Proposed Lecture Syllabus
Class Information
Biology 245Q
Fall, 2012

Instructor: Dr. Steve Baker
Pierce 117

TTh 11:50-1:30 (lecture)
T 1:45 – 4:45 (lab); lecture may continue directly into lab if needed

COURSE OBJECTIVES:

Biology 245 is listed as an inquiry rich (INQ) course. You will be conducting numerous investigations using the science process and will address questions that you generate using the same methodology as professionals in the field of freshwater ecology.

The successful freshwater ecology student will

1. learn research skills needed to conduct scientific investigations, develop critical thinking skills used to evaluate data, and acquire presentation skills for communication of results.

2. understand basic freshwater ecological principles in stream, lake, and wetland ecosystems.

3. develop the critical thinking skills and techniques needed to identify most aquatic invertebrates to the taxonomic level of genus.

4. through experiential learning using appropriate field techniques collect invertebrates and fish from a number of Piedmont ecosystems.

5. analyze data from collections to evaluate water quality of aquatic ecosystems based on the pollution tolerances of their organisms.

LECTURE SYLLABUS

This syllabus is tentative and subject to change due to weather, high water, or other issues at the discretion of the instructor.

Date	**Topic**
8/30	Course Introduction Bioassay; Project I Overview
9/4	Intro to taxonomy; why is it important?

9/6	Aquatic Biology Case Study/Excel workshop
9/11	Student Presentations/Case studies Intro to Scientific Writing
9/13	Start your project! Biomonitoring, Sampling Design, and Rapid Bioassessment Protocols
9/18	Water and Your Health/Intro to Aquatic Microbiology
9/20	Water Quality Parameters/Environmapper Map Use
9/25	Introduction to Stream Ecology Geomorphology Temperature and Light Influences Stream channel characteristics Riparian Zones
9/27	Life at the Bottom - role of benthos in stream ecosystems Habitat adaptations
10/2	Energy Flow: River Continuum Concept Benthic movements: drift, colonization
10/4	Student Presentations: Major Insect Orders Open Lab
10/9	Student Presentations: Major Insect Orders
10/11	Periphyton "Lower" Freshwater Invertebrates Mussels
10/15-10/16	***Fall Break! Go collect!***
10/18	Introduction to Ichthyology/Stream Fishes Amphibians
10/23	Introduction to Lake Ecology Classification Temperature and Stability Water Quality
10/25	***Lecture Exam I***
10/30	Bear Creek, Quantitative Sampling / Fish Collection
11/1	Plankton
11/6	Aquatic Macrophytes, Lentic Insects and Fishes

11/8	Introduction to Aquaculture
11/13	Aquaculture II, Intro to Fisheries Management
11/15	Fisheries Management/Farm Pond
11/20	Trip to Buford Fish Hatchery
11/21-11/23	***Thanksgiving Holiday***
11/27	Wetland Ecology/Wetland Tour
11/29	Human Impacts
12/4	Student Project Presentations: **2012 Freshwater Ecology Symposium**
12/6	Exotic Species
12/11	Course wrap-up

Evaluation:

These are general guidelines for evaluation and may vary somewhat!

Midterm	**15%**
Final Exam	**15%**
Bioassay Project	**7%**
Presentation (insect order)	**7%**
Research Project and Presentation	**18%**
Aquatic Invertebrate Collection	**18%**
Lab Quizzes	**15%**
Participation/Field Book	**5%**
Total	**100%**

Plus (minus) grading will be used.

Miscellaneous Course Information:

- **Text**: An Introduction to the Aquatic Insects of North America, by Merritt and Cummins. Third Edition. This is an identification guide to many of the organisms you will collect. Other identification guides, handouts, and reserve materials will also be available for your review. There are copies available in the lab for you to use, or you may buy one online if you choose.
- **Learnlink**: A learnlink conference is available and will be very important in this course. It is a useful forum for course information, study tips, open lab times, and field trips by the class or individual class members. You should place it on your desktop.

- **Blackboard Site:** A blackboard site is available for this course. It is accessible at http://classes.emory.edu.
- **Absence Policy:** The departmental policy will be distributed. Note that excessive absences or tardies can result in a reduced grade for the course.

  I encourage you to exercise your privilege to vote this semester! If you are unable to reach your home outside of lab hours, request an absentee ballot TODAY!

- **Office Hours:** My office hours will be 8:30-10:00 MWF or by appointment. You will find that I am around almost all day and eager to visit with you at any time. My office is next door to the lab so I am often able to help out if you have a problem identifying an organism in the lab.
- **Honor Code:** I enforce this strictly. We will discuss in the class specific ways in which you may share work on projects and cite references in research write-up. When in doubt, ask!
- **Health Related Issues:** Weather permitting, we will be outside almost every week. Also, you will be expected to go out on your own with other class members outside of class hours to do your field work. Please let me know confidentially if you have any health problems that might be influenced by these field activities.
- **Cell Phones:** They must be turned off in class/lab. They are welcome on field trips for safety!
- **"Student work submitted as part of this course may be reviewed by Oxford College and Emory College faculty and staff for the purposes of improving instruction and enhancing Emory education."**

Additional Notes:

It is very important that you do not get behind on your lab and field work! Projects have multiple deadlines as they are done in stages to prevent your procrastination :) but keeping ahead will definitely help your grade!

The student project will consist of a research project conducted **with a lab partner** and presented to the class. It will involve a field oriented project and will include a written report and oral presentation. For maximum credit, these projects should be conducted at a location other than one used as a lab site.

An invertebrate collection will be prepared by **each student** throughout the semester. Organisms will include those collected on lab trips, specimens obtained in project work above, but must also include out of class sampling trips taken with another member of your class.

You may not schedule plane flights, etc. at times that conflict with this class. These absences if taken will not be excused.

More detailed information about these class components will be distributed at a later date.

Tentative Lab Syllabus / Biology 245
Fall, 2012

9/4	Introduction to Use of Taxonomic Keys Solution and Bioassay Prep
9/11	Collect: Croom Creek, Land Application Area
9/18	Collect: Yellow River or Alcovy River; Large Stream Sampling
9/25	Lab Day: ID / Collection Prep Research Teams discuss proposals
10/2	**Keying Quiz I**
10/9	Bioassessment Investigation
10/23	Lentic Sampling, City Pond or other area lake
10/30	Quantitative Sampling/Fish Collecting Bear Creek
11/6	**Keying Quiz 2**
11/13	Plankton
11/20	Work on Projects
11/27	Buford Trout Hatchery
12/4	Aquatic Techniques: Chironomid Mounting and ID Age and Growth of Fish Food Habits
12/11	**Final Keying Quiz**