



***Proposed Lecture Syllabus  
Class Information  
Biology 245  
Fall, 2007***

**Instructor: Dr. Steve Baker  
Pierce 117**

**COURSE OBJECTIVES:**

1. Students will acquire a basic knowledge of freshwater ecological principles in stream, lake, and wetland ecosystems.
2. Students will learn the skills and techniques needed to identify most aquatic invertebrates to the taxonomic level of genus.
3. Students will learn techniques for evaluating water quality of streams and lakes based on the evaluation of the pollution tolerances of the organisms they contain.
4. Students will put their new knowledge to work by practical, hands-on field investigations of nearby lakes and streams.
5. Students will learn research skills needed to conduct scientific investigations, develop critical thinking skills used to evaluate their data, and present their results to the class.

**COURSE SYLLABUS:**

**This syllabus is tentative and subject to change due to weather or other needs.**

| <b><u>Date</u></b> | <b><u>Topic</u></b>   |
|--------------------|---|
| 9/4                | Course Introduction<br>Bioassay; Project I Overview               |
| 9/6                | Taxonomy and M and M's  |
| 9/11               | Aquatic Biology Case Study  |
| 9/13               | Student Presentations/Case studies<br>Intro to Scientific Writing |

|                   |   |
|-------------------|---|
| 9/18              | Start your project! Biomonitoring, Sampling Design, and Rapid Bioassessment Protocols   |
| 9/20              | Water Quality Parameters/Environmapper  |
| 9/25              | Water and Your Health   |
| 9/27              | Introduction to Stream Ecology<br>Geomorphology<br>Temperature and Light Influences<br>Stream channel characteristics<br>Riparian Zones |
| 10/2              | Life at the Bottom - role of benthos in stream ecosystems<br>Habitat adaptations  |
| 10/4              | Energy Flow: River Continuum Concept  |
| <b>10/9-10/10</b> | <b><i>Fall Break! Go collect!</i></b>   |
| 10/11             | Benthic Movements:<br>Drift<br>Colonization<br>Periphyton   |
| 10/16             | Student Presentations: Major Insect Orders  |
| 10/18             | Student Presentations   |
| 10/23             | Stream Fishes   |
| 10/25             | <b>Exam I</b>   |
| 10/30             | Introduction to Lake Ecology--<br>Classification<br>Temperature and Stability<br>Water Quality  |
| 11/1              | Bear Creek, Quantitative Sampling / Fish Collection   |
| 11/6              | Plankton  |
| 11/8              | Aquatic Macrophytes, Lentic Insects and Fishes  |
| 11/13             | Introduction to Aquaculture   |
| 11/15             | Trip to Buford Fish Hatchery  |
| 11/20             | Aquaculture II, Intro to Fisheries Management   |

**11/21-11/23**

***Thanksgiving Holiday***

|       |   |
|-------|---|
| 11/27 | Fisheries Management/Farm Ponds   |
| 11/29 | Human Impacts I   |
| 12/4  | Student Project Presentations: <b>2007 Freshwater Ecology Symposium</b> |
| 12/6  | Human Impacts II  |
| 12/11 | Endangered and Exotic Species/Course wrapup                             |

**Evaluation:**

**These are general guidelines for evaluation and may vary somewhat!**

|  |             |
|--|-------------|
| <b>Midterm</b>                           | <b>15%</b>  |
| <b>Final Exam</b>                        | <b>15%</b>  |
| <b>Bioassay Project and Report</b>       | <b>7%</b>   |
| <b>Presentation (insect order)</b>       | <b>7%</b>   |
| <b>Research Project and Presentation</b> | <b>18%</b>  |
| <b>Aquatic Invertebrate Collection</b>   | <b>15%</b>  |
| <b>Lab Quizzes</b>                       | <b>15%</b>  |
| <b>Field Book, etc.</b>                  | <b>3%</b>   |
| <b>Participation</b>                     | <b>5%</b>   |
| <b>Total</b>                             | <b>100%</b> |

**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.
- **Absence Policy:** The departmental policy will be distributed. Note that excessive absences or tardies can result in a reduced grade for the course.
- **Office Hours:** My office hours will be 9-11 TTh, 11-12 MWF. 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 usually 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 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!

### **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.

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.

Field book will include notes taken in the field and documentation of your personal sampling trips.

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

## ***Tentative Lab Syllabus / Biology 245 Fall, 2007***

|              |  |
|--------------|--|
| 9/4          | Introduction to Use of Taxonomic Keys<br>Solution and Bioassay Prep                        |
| 9/11         | Collect: Croom Creek, Land Application Area  |
| 9/18         | Collect: Yellow River or Alcovy River; Large<br>Stream Sampling                            |
| 9/25         | Lab Day: ID / Collection Prep  |
| <b>10/2</b>  | <b>Keying Quiz I</b>   |
| 10/16        | Bioassessment Investigation  |
| 10/23        | Lentic Sampling, City Pond or other area lake  |
| 10/30        | Quantitative Sampling/Fish Collecting Bear Creek   |
| <b>11/6</b>  | <b>Keying Quiz 2</b>   |
| 11/13        | Buford Fish Hatchery<br>Collections Due@12:30 PM   |
| 11/20        | Work on Projects   |
| 11/27        | Plankton   |
| 12/4         | Aquatic Techniques:<br>Chironomid Mounting and ID<br>Age and Growth of Fish<br>Food Habits |
| <b>12/11</b> | <b>Final Keying Quiz</b>   |

