

Zoology 389: Animal Ecology
Course Syllabus — Spring 2020

Lecture Time: Tuesdays & Thursdays 12:45-2:05pm, Rice Creek 123

Laboratory Time: Thursdays 9:35am-12:35pm, Rice Creek 119

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Office hours: Mondays, 11:00am – 12:00pm and Wednesdays, 9:00am – 12:00pm, or by appointment.

Course Overview: This course explores ecological, behavioral and evolutionary concepts and theories behind the relationships between organisms and the environment. Through a series of lectures, discussions and laboratory practices, you will gain a deeper understanding of basic ecological theory (e.g., population growth, competition, migration), relevant evolutionary concepts (e.g., life histories, phylogeography, eco-evolutionary dynamics), and behavioral strategies (e.g., evolutionary stable strategies, mating systems).

Expected Learning Outcomes: Upon completion of this course, students will be able to:

- 1) Identify and describe the major principles and postulates of animal ecology and explain the theoretical, experimental and applied concepts that define the science.
- 2) Gain a conceptual understanding of theories in animal ecology.
- 3) Strengthen their ability to read and criticize primary literature.
- 4) Gain experience synthesizing and critically evaluating information thorough understanding of a specific and current topic.
- 5) Recognize and be able to search primary (research-based) literature for studies on animal ecology.
- 6) Apply current research techniques to study animal populations and communities in the field, as well as the use of multiple databases and programs to study animal distributions under different environmental settings.
- 7) Analyze and synthesize ecological data using common statistical tests and software.
- 8) Improve your written skills by preparing formal scientific manuscripts.

Textbook: There is no assigned textbook in this course. Additional readings will be made available on blackboard.

Grading: The overall grade for the course will be based on the lecture score (two-thirds) and the laboratory score (one-third). The lecture grading system is based on exams, paper discussions, class participation, and a presentation. Laboratory grade will be based on reports and participation.

- Lecture Grading Scale:

Exams: 500 points

First exam 150 pts

Second exam 150pts

Final exam 200

Class participation: 300 points

In-class exercises 100 pts

Summaries 100 pts

Paper discussions 100 pts

Research Presentation: 200 points

Abstract 50 pts

Presentation 150 pts

- Laboratory Grading Scale:

Reports: 700 pts

Coversheets: 100 pts

Practices: 100 pts

Participation: 100 pts

The grade distribution for the course will be: A=100%-95%; A-= 94%-90%; B+=89%-85%; B-=84%-80%; C+=79%-75%; C-=74%-70%; D+=69%-65%; D-=64%-60%; E < 60%.

- Exams: For the lecture, there will be two exams during the semester and a comprehensive final exam. The exams will have multiple choice, short answer, and essay-type questions. Questions will be drawn from material presented during class, discussions, and assigned readings.

- Class Participation: Class meetings will include in-class exercises. Written work from the exercises will be collected at the end of class. Your grade for in-class exercises will be based on this written work as well as your participation. Participation in the lab is assessed based on several factors including attendance, tardiness, preparation for each class (reading the exercises and knowing what is expected of you each day), enthusiasm in classroom and field settings, your willingness to engage actively in laboratory and field activities (carry gear, setup traps and nets, get dirty) and your willingness to help other students and the instructor. Behaviors that are poorly reflected include arriving to class late and use of cell phones during class time. Good students will be prepared for class and be active participants.

ASSIGNMENTS: All the assignments should be submitted to blackboard.

-Discussions: Before each paper discussion, you have to turn in a **200-word summary** for *each* of the papers to be discussed. Each student will be in charge of leading one discussion during the semester. To do so, you need to prepare a PowerPoint presentation where you summarize the paper(s) and prepare questions. Questions can be about concepts covered in the papers, statements or methodologies that were not clear from the paper, arguments about the methodologies and conclusions, and/or questions that put the papers in the context of materials covered in class. During paper discussions, the rest of the class will be evaluated based on participation in the discussion.

- Research Presentation: Students will be expected to select a topic within the field of animal ecology and make a presentation that explores that topic in greater depth.

Format:

Proposal: You should submit an proposal for your topic (500 words and at least 5 citations) no later than **March 12th**.

Presentation: At the end of semester, we will have a mini-symposium during which students will give a 12-minute oral presentation on their research topic. The use of PowerPoint is mandatory.

- Laboratory Reports: Students will work in small groups to gather and analyze data and they will write reports. Reports should be submitted in groups. Below you can find a brief summary about the report format. For more detailed information, please refer to the writing guide and rubric posted on blackboard.

