

FIELD ECOLOGY (BIO 325/525) Fall 2008

Meeting Times: Lab 8:00-11:00 Thurs (HS 51)

Discussion 8:00-9:00 Tues (HS 266)

Contact Information

<u>Office Hours</u>	<u>Location</u>	<u>Phone</u>	<u>E-mail</u>
Tuesday 10:30-11:30	Halsey 150	424-0845	stelzer@uwosh.edu
Friday 11:30-12:30			
and by appointment			

Objectives of Course

- to learn a variety of comparative and experimental approaches used to better understand how species interact with other species and with their environment
- to gain experience with the collection, analysis, display, and interpretation of ecological data and to become more proficient at scientific writing; by the course end students should be able to use a spreadsheet to manipulate and summarize simple data sets
- to enhance your skills to think critically about research questions and data in ecology
- to understand how skills acquired in this course can be applied to address emerging ecological and environmental problems

Required Books

A student handbook for writing in biology. 2005. Karin Knisley. Sinauer Associates, Inc., Sunderland, Massachusetts.

Where we will meet

All meetings for Discussion will take place in Halsey 266 unless otherwise noted or announced. Lab will sometimes meet in HS 51 and sometimes at the Aquatic Research Laboratory (ARL) on the Fox River. We will meet in HS 51 on the mornings of field trips. See the Schedule for more details.

Evaluation

You will be evaluated based on three short lab reports, one long lab report, six problem/data sets, three article summaries, a final exam, and participation in class discussions and other class activities. The grading breakdown is as follows:

Assignment	Percentage of Grade
Short lab reports (3)	30 %
Long lab report (1)	15 %
Problem and Data Sets (6)	15 %
Article Summaries (3)	10 %
Exam	20%
Discussion and participation	10%

Full and active participation in the labs and other activities is very important to your success in this class! Missing, or being late for, labs or discussions will cause you to lose some or all of the participation points associated with a given activity.

For the long lab report you should use the traditional format for scientific reports (Abstract, Introduction, Methods, Results, Discussion, and Literature Cited (see “Guidelines for Full Lab Reports” on D2L). Short lab reports will entail answering a series of questions. For the first two lab reports (Zebra Mussel and Forest Community Structure) you will be given an opportunity to improve your original grades. To do this you will need to turn in a corrected copy of the report within one week of the time that I return the original report in class. You could earn up to 50% of any points that you miss. For example, if your original score is 80% on the Zebra Mussel Lab Report you could improve this to a 90% if you make all of the necessary improvements.

Three article summaries are assigned and their due dates are indicated in the Schedule. Each summary should be one-page single-spaced. Articles can be from any peer-reviewed scientific journal as long as they pertain to some aspect of field ecology (a paper based on a purely lab-based approach would not be appropriate). Examples of journals that contain papers describing field-based ecological studies include: *Science*, *Nature*, *Proceedings of the National Academy of Sciences*, *Ecology*, *Ecological Applications*, *Oecologia*, *Oikos*, *Ecology Letters*, *Journal of Ecology*, *Conservation Biology*, *Biogeochemistry*, *Journal of Environmental Quality*; *Limnology and Oceanography*, *Journal of the North American Benthological Society*, *Freshwater Biology*, *the Auk*, *Transactions of the American Fisheries Society*, *American Midland Naturalist*, *Journal of Mammalogy*, and *the Journal of Great Lakes Research*. Each article summary should include the following: 1) the full citation of the article, 2) a description of the problem or question being addressed, 3) the objectives and/or hypotheses of the study, 4) a summary of the methods used, 5) a summary of the results, 6) your evaluation of whether or not the objectives or hypotheses were sufficiently addressed. Be sure to attach a copy of the article abstract (as published) with your one-page summary. Articles that we discuss in class (see Schedule) cannot be used for the basis of your article summaries.

All lab reports, answers to problem sets, and article summaries must be turned in as hard copies. E-mailed versions of these assignments will not be accepted. To facilitate class data pooling, I will ask that you send data generated in lab to me by E-mail. More details will follow. Extensions on lab reports, other assignments, and the final exam will only be given if there is a valid, documented excuse (e.g. debilitating illness accompanied by a physician’s note). Otherwise, assignments will be docked 10% for every day they are late.

