Fall 2018

BIOL 475-H01: Ecological Field Methods

Maria Stanko

NJIT BIOLOGY

Course Syllabus

FALL 2018

BIOLOGY 475-H01: ECOLOGICAL FIELD METHODS - HONORS

INSTRUCTOR:	Dr. Maria Stanko	**EMAIL:**	mstanko@njit.edu
OFFICE:	340E CKB ▪ (973) 642-7246	**OFFICE HOURS:**	W: 11:00am – 2:00pm or by appointment
COURSE SCHEDULE:	F: 1:00pm–4:55pm; CKB 328	**COURSE WEBSITE:**	http://moodle.njit.edu/

COURSE DESCRIPTION:

Exploration of the natural systems around you inspires endless scientific questions. In this class, we'll travel to a variety of sites near campus, using each to become familiar with the types of ecosystems found in our area, to identify common plant and animal species, and to address ecological questions employing common methods used in the collection of ecological data. In addition to field techniques, you'll learn how to design an experiment to test a scientific question, to apply different statistical tests commonly used to analyze ecological data, and to report scientific results in written and oral format. Using what you've learned throughout the semester, each student will design and carry out an independent ecological field experiment and present the results in a class research symposium at the end of the semester.

PREREQUISITES:

- Foundations of Biology: Ecology and Evolution (BIOL 205/206) **AND** permission from the Instructor.

TEXTBOOK:

- Writing Papers in the Biological Sciences; © 2016, By Victoria E. McMillan, Bedford/St. Martin's; ISBN-13: 978-1319047139. (Previous editions are okay as well.)

ADDITIONAL READINGS:

Labs will be posted on the course website (http://moodle.njit.edu). Students are required to read the posted lab description prior to attending class. Quizzes will be given at random to ensure students come to class prepared.

LEARNING OUTCOMES: Students are able to….

1. Describe the types of ecosystems found in our area.
2. Identify common plant and animal species found in local ecosystems.
3. Research topics using electronic and print sources and attribute sources properly.
4. Design and carry out an experiment to test an ecological question.
5. Apply different statistical tests commonly used to analyze ecological data.
6. Communicate scientific results in written and oral format.

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WRITING INTENSIVE/HONORS: This NJIT honors course fulfills the Rutgers writing intensive requirement. We will emphasize scientific writing throughout the semester through reading of primary scientific literature, composition of weekly article summaries, and the development and writing of a scientific paper describing your own research project. Writing assignments associated with this goal include:

a. **Article Summaries** – For article summary assignments, you will be asked to research and choose a scientific article relevant to the subject for the week, read it thoroughly, and write a one-page summary of the article (more detailed instructions will be given in class). Your goal is to concisely convey what scientific question was addressed in the paper, why that question was of interest, how the experiment was conducted, what was found, and what the results mean. I will provide feedback on each summary that you should use to improve your writing on future summaries.

b. **Final Paper** – You will write a final paper in the format of a scientific journal article describing your own independent research project (more detailed instructions will be given in class). In addition to feedback on your research question and experimental design, I will offer extensive comments on the draft of your paper, which is due three weeks prior to the final due date. Only the final version of the paper will be graded, though submission of incomplete drafts will result in penalty to your grade.

COURSE GRADE: Grades will be assigned based on the percentage of points you earn out of the total possible, following the standard grade scale. Please note that the number of assignments and article summaries is estimated and may vary, affecting final total possible points.

Participation	45 points	1 Oral Presentation	30 points
5 Quizzes (5 points ea.)	25 points	1 Formal Lab Report	50 points
8 Lab Homework Assignments (15 points ea.)	120 points	Final Exam	50 points
3 Article Summaries (15 points ea.)	45 points	**Total**	**365 points**

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ATTENDANCE: Absences will only be excused for documented (doctor's or dean's note), valid reasons. In case of an emergency or absence, notify me prior to the trip. BE ON TIME TO LAB. If you are not there when the van leaves, you will be counted as absent. More than 2 unexcused absences will result in failure of the course. Make up exams and quizzes will be possible only with a doctor's or a dean's letter or with prior approval. Late assignments will be accepted, but penalized 10% of the points available for each 24-hour interval that they are late. The writing revision process is an important part of this course; if you do not submit a rough draft, you will automatically lose 15 out of 50 points for the paper.

HOW TO TURN IN ASSIGNMENTS:

1. Article summaries: Upload to Moodle via the link for the assignment. Don't forget the citation!
2. Field lab analysis assignments: A) Upload your Excel sheet to Moodle via the link.
B) Turn in PRINTED your answers to the questions in the assignment. Remember that all graphs must have labeled axes and a figure caption!

CLASS POLICIES: You must ensure Moodle access during the first week of class. Be sure to edit your profile to list an email address that you check regularly. Cell phone use is permitted during class only for taking pictures. You may use your phone however you wish (quietly!) during the drive to the field site

HOW TO DRESS FOR CLASS: For weeks when we have a field trip, please wear comfortable shoes (sneakers are fine) and pants, and dress so that you'll be comfortable outdoors for several hours. In the absence of lightning, we will go out in the rain/snow, so please bring a raincoat or umbrella if rain is in the forecast. On snowy/wet days, your feet will be more comfortable in waterproof boots. Make sure you always bring winter hats/ coats/ gloves on cold days! Dress in layers, bring insect repellant or sunscreen if you wish, and always bring water!

ACADEMIC DISHONESTY: The course has a zero tolerance policy for academic dishonesty, including plagiarism and cheating. Please note that we often work together in this course during labs, but all work you turn in must be your own. 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 me, or refer to the academic integrity code: Academic Integrity Code.

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MAKE UP EXAMS, QUIZZES AND LATE ASSIGNMENTS:

Make up exams and quizzes will be possible only with a doctor's or a dean's letter or with prior approval. Late assignments will be accepted, but penalized 10% of the points available for each 24-hour interval that they are late. The writing revision process is an important part of this course; if you do not submit a rough draft, you will automatically lose 15 out of 50 points for the paper.

COURSE OUTLINE: Please note that the schedule below is the ***PROPOSED*** schedule. I reserve the right to change lab topics and/or locations due to weather or other conflicts.

Please Note: There will also be homework and/or a writing assignment to complete following EACH lab which will be DUE by the following class period. In the interest of space, these assignments are not listed.

DAY	DATE	TOPIC	LOCATION	READINGS/ASSIGNMENTS DUE
F	Sept. 7	Course Basics, Field Lab 1: Statistics and variation	on campus	Introduction & Chapter 1, Writing Summaries
F	Sept. 14	Field Lab 2: Pollination	Hutcheson Memorial Forest	FL 1, AS 1, Chapter 2
F	Sept. 21	Paper writing Field Lab 3: Tree allometry	South Mountain Reservation	Turbek et al. 2016, FL 2, Chapter 3
F	Sept. 28	Field Lab 4: Tree demography & herbivory	Morristown Natl. Hist. Park	AS 2, FL 3, Chapter 4
F	Oct. 5	Field Lab 5: Aquatic sampling	Ken Lockwood WMA	FL 4, Chapter 6
F	Oct. 12	Field Lab 6: Amphibