

APPLIED POPULATION DYNAMICS

WILD 5700/5700L, 7700/7700L, Fall 2025

Lecture: Mon, Wed 9:55–10:50 AM; Room 1-304

Lab: Wed 2:55–5:35; Room 1-304

	Instructor	Teaching Assistants	
	Dr. Richard Chandler	Urvi Gupta	Katherine Araúz-Ponce
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Office hours:	Mon 11:00–12:00 or by appointment	Mon 2:30–3:30	Thur 11:00–12:00

Course Description

Foundations of population dynamics from an applied perspective. Exponential and logistic population growth, life tables, species interactions, and stochastic models for structured populations. Sampling design and analytical methods for estimating abundance and demographic parameters. Application of population models to harvest management and conservation of small populations. Integrative student project required.

Course Objectives and Learning Outcomes

This course will present the theory necessary for understanding wildlife population dynamics, and it will explain how to use theory and data to inform management and conservation efforts. By the end of the course, students will be able to: (1) Develop models to forecast the impacts of environmental change and management actions on wildlife populations; (2) Design field studies to collect data on wildlife demographics; (3) Use statistical software to analyze data on wildlife populations; (4) Review scientific literature to support modeling decisions; (5) Present modeling results in a short scientific paper and an oral presentation.

Tips for Success

- Take notes on printed handouts
- Don't bring laptops or tablets to lecture
- Review notes before each lecture
- Keep up with assigned readings
- Finish lab assignments during lab
- Ask questions during lecture and lab.
- Start the final project early.
- Visit with the TAs and me during office hours.

Grading

	Quantity	Grade percentage*
Quizzes	10	10%
Lab assignments	14	35%
Final paper**	1	20%
Exams	3	30%
Class participation		5%

*Late assignments will be penalized 3 points/day, up to a maximum of 50 points off.

**Graduate students will analyze a real dataset and summarize the results in their final paper.

A = 93–100, A- = 90–92, B+ = 87–89, B = 83–86, B- = 80–82,
C+ = 77–79, C = 73–76, C- = 70–72, D = 60–69, F = <60.

Textbook

Conroy, M.J. and J.P. Carroll. 2009. Quantitative Conservation of Vertebrates. Wiley-Blackwell. [Digital copies](#) are available for free through the UGA library.

Prerequisites

Undergrads: (MATH 1113 or MATH 1113E) and (FANR 3200 or FANR 3200W or ECOL 3500-3500L or ECOL 3505H-3505L)

Grads: FANR 6750-6750D or BIOS 7010 or BIOS 7010E

Academic Honesty

UGA Student Honor code: “I will be academically honest in all of my academic work and will not tolerate academic dishonesty of others.” A Culture of Honesty, the University’s policy and procedures for handling cases of suspected dishonesty, can be found at <https://honesty.uga.edu/>. 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. Please ask if you have questions related to course assignments and the academic honesty policy. Any form of possible academic dishonesty will be reported to the UGA Office of the Vice President for Instruction.

Format and Attendance

Lectures and labs will be in-person. Attendance will not be recorded, but it will be impossible to succeed in the class if you don’t participate in lectures and labs. Quizzes will be taken during lectures.

Cell Phones and Laptops

Cell phones are not allowed during class unless explicit permission is granted. Laptop computers are discouraged during lecture, but you should bring laptops to labs.

UGA Well-Being Resources

UGA Well-being Resources promote student success by cultivating a culture that supports a more active, healthy, and engaged student community. Anyone needing assistance is encouraged to contact Student Care & Outreach (SCO) in the Division of Student Affairs at 706-542-8479 or visit sco.uga.edu. Student Care & Outreach helps students navigate difficult circumstances by connecting them with the most appropriate resources or services. They also administer the Embark@UGA program which supports students experiencing, or who have experienced, homelessness, foster care, or housing insecurity.

UGA provides both clinical and non-clinical options to support student well-being and mental health, any time, any place. Whether on campus, or studying from home or abroad, UGA Well-being Resources are here to help.

University Health Center: healthcenter.uga.edu

Counseling and Psychiatric Services: caps.uga.edu or 24/7 crisis support at 706-542-2273

Health Promotion/ Fontaine Center: healthpromotion.uga.edu

Accessibility and Testing: accessibility.uga.edu

Additional information, including free digital well-being resources, can be accessed through the UGA app or by visiting <https://well-being.uga.edu>.

Academic Coaching

For assistance with time management, test and performance anxiety, notetaking, motivation, text comprehension, test preparation, and other barriers to success at UGA, visit the [Office of Academic Enhancement](#).

Accommodations for Disabilities

If you require a disability-required accommodation, it is essential that you register with the Disability Resource Center (<https://drc.uga.edu>; 706-542-8719) and notify me of your eligibility for reasonable accommodations. We can then plan how best to coordinate your accommodations. Please note that accommodations cannot be provided retroactively.

Generative AI

Artificial intelligence (AI) tools, like chatGPT, are generally not allowed in this course. All work submitted must be your own, and it must make use of the concepts and tools that we covered in class, rather than content generated by AI. The only acceptable use of AI is editing, as opposed to creation. If you would like to use AI to edit your writing or your code, you must disclose (1) the prompts provided to AI, (2) your original text or code, and (3) your final text or code. Prompts and output can be disclosed by copying and pasting screenshots into assignment documents. Failure to disclose this information will be considered a violation of the UGA Student Honor Code.

More on AI:

- [Under the AI hood](#)
- [AI teaching-learning circle](#)

Tentative Course Outline

Date	Lecture	Lab
PART I – Models		
Aug 17	Introduction	
Aug 19	BIDE model	Excel and R basics
Aug 24	Exponential and geometric growth	
Aug 26	Logistic growth	Geometric and logistic growth
Aug 31	Harvest models	
Sept 2	Stochasticity	Harvest models
Sept 7	Labor Day – no lecture	
Sept 9	Extinction risk	Extinction risk
Sept 14	Extinction risk	
Sept 16	Exam I	Data collection
Sept 21	Competition and predation	
Sept 23	Competition and predation	Competition and predation
Sept 28	Age structure	
Sept 30	Stage structure	Age/stage structure
Oct 5	Source-sink dynamics	
Oct 7	Metapopulations	Metapopulations
Oct 12	Population viability analysis	
Oct 14	Sensitivity analysis	Population viability analysis
PART II – Estimation		
Oct 19	Study design	
Oct 21	Exam II	Data collection
Oct 26	Occupancy models	
Oct 28	Occupancy models	Occupancy models
Nov 2	Distance sampling	Due: First draft
Nov 4	Distance sampling	Distance sampling
Nov 9	Mark-recapture: closed populations	
Nov 11	Mark-recapture: closed populations	Mark-recapture I
Nov 16	Mark-recapture: open populations	Due: peer review
Nov 18	Mark-recapture: open populations	Mark-recapture II
Nov 23	Thanksgiving Break	Thanksgiving Break
Nov 25	Thanksgiving Break	Thanksgiving Break
Nov 30	Survival analysis	
Dec 2	Reading day	No lab
Dec 9	Final exam (8:00-11:00am)	Room 1-304

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