Format:

a. Introduction: State any relevant background information you need for establishing the basis of your research project. Information gathered from the literature should be properly cited following the Ecology journal format. The question(s) you want to address and the hypotheses of your research are important components of the introduction and should be clearly stated.

b. Materials and Methods: You should include all materials used in the project and state the procedure in a logical sequence. Experimental design, treatments, replicates, and statistical analyses should be clearly stated.

c. Results: Include your findings as written paragraphs. Note that tables and graphs are visual aids of the results and should not substitute a written statement. If you used tables and/or graphs, you should refer to them in the body of your results as (Table 1, 2, or Fig. 1, 2, etc.). A table and/or a Fig. should appear on a separate page(s) and attached at the end of your paper. You need an appropriate caption for each table and/or figure. The caption should have enough info to explain the table or Fig. without going back to the main body of your text.

d. Discussion: Discuss whether your hypothesis is correct, and if not, clearly explain why

not. Compare and contrast your results with similar studies in the field. Again, you should follow the proper method of citation as explained in the introduction. Based on your results, you may make some generalizations, practical application of your results, future studies, and what you could have done differently. The last paragraph of this section should be the conclusions.

e. Bibliography: List all the literature you cited in your text. Follow Ecology journal format.

Assignments Late Policy: Late assignments will be accepted for up to **3 days** after the deadline, with a penalty of 10% per day late of the maximum possible score.

Extra credit: None.

Disability Accommodation: If you have a disabling condition that may interfere with your ability to successfully complete this course, please contact the Office of Disability Services at dss@oswego.edu or 315-312-3358.

Academic Dishonesty/University Honor Code: This course adopts a zero-tolerance policy on academic dishonesty, including cheating and plagiarism. If you are unsure of whether something constitutes plagiarism while working on your assignments, do not hesitate to ask, as plagiarism is considered a serious violation of academic integrity. For more information on policies regarding intellectual integrity at SUNY Oswego, see the course catalog or <http://www.oswego.edu/integrity>. Any violation of the SUNY Oswego academic integrity policy is considered a serious violation. Plagiarism will result in severe grade penalties and will be reported to the dean and Provost's office.

Tentative lecture schedule

Date	Topic
Jan 28 th	Introduction to the class
Jan 30 th	Introduction to Animal Ecology
Feb 4 th	Population Ecology
Feb 6th	Discussion 1
Feb 11 th	Metapopulations
Feb 13 th	Community Ecology
Feb 18th	Discussion 2
Feb 20 th	Ecological Niche
Feb 25 th	Competition
Feb 27th	Discussion 3
Mar 3rd	Exam 1

Mar 5 th	Invasive species and communities
Mar 10th	Discussion 4
Mar 12 th	Habitat selection (Abstract due)
Mar 17 th	NO CLASSES
Mar 19 th	NO CLASSES
Mar 24 th	Dispersal
Mar 26th	Discussion 5
Mar 31 st	Life histories and communication
Apr 2 nd	Evolutionary behavioral strategies
Apr 7th	Discussion 6
Apr 9th	Exam 2
Apr 14 th	Reproductive tactics and mating systems
Apr 16th	Discussion 7
Apr 21 st	Learning
Apr 23 rd	Behavioral ecology and sociobiology
Apr 28th	Discussion 8
Apr 30 th	Presentations
May 5 th	Presentations
May 7 th	Presentations
May 14th	Final Exam (10:30am-12:30pm)

Tentative laboratory schedule

Date	Topic	Assignments
Jan 30 th	Practice 1: GPS tracking	Practice 1
Feb 6 th	Practice 2: Report Writing and Stats	Practice 2
Feb 13 th	Project 1: Life tables (data collection)	Coversheet 1
Feb 20 th	Project 1: Life tables (data analyses)	
Feb 27 th	Project 2: Quantifying behavior (data collection)	Coversheet 2 Report project 1 (Feb 28 th)

Mar 5 th	Project 2: Quantifying behavior (data analyses)	
Mar 12 th	Project 3: Camera traps (setup)	Coversheet 3 Report project 2 (March 13 th)
Mar 19th	NO CLASSES	
Mar 26 th	Project 3: Camera traps (photo sort-classification)	
Apr 2 nd	Project 3: Camera traps (data analyses)	
Apr 9 th	Project 4: Biogeography (data collection)	Coversheet 4 Report project 3 (Apr 10 th)
Apr 16 th	Project 4: Biogeography (data analyses)	
Apr 23 rd	Project 5: Habitat complexity (data collection)	Coversheet 5 Report project 4 (April 24 th)
Apr 30 th	Project 5: Habitat complexity (data analyses)	
May 7 th	Class presentations	Report project 5 (May 8 th)