BIOS 213L: Ecology and Evolution Fall 2005

Lecture Times: MWF 10:30 to 11:20, Rm 202 Zabriskie
Lab Time: Monday, 1:30-4:30

Instructor: Dr. Jackie Schnurr - office: 105 Zabriskie
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Office Hours: M,T,W,Th,F 9-10, or whenever I'm in my office!

Text: Manuel C. Molles Jr. 2005. Ecology: Concepts and Applications. McGraw Hill publishers.

I would also like you to buy some 3x5 index cards, which you bring to class each day.

Course Philosophy: This course is designed to give a general overview of the science of Ecology, as well as providing an understanding of the importance of evolution to the understanding of science. Ecology is a hands-on science, and the labs will provide you with a deeper understanding of the research ecologists perform. Because of this, you will be spending several laboratories in the field (dress appropriately!). Also, although field work is the part of Ecology most scientists enjoy the most, Ecologists are also charged with communicating their results to other scientists and the public. Therefore, another large portion of the lab will be writing up your results from the field. The lab and the lectures are designed to give you a general feel for the science of Ecology.

Course Objectives: Upon successful completion of this course, student will be able to:
1. Understand the basic components of the physical environment and describe how they interact to affect the living component of the environment, at multiple scales.
2. Understand basic evolutionary concepts, and why they are central to ecology.
3. Outline basic world climate patterns, and their importance.
4. Outline the pathways energy and nutrients take as they flow through an ecosystem.
5. Describe environmental interactions and behavior at the level of the organism, including homeostasis, acclimation, and developmental response.
6. Describe how species interact, showing how competition, predation, and co-evolution operate to influence the interdependence of species.
7. Describe the concept of the population, including growth and regulators.
8. Describe the concept of the community, giving special attention to biodiversity and its role in community well being.
9. Use the scientific method to formulate and test hypotheses, as well as communicate the results with the greater scientific community.
10. Have a basic understanding of statistics, and be able to construct, read, and interpret graphs!

Grading:

Lecture Exams: 40 %
- Exam 1: 10 %
- Exam 2: 15 %
- Exam 3: 15 %

Final Exam: 15%

Laboratory: 45 %
- Field Write-Ups: 25 %
- Class Assignments: 20%

Exams will consist of multiple choice, short answer, essay and graphical questions.

Labs make up a large portion of your final grade. I will try to have the lab handouts prepared for the Friday lectures so that you can read them prior to lab. All lab write-ups (both papers based on the field research and in class assignments) need to be TYPED.

Lecture Schedule

Dates	Topic	Reading
August 26	Pre-test and Introduction to Ecology	Ch.1
29	Ecology Fun Day!	Ch.2
31, Sept. 2	Climate and Biomes	Ch.3
Sept. 5, 7	Temperature Relations	Ch 4
9,12	Water Relations	Ch 5
14,16	Energy and Nutrient Relations	Ch.6
19	Ecology Fun Day!	
21	Social Relations	Ch.7
23	**FIRST EXAM**	
26, 28	Population genetics & Nat Sel	Ch.8
30, Oct. 3	Population dist. & abund.	Ch.9
Oct. 5	Ecology Fun Day!	
7, 12	Population Dynamics	Ch.10
10	**FALL BREAK**	
14, 17	Population Growth	Ch.11
19	Life Histories	Ch.12
21	**SECOND EXAM**	
24, 26	Competition	Ch.13
28	Exploitation	Ch.14
31	Ecology Fun Day!	
Nov. 2	Mutualisms	Ch.15
4, 7	Species Abundances & Diversity	Ch.16
9	Species Interactions & Comm. Structure	Ch.17
11	Ecology Fun Day!	
14, 16	Primary Production and Energy Flow	Ch. 18
18	Nutrient Cycling and Retention	Ch. 19
21	**THIRD EXAM**	
22-27	THANKSGIVING BREAK	
28, 30	Sucession and Stability	Ch.20
Dec. 2	Landscape Ecology	Ch.21
5	Geographic Ecology	Ch.22
7	Global Ecology	Ch.23

FINAL EXAM: WEDNESDAY, DECEMBER 14, 7-10 PM

BIOL 213L LAB SCHEDULE

Week of:	Lab Title	Hand-In
Aug. 29	Intro. to Labs, Library Assign.	
September 5	Learn to use Excel	*Ecology* Assign.
Sept. 12	Floating Classroom?	Excel assignment
Sept. 19	Life under your feet – field	Floating classroom
Sept. 26	Life under your feet - lab	
Oct. 3	Seedling recruitment I	*Life* lab report
Oct. 10	NO LAB – FALL BREAK	
Oct. 17	Seedling recruitment II	*Seedling* proposal
Oct. 24	Seedling recruitment III	
Oct. 31	Tales from the Crypt	*Seedling* lab draft
Nov. 7	TBA	*Tales* assignment
Nov. 14	TBA	
Nov. 21	TBA	*Seedling* paper due
Nov. 27	TBA	
Dec. 5	GROUP PRESENTATIONS	