Final grades will be given based on the following grading scale:

A = 90-100 AB = 88-89 B = 80-87 BC = 78-79 C = 70-77 CD = 68-69
D = 60-67 F < 60

Academic Integrity: If you decide to cheat on an exam or to engage in other forms of academic dishonesty you will be subject to the Student Academic Disciplinary Procedures as outlined in the Student Disciplinary Code (<http://www.uwosh.edu/dean>). Discussion of lab

results and other material with other students in class, particularly your lab partner, is encouraged. However, all lab reports, problem sets, and article summaries must be completed individually. Plagiarism has serious consequences. Examples of plagiarism are 1) “lifting” whole sentences/paragraphs from a source and including this material in your paper or lab report in an unaltered or slightly altered form, 2) copying the work of another student and including it in your paper or lab report and 3) paraphrasing from a source without citing that source

For Graduate Students (enrolled in Bio 525): In addition to all the other assignments and activities described in the syllabus, you are to write a critique of a paper from the peer-reviewed primary literature in the area of “field ecology”. The critiques should be 7-10 pages double-spaced and are due the last day of the semester. They will account for 10% of your grade. Short and Full Lab reports will account for 25% and 10% of your grade respectively (the percentages for the other categories are the same as given above). I will provide you with more information about what I expect for these critiques later in the semester. If a graduate student would like to request some alternative, but equally challenging assignment, I would be happy to discuss this early in the semester.

Week	DISCUSSION	LAB
Sept 1-5	-----	Introduction to course
Sept 8-12	Introduction to Zebra Mussels and <i>Zebra Mussel Lab</i>	<i>Zebra Mussels: Filter Feeding</i> (meet in HS 51, then to Lake Winnebago)
Sept 15-19	Discussion of results from <i>Zebra Mussel Lab</i> ; Introduction to chlorophyll <i>a</i> analysis	<i>Zebra Mussels: Chlorophyll a analysis</i> (meet in ARL); Chlorophyll a Problem Set due
Sept 22-26	Discussion of “Effects of an invasive bivalve on the zooplankton community of the Hudson River” by Pace, Findlay, and Fischer.	<i>Zebra Mussels- Do they feed selectively? Phytoplankton community composition</i> (meet in HS 51); Introduction to phytoplankton identification; Article Summary Due
Sept 29- Oct. 3	Discussion of results from <i>Zebra Mussel Lab</i> ; Rate calculations using MS Excel	Introduction to forest community ecology and <i>Forest Community Structure Lab (HS 51)</i> ; Chlorophyll a data from Zebra Mussel Lab due (Excel format)
Oct 6-10	Discussion of “Dynamics in late-successional hemlock-hardwood forests over three decades” by Woods	<i>Forest Community Structure</i> (meet in HS 51, then Waukau Cr. Forest Reserve); Zebra Mussel Short Lab Report due
Oct 13-17	Discussion of results from <i>Forest Community Structure Lab</i> ; Data from Forest Community Structure Lab due (Excel format) Oct. 13	Introduction to nitrogen cycle, groundwater-surface water interactions, QA/QC and <i>Water Quality Lab (HS 51)</i> ; Forest Community Structure Problem Set due
Oct 20-24	Discussion of results from <i>Forest Community Structure Lab</i> ; Article Summary due	<i>Water quality: sample collection</i> (Radley Cr.) Meet in HS 51 at 7 am!;
Oct 27- Oct 31	Introduction to nutrient analysis using ion chromatography; Forest Community Structure Full Lab Report due	<i>Water quality: nitrate analysis</i> (HS 51 and HS 510); Water Quality Lab Problem Set due
Nov 3-7	Discussion of results from <i>Water Quality Lab</i> ; Identify and measure chromatogram peaks (outside of class)	Discussion of “Nitrate retention in riparian ground water at natural and elevated nitrate levels in North Central Minnesota” by Duff et al.; Data from Water Quality Lab due (Excel format)
Nov 10-14	Biological diversity, biotic integrity and introduction to <i>Stream Invertebrate Biodiversity Lab</i>	<i>Stream Invertebrate Biodiversity: Field Sampling</i> (Mosquito Cr. and Pine River); Meet in HS 51 at 7 am! Dress warmly!
Nov 17-21	Discussion of “Biological integrity: a long-neglected aspect of water resource management” by Karr; Water Quality Short Lab Report due	Introduction to aquatic invertebrate identification (Meet in HS 51); <i>Stream Invertebrate Biodiversity: Invertebrate identification</i> (ARL)
Nov 24- Nov 28	<i>Stream Invertebrate Biodiversity: Invertebrate identification</i> (ARL); Article Summary due	No lab (Thanksgiving)
Dec 1-5	<i>Stream Invertebrate Biodiversity: Invertebrate identification and diversity calculations</i> (ARL)	<i>Stream Invertebrate Biodiversity: Invertebrate identification and diversity calculations; discussion of results</i> (ARL)
Dec 8-12	Review for Final Exam; Stream Invertebrate Biodiversity Short Lab Report due	Exam (Dec. 12)