

**BIOLOGY 206 (001-103): FOUNDATIONS OF BIOLOGY:
ECOLOGY AND EVOLUTION LAB**

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COURSE SCHEDULE: Sections [01-103](#): Colton Biology Lab: 120L

COURSE WEBSITE: <http://moodle.njit.edu/>

DESCRIPTION: This course is the laboratory component of Foundations in Biology: Ecology and Evolution. You MUST be registered for the lectures (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, with grade of C or better and current registration in BIOL 205.

LAB PREPARATION: For each lab, a lab handout and a lab worksheet will be posted on the course website by Friday morning of the previous week. Please read through both of these files thoroughly before coming to lab, and be sure to bring a print-out of BOTH files to each lab. Note that for some labs, you will need to bring handouts and worksheets for two labs. Please **obtain a 3-ring binder** to keep your lab handouts and worksheets organized into a lab notebook.

COURSE WEB PAGE: We will use [Moodle](#) in this course. To use Moodle students must have an NJIT UCID. If you are matriculated at NJIT you should already have a UCID. If you are a Rutgers student you can request one here http://moodle.njit.edu/rutgers_students.php or call the NJIT helpdesk for assistance (973-596-2900).

ATTENDANCE, MAKE-UP, AND LATENESS POLICY: Attendance at every lab is **required** and necessary to earn a good grade in lab. You will not be permitted to turn in a worksheet for a lab you did not attend. 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. Late assignments will be deducted 10% of the points available for each 24 hours after the assignment was due.

WRITING INTENSIVE/HONORS: This NJIT honors course fulfills the Rutgers writing intensive requirement. For each writing assignment, a complete draft of the paper is due prior to the final due date. You will receive extensive comments on your draft which you should incorporate into your revisions. Only the final version of the paper will be graded, though submission of incomplete drafts will result in a penalty of up to 25 pts to your final grade on each paper. Writing assignments associated with this goal include:

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WRITING INTENSIVE/HONORS, CONT.:

- a. **Grant proposal.** You will write a 4-6 page research grant on an evolutionary or ecological topic of your choosing. You do not need to conduct an experiment or collect data. The purpose of this assignment is for you to learn more about a subject that interests you and to hone your skills in written communication of scientific information.
- b. **Lab report.** You will design and carry out a plant experiment, analyze the data you collect, and report the results in a full lab report in the style of a scientific publication. (You will receive additional information on these assignments in class.)

COURSE GRADE: Your grade for lab will be determined based on quizzes, worksheet 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. Worksheets for each lab are due IN LAB the 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**.

Grant Proposal Paper & Lab Report: See above under Writing Intensive.

In-Class Discussions/Activities: Throughout the semester, there will be brief discussions or learning activities during lab. You will receive points based on your participation and performance in these activities.

POINT BREAKDOWN		
Quizzes:	15 pts per week =	180 points
Assignments:	15 pts per lab =	180 points
Participation:		30 points
Grant Proposal Paper:		60 points
Lab Report:	=	100 points
TOTAL	=	550 Points

GRADING SCALE			
A	> 90%	C	70-77%
B+	87-90%	D	60-70%
B	80-87%	F	< 60%
C+	77-80%		

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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.

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 [NJIT Academic Integrity Code](#).

LEARNING OUTCOMES: Students are 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.

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LAB SCHEDULE:

WEEK OF		LECTURE TOPIC	ASSIGNMENT DUE
▶	9/4	Sept. 1, 2014: Labor Day – No Classes ▶ NO LABS THIS WEEK	
WEEK 1	9/11	Lab 1: Variation and Statistics	
WEEK 2	9/18	Lab 2: Genetic Change in Model Populations	Lab 1
WEEK 3	9/25	Lab 3: Computer Simulation: Darwinian Snails	Lab 2
WEEK 4	10/2	Lab 4: DNA Extraction	Lab 3
WEEK 5	10/9	Lab 5: Constructing a Phylogeny (Week 1)	Lab 4
WEEK 6	10/16	Lab 5: Constructing a Phylogeny (Week 2) Lab 10: Competition (Week 1) / Begin Plant Experiments	➔ Grant Proposal Draft Due
WEEK 7	10/23	Lab 6: Plant Species Identification	Lab 5
WEEK 8	10/30	Lab 7: How to Write a Lab Report	Lab 6
WEEK 9	11/6	Lab 8: Mark-Recapture Lab 10: Competition (Week 2) / End Plant Experiments	Lab 7
WEEK 10	11/13	Lab 9: Computer Simulation: Isle Royale Lab 10: Competition (Week 3)	Lab 8
WEEK 11	11/20	Lab 11: Island Biogeography	Lab 9, 10 ➔ Lab Report DRAFT DUE
▶	11/24	Nov. 27-28: Thanksgiving – No Classes ▶ NO LABS THIS WEEK	
WEEK 12	12/4	Lab 12: Ecological Footprint	Lab 11, 12
▶	12/12	FINAL LAB REPORT DUE ▶ NO LABS THIS WEEK	↳ Final Lab Report DUE 12/12

FINAL EXAM WEEK: DECEMBER 15-19, 2014