WILDLIFE ECOLOGY & CONSERVATION
11:216:464
16:215:564
Ecology, Evolution, and Natural Resources
W 10:55am-12:15am, F 9:15am-10:35am; 10:55am-12:15pm
ENR 123 & 237

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Course Introduction

The conservation of wildlife populations requires a foundational knowledge of wildlife ecology, population dynamics, and demography. Many of the key issues in wildlife ecology are quantitative in nature, and proper conservation planning involves mathematical modeling approaches. In this course, you will gain an understanding of the mechanisms that impact wildlife populations, learn about the patterns that can be seen in fluctuations of wildlife populations due to biotic and abiotic influences, learn how ecologists, wildlife biologists, and others monitor and evaluate wildlife populations over short and long time scales, and consider the various management and conservation practices used to maintain and increase the population size of endangered and threatened wildlife populations.

Learning Goals

1. Understand the deterministic and stochastic factors affecting wildlife at the population level.
2. Apply mathematical population model approaches to address applied wildlife management issues.
3. Think critically and solve problems using evidence-based reasoning.
4. Communicate effectively orally and through written and graphical text.

Course Materials

Books: Fryxell, J.M., A.R.E. Sinclair, and G. Caughley. 2014. Wildlife Ecology, Conservation, and Management, 3rd edition. Wiley Blackwell Publishing (paperback)

Requirements/Grading

Exams: There are 2 exams in this course (midterm & final). Exams are in 3 parts: 1) multiple choice covering important terminology, concepts, and people; 2) short answer questions predominantly

covering principles/theories presented in class; and 3) critical thinking essay questions designed to allow students to apply knowledge to practical problems. Material in the course is hierarchical, with ideas and concepts building upon each other throughout the semester. Therefore, each exam/assignment is effectively cumulative.

Labs: There will be 9 Excel-based computer labs throughout the course to help you further your understanding of various quantitative methods in wildlife ecology and conservation. These labs DIRECTLY RELATE TO YOUR TERM PROJECTS. You will work in assigned pairs to go through the exercises, but you will hand in your homework assignments separately. You are expected to remain in lab for the entire period. If you finish early, you likely have not spent enough time tweaking the models to truly understand how they work. Lab assignments are considered homework, and should be done after (not during) class. Assignments will be due 1 week later, at the beginning of class. If you do not hand it in by the time class starts, a 5pt penalty will be imposed for each day the assignment is late until you reach 0. ATTENDANCE IS MANDATORY, unless there is a documented excuse. If you miss lab without a documented excuse, you will earn a zero for that assignment. If you do miss a lab, it is your responsibility to contact the TA and make arrangements to complete the assignment. Remaining lab periods will be dedicated to generating population models for your term project (see Project Tasks below).

Project: You and your partner will be assigned a NJ species that is managed, monitored, or conserved. You will then be paired with a professional who works with your assigned species, and you will spend at least one day in the field with your mentor. Your task will be to develop a conservation/management plan for that species, drawing upon research, readings, and interviews with your mentor. More details will be provided in class. You will turn in a report and prepare a 15-20 minute presentation for class.

Project Tasks: On some lab days, there will also be an assigned Project Task. These tasks are designed to provide you class time to work on your term projects and to seek help from the course instructors. Details for each task will be provided on the day of lab, and completed tasks will be collected on the due date.

Grading Breakdown

Mid-Term	20%	
Final	20%	
Lab	20%	
Project	40%	(including Project Tasks)

Participation: You are expected to be in class every day. Absences will be excused pending documentation (i.e. doctor's note, police report, obituary). It is also important to be mentally engaged in class. Paying attention, asking questions, and participating in discussions will improve your learning and allow you to get the most out of the class. Although a point value is not assigned for participation, it will be considered in calculating your final grade. There is NO extra credit.

Advising/Office Hours

There are no designated office hours for this course. We are available to you *by appointment* throughout the semester. Please give us a day's notice, if possible, so we can accommodate you as quickly as possible. Please do not hesitate to ask for help. That's what we are here for, and we want you to do well!

Academic Integrity

All work handed in must be your own. Cheating on exams or assignments will not be tolerated and will result in a zero for that assignment. Academic integrity infractions are subject to further disciplinary penalties through the University. See http://academicintegrity.rutgers.edu/integrity.shtml for the University's current policies.

SCHEDULE OF CLASSES*

Date	Room 123	Room 237	Readings
Sept. 7	Introduction		
9	Habitat Selection	Lab: Basic Statistical Distributions, Excel Tutorial, Literature Search Tips	Ch. 3
14	Dispersal, Disperson, etc.		Ch. 4
16	Population Growth	Lab: Exponential and Logistic Population Models	Ch. 5
21	Estimating Vital Rates		Ch. 12
23		Lab: Life Tables Project Task 1:Guided Research on Species Vital Rates	pp. 233-237
28	Task 1 DUE (in-class discussion) Population Viability Analysis		Ch. 16
30		Lab: PVA	
Oct. 5	Predation		Ch. 7
Oct. 7	Harvest Models	Lab: Harvest Models	Ch. 18
12	Species Interactions		Ch. 6
14		Project Task 2: PVA of Assigned Species	Ch. 18
19	MID-TERM		
21	Population Projection Models	No lab (*you're welcome)*	pp. 239-249
26	The Wildlife Society – NJ Chapter Fall Meeting (Forsythe NWR)		
28		Lab: Age/Stage Structured Models Task 3: Matrix Model for Assigned Species TASK 2 DUE	
Nov. 2	Factors Influencing Extinction Risk		Ch. 20
4		Task 4: Stochastic Models for Assigned Species TASK 3 DUE	
9	Behavior		Ch. 10
11		Lab: Sensitivity Analysis TASK 4 DUE	

16	Parasites and Pathogens		Ch. 8
18		Task 5: Sensitivity and Elasticity Analyses for Assigned Species	
18	Wildlife Control		Ch. 19
23	NO CLASS – HAPPY THANKSGIVING		
25	NO CLASS – HAPPY THANKSGIVING		
30	Habitat Restoration		Ch. 21
Dec. 2	Presentations TERM PROJECTS DUE		
7	Presentations		
Dec. 9	Presentations		
Dec. 14	Presentations		

*Schedule subject to change