

Foundations of Biology: Ecology & Evolution LAB
Biology 206, Fall 2015

Lab location: Central King Building, 3rd floor-Room 328

Lab Coordinator: Dr. Andrew Mashintonio- afm8@njit.edu, CKB 340

Course Website: <http://moodle.njit.edu/>, login with UCID

This course is the laboratory component of Foundations of Biology: Ecology and Evolution. You **MUST** be registered for the lecture (Biology 205) to take the lab. The labs are designed to complement and elaborate upon concepts learned in the lecture, to give you hands-on experience making observations and gathering data, and to introduce you to common procedures and analyses used in the study of ecology and evolution.

Prerequisites: Concepts in Biology (BIOL 200), current registration in BIOL 205

Text: There is no textbook for this lab. All lab materials will be posted on the course website.

Lab Preparation: For each lab, a lab handout will be posted on the course website by Friday morning of the previous week. Please read through this file thoroughly before coming to lab, and be sure to bring a copy of the file (print-out or electronic) to each lab. Note that for some weeks, you will need to bring handouts for two labs. Please **obtain a 3-ring binder** to keep your lab handouts organized into a lab notebook.

Office Hours: Coordinator: Tues/Thurs 2-4, TA: by appointment

Lab Schedule:

| Week of: | Topic | Assignments DUE |
|------------|--|--------------------------------|
| 8/31-9/7 | NO LABS | |
| 9/14 | Lab 1: Variation and Statistics | |
| 9/21 | Lab 2: Genetic Change in Model Populations | Lab 1 |
| 9/28 | Lab 3: Computer Simulation: Darwinian Snails | Lab 2 |
| 10/5 | Lab 4: DNA Extraction | Lab 3 |
| 10/12 | Lab 5: Constructing a Phylogeny (Week 1) | Lab 4 |
| 10/19 | Lab 5: Constructing a Phylogeny (Week 2) Lab 10: Competition (Week 1) / Begin Plant Experiments | |
| 10/26 | Lab 6: Plant Species Identification | Lab 5 |
| 11/2 | Lab 7: How to Write a Lab Report | Lab 6 |
| 11/9 | Lab 8: Mark-Recapture Lab 10: Competition (Week 2) / End Plant Experiments | Lab 7 |
| 11/16 | Lab 9: Computer Simulation: Isle Royale Lab 10: Competition (Week 3) | Lab 8 Lab Report Draft Due |
| 11/23 | NO LABS: THANKSGIVING | |
| 11/30 | Lab 11: Island Biogeography | Labs 9,10 |
| 12/7 | Lab 12: Ecological Footprint | Lab 11 |
| Mon. 12/14 | NO LABS | Lab 12 Final Lab Report Due |

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Course Grade: Your grade for lab will be determined based on quizzes, Moodle assignments, and one written lab report.

Quizzes: You will begin each lab with a quiz. Students arriving late to lab will not be permitted to take the quiz. Make sure you read the lab handout before coming to lab so you're prepared! The quizzes will ask about the current week's lab and will also include some review from previous weeks.

Assignments: Each week, complete the worksheet that accompanies your lab handout. Some of it will be completed during the lab; often, there are analyses or interpretive questions that you'll need to complete on your own time. **Refer to your completed worksheet to complete each lab's Moodle assignment, which will be open for one week after the lab is completed (see schedule above).** Please note that while you usually work in groups during the lab and will share data and discuss results with your group, your worksheet and other parts of the assignment must be your own work.

Lab Report: You will design a plant experiment and report the results in a full lab report in the style of a scientific publication. Failure to turn in a draft on time will result in a loss of up to 25 points.

Point Breakdown: Quizzes (15 pts/week)..... 180
Assignments (15 pts/ lab)..... 180
Lab Report (100 pts)..... 100
TOTAL 460

Gradescale: A: 89.5% & above
B+: 86.5% - 89.4%
B: 79.5% - 86.4%
C+: 76.5% - 79.4%
C: 69.5% - 76.4%
D: 59.5% - 69.4%
F: 59.4% & below

Lab Safety: General safety precautions:

- **No eating or drinking in the lab.**
- Wear closed-toed shoes to lab.
- Follow the directions for lab procedures and ask your TA if you're unsure about how to operate any equipment.
- Keep an organized workspace and label all materials.
- Notify your TA immediately of any injuries, spills, or broken equipment.

Your lab handouts and your TA will alert you to safety concerns specific to a particular lab.

Attendance, Make-up, and Lateness Policy: Attendance at every lab is **required** and necessary to earn a good grade in lab. If you must miss lab for a valid reason, you may attend another lab section during the SAME week only, with documentation (doctor's or dean's note) of your absence. You **MUST** let your TA know if you want to make-up a missed lab.

Academic Dishonesty: The course has a zero tolerance policy for academic dishonesty, including plagiarism and cheating. Instances of dishonesty will be punished by a zero on the assignment and consultation with the office of the Dean of Students to determine if further action is required. If you have any questions about what constitutes plagiarism or cheating, please ask your TA or refer to the academic integrity code: www.njit.edu/academics/integrity.php.

Learning Outcomes: After completing this course, students will be able to:

1. Explain how laboratory activities illustrate lecture concepts.
2. Use evidence to support scientific conclusions.
3. Research topics using electronic and print sources and attribute sources properly.
4. Design and carry out an experiment to test a scientific question.
5. Analyze and interpret scientific data using a t-test.
6. Communicate scientific results in written format.