NJIT BIOLOGY

Course Syllabus

SPRING 2020

BIOL 206 (002-008): Foundations in Biology: Ecology & Evolution LAB

COORDINATOR:	Dr. John Yarotsky	**INSTRUCTOR(TA):**	TBD
OFFICE:	340C Central King Bldg.	**COURSE WEBSITE:**	https://canvas.njit.edu/
OFFICE HOURS:	By Appointment Only (Email)	**COURSE SCHEDULE:**	Sections 002-008
EMAIL:	yarotsky@njit.edu	**LOCATION:**	CKB: 328

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:

BIOL 200: Concepts in Biology and current registration in BIOL 205.

TEXT AND COURSE WEB PAGE:

There is no textbook for this lab. All lab materials will be posted on the course website. We will use Canvas in this course. To use Canvas 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 https://newacct.njit.edu/~accts/cgi-bin/new or call the NJIT helpdesk for assistance (973-596-2900).

LAB PREPARATION:

For each lab, a lab handout and a lab worksheet will be posted on the course website by Friday before the week of lab. Please read through the files thoroughly before coming to lab, and be sure to bring a print-out (or electronic) 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.

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LEARNING OUTCOMES

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.
7.) Collaborate in groups to research aspects of experiments and engage in active learning.

COURSE GRADE:

Your grade for lab will be determined based on quizzes, Canvas 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 focus on 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 Canvas assignment, which will be open for one week after the lab is completed (see schedule above). You will have the opportunity to complete the Canvas assignment twice. You DO NOT need to take it twice! If you are happy with your first score you may simply not take it a second time. If you take it twice the highest of the two grades will count**. 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. Each person will write his or her own lab report. Sharing any information other than the raw data is plagiarism and will result in a zero for the assignment. Failure to turn in a draft on time will result in a loss of up to 25 points. Each day that the Draft and Final Report are late will result in a 10% penalty.

POINT BREAKDOWN		
Quizzes:	15 pts per week =	180 points
Assignments:	15 pts per lab =	180 points
Lab Report:	=	100 points
Total	**=**	**460 Points**

GRADING SCALE			
A	89.5-100%	C	69.5-76.4%
B+	86.5-89.4%	D	59.5-69.4%
B	79.5-86.4%	F	59.4%-0%
C+	76.5-79.4%		

- **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 NJIT Academic Integrity Code.

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LAB SAFETY: General safety precautions:

- **No eating or drinking in the lab. No Water bottles!**
- 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.
- Your lab handouts and your TA will alert you to safety concerns specific to a particular lab.

NOTE: **You should notify your TA immediately of any injuries, spills, or broken equipment.**

LAB SCHEDULE:

WEEK OF	LECTURE TOPIC	ASSIGNMENT DUE	NOTES
Jan. 20	**NO LABS**		
Jan. 27	Lab 1: Variation and Statistics		
Feb. 3	Lab 2: Genetic Change in Model Populations	**Lab 1 DUE**	
Feb. 10	Lab 3: Computer Simulation: Darwinian Snails	**Lab 2 DUE**	
Feb. 17	Lab 4: Plant Species Identification	**Lab 3 DUE**	
Feb. 24	Lab 5: Computer Simulation: Isle Royale Lab 10: Competition [Week 1] ▪ Begin Your Plant Experiments	**Lab 4 DUE**	
Mar. 2	Lab 6: How to Write a Lab Report	**Lab 5 DUE**	
Mar. 9	Lab 7: Island Biogeography	**Lab 6 DUE**	
Mar. 16	**MARCH 15-22: SPRING BREAK – NO CLASSES**	**Lab 7 DUE**	
Mar. 23	Lab 8: DNA Barcoding and Extraction [Week 1] Lab 10: Competition [Week 2] ▪ End Experiments	**Lab 8 DUE**	
Mar. 30	Lab 8: DNA Barcoding and Extraction [Week 2] Lab 9: Constructing a Phylogeny [Week 1] Lab 10: Competition [Week 3]	▶ **Lab Report DRAFT DUE** **Lab 10 DUE**	
Apr. 6	**NO CLASS/ LAB- GOOD FRIDAY 4/10/20**		
Apr. 13	Lab 9: Constructing a Phylogeny (Week 2) Lab 11: Mark-Recapture	**Lab 9 DUE** **Lab 11 DUE**	
Apr. 20	Lab 12: Ecological Footprint	▶ **FINAL LAB REPORT DUE**	
Apr. 27	NO LABS	**Lab 12 DUE**	
May 4	TBD	TBD	
FINAL EXAM WEEK: MAY 8-14, 2020			