

Ecology Laboratory

BI 326

Spring 2010

Mon. 1-1:50, AW 204; Tues. 1-4:50 p.m., Biology 139

Instructor: David Hooper

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Office Hours: M 11-12, W 1:30-2:30; or by appointment

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Web site: <http://fire.biol.wvu.edu/hooper/courses.html>

COURSE GOALS AND LEARNING OBJECTIVES

1. Understand and practice the scientific method in the context of ecology, including:
 - a. Defining testable hypotheses;
 - b. Designing and carrying out experiments;
 - c. Learning and applying quantitative skills to data analysis;
 - d. Learning and applying critical thinking to the interpretation of results.
 - e. Integrating experimental results with knowledge of ecological principles and the literature.
2. Learn field and lab methods related to a variety of ecological measurements.
3. Learn computer skills applicable across all biological disciplines.
4. Develop skills in scientific writing and report preparation.
5. Develop skills in oral presentation of research results.

IMPORTANT NOTES:

1. Many labs are in the field and all involve the risk of getting dirty. Dress appropriately. On field days (see schedule, below), always bring raingear and footwear that will keep your feet dry and comfortable, no matter what the day looks like in the morning. Weather can change quickly in the spring. Extra layers (e.g., sweaters, pile jackets), hat, and gloves are also important, especially early in the quarter. Blue jeans are NOT recommended, as they take a long time to dry once wet.
2. For many of our lab exercises, we will spend time working on computers to do analyses and make figures. For every lab, bring a thumb drive on which you can store any files that you create. In addition, make sure that you are familiar with navigating to your U: drive, which will serve as the backup for your files.

COURSE GRADE:

1. Your grade will be based on a total of 420 possible points:

Stream Ecology, Literature search	10
Stream Lab quiz	10
Stream Ecology, first draft of Intro, Methods	30
Stream Ecology data sheets	10
Stream Ecology, first draft of entire paper	60
Stream Ecology, final draft	100
Group project experimental design and expected results	20
Group Project Proposal (description of question, motivation, methods, equipment)	40
Data, summary stats, figs. & tables for group projects	20
Group Project presentations	100
Participation	<u>20</u>
Total:	420

2. Be sure to refer to the lab report handout for specific instructions on writing lab reports. Failure to follow the assigned format will cost you points!

3. Academic dishonesty will not be tolerated. Assignments with plagiarism problems can result in no credit, failing the class, or expulsion from the university. Questions about plagiarism? Ask me, the TA, and/or see Western's web site: <http://www.library.wvu.edu/ref/plagiarism.html>

4 **Late Assignments** will lose 3% per day late (i.e., a third of a grade per day), unless you have received permission for an extension from me before the due date.

5. **Your final grade** will be determined as a percentage of the 420 point total, and is independent of your grade in BIOL 325 (if you are taking that):

	B+	87-89.9	C+	77-79.9	D+	67-69.9	F	0-59.9
A	93-100	B	83-86.9	C	73-76.9	D	63-66.9	
A-	90-92.9	B-	80-82.9	C-	70-72.9	D-	60-62.9	

LABORATORY SCHEDULE

Monday lectures provide preparation for the upcoming week's lab and are required. Announcements (e.g. for changes in assignments or locations of field labs), will be announced in lab and posted on the web, and, when possible, in Biol. 325. If you are not taking Biol. 325 this quarter, please check with me or on the web each week to make sure that there have been no changes in our plans.

Dates	Laboratory Topics
<u>March 30 (1)</u>	Introduction to the course; Preliminary observations of stream ecosystems (field)
<u>April 5, 6 (2)</u> field	Stream ecology I: Invertebrate sampling and stream characterization (field) QUIZ: Stream lab DUE: Literature search results
<u>April 12, 13 (3)</u> field	Stream ecology II: Sort invertebrate samples DUE: First draft of intro & methods for Stream Ecology lab report (returned 4/20)
April 16 (Friday)	DUE: Completed data sheets (with invertebrate & stream characterization data)
<u>April 19, 20 (4)</u>	Stream ecology III: Computer lab 1. Intro to Excel (data entry, formulas, graphing, T-tests) 2. Analyze stream data
<u>April 26, 27 (5)</u>	Group Projects I: Make observations, develop testable question and methods to answer it (field) DUE: Revised Introduction and Methods, plus first draft of Abstract, Results, Discussion for Stream Ecology lab report (returned 5/4)
<u>May 3, 4 (6)</u> field	Group Projects II: Gather equipment, get training, begin collecting data DUE: Experimental design and expected results
<u>May 10, 11 (7)</u> field	Group Projects III: Refine methods, collect data (field) DUE: Group project proposal
<u>May 17, 18 (8)</u> field	Group Projects IV: Collect data, take photos of field site, organisms (field) DUE: Final draft of entire Stream Ecology report
<u>May 24, 25 (9)</u>	Group Projects V: Computer lab (analyze data, produce figures & tables), equipment check-in, mock talks DUE: Submit data, summary statistics, figures/tables, and reference list for group projects
May 31 (Monday)	NO CLASS – MEMORIAL DAY. DUE: Copy of Powerpoint presentation
<u>June 1 (10)</u>	Group Projects VI: Practice Powerpoint presentations
June 7 (Monday)	DUE: Copy of Powerpoint presentation
<u>June 8 (Finals week)</u>	Group Projects VII: Final Powerpoint presentations