

General Ecology Laboratory

BIOL 3861/Fall 2009

Meeting Time and Place: T 12:30-3:20, SCEN 503 & 502C

Course Objectives

This course, including both the lecture and laboratory, will contribute to the broad understanding of science as well as the more specific goal of learning major ecological concepts. The purpose of the laboratory will be to become familiar with approaches and methods used in ecological research. All students will have individual experiences with collecting, analyzing, and reporting data collected as part of ecological investigations performed in a variety of habitats. Students will therefore become familiar with how ecological research is conducted in addition to learning major ecological concepts.

Be Prepared for Both Laboratory and Field Work

This is both a laboratory and field course: be prepared to work in the woods for several hours. Bring clothes and gear that you can be comfortable in such as boots, hats, sunglasses, and water bottles. You should also bring a raincoat in case of rain. Plan on writing with a pencil; ink will not work if it rains. When we are meeting or working in the laboratory all students **MUST** wear close-toed shoes and long pants or skirt below the knee per university laboratory regulations. Students **MUST** also adhere to all instructions during laboratory including use of gloves and eye protection when instructed. **Failure to wear proper clothes and use protective gear when instructed will result in immediate dismissal from the laboratory and a zero for the report for that laboratory exercise.**

Laboratory Schedule

Month	Day	Topic and Manual Number	Report Due Date
August	25	No lab	
September	1	Introduction, Notebooks, Reports, and Field Equipment (Manual #1)	none
	8	Basic Ecological Sampling & Statistics (Manual #2)	Sept. 18
	15	Basic Ecological Sampling & Statistics (Manual #2)	
	22*	Field work for Stratification (Manual #3) and Primary producers (Manual #4)	Sept. 29
	29 [@]	Lab work for Primary producers: Phytoplankton & periphyton biomass (Manual #4)	Oct. 6
October	6*	Population size determination/Cemetery Demography (Manual#5)	Oct. 20
	13*	Forest Composition (Manual #6)	Nov. 3
	20*	Leaf Litter Arthropod Biodiversity (Manual #7)	Nov. 10
	27 [@]	Leaf Litter Arthropod Biodiversity continued	
November	3	Beetle Competition (Manual #8)	Nov. 24
	10	Beetle Competition continued	
	17 [@]	Predation: Selective Foraging (Manual #9)	Dec. 1
	24 [@]	Predation: Selective Foraging continued	
December	1	The influence of acidification on ammonification (Manual #10)	Dec. 8
	8	No lab	

*Wear clothes appropriate for outdoors; [@] Wear clothes appropriate for laboratory

Grading and Laboratory Reports

The laboratory grade will be based on 320 points constituting 5 laboratory reports (32 pts each), 2 abstracts (32 pts each), 2 sets of questions (32 pts each), and your field notebook, attendance, and participation (32 pts).

Students must complete laboratory exercises each week in order to obtain and analyze the data needed to construct the reports required. Do not wait until the week the report is due to begin to organize and work up the entire data set that is needed for each report. Work up your data as soon as possible following the laboratory so that you can get questions pertaining to the data answered before you need to write up the report.

The outline for each laboratory report should be:

- I. Introduction (8 pts; 2-3 sentences)
 - a. What was the purpose or objective of the laboratory?
- II. Methods (8 pts; 1 paragraph)
 - a. What was your experimental design?
 - b. What methods (briefly) did you use?
- III. Results (8 pts; 1 paragraph + figures/tables)
 - a. Present your data in labeled graphs (figures) and tables.
 - b. Discuss the general trends in your results referring to figures and tables.
- IV. Discussion (8 pts; 1-2 paragraphs)
 - a. Provide a brief interpretation of your results.
 - b. Answer any specific questions given with the laboratory exercise.

All reports must be typed; hand-written reports will be returned with a zero. All reports will be graded for spelling and grammatical errors along with the content. Specific items that must be included for particular laboratories will be provided with some of the laboratory exercises. Lab reports are required for Manual #2, Manual #3, Manual#4, Manual#7, Manual#9.

Abstracts will be required for Manual #6 and Manual#8. Abstracts consist of at least one sentence describing your objectives, one sentence describing the experimental design, one sentence describing methods, 2-3 sentences describing results, and 1-2 sentences with conclusions.

Manual #5 and Manual #10 will require you to turn in questions.

The field/laboratory notebook is an essential part of scientific research. Therefore, in addition to the individual laboratory reports, each student must keep a complete record of their raw data and observations from each field and laboratory exercise in their notebook. All notebooks will be collected December 2 and graded for completeness and content. Keep in mind that these notebooks must be legible and complete.