by licensed clinicians and health educators in the University Health Center.
- Additional resources can be accessed through the UGA App.

You are also always welcome to get in touch with your course instructors or IFP trip leaders if you are facing challenges and need someone to talk to, or need advice about where to find help. **Please do not struggle in silence.**

### **FERPA Notice**

The Federal Family Educational Rights and Privacy Act (FERPA) grants students certain information privacy rights. To comply with FERPA, all communication that refers to individual students must be through a secure medium (UGAMail or eLC) or conducted in person. Instructors are not allowed to respond to messages that refer to individual students or student progress/grades in the course through non-UGA accounts, phone calls, or other types of electronic media. For details, please visit <https://apps.reg.uga.edu/FERPA>.

### **Syllabus Disclaimer**

This syllabus is a general plan for the course; deviations may be necessary and will be announced to the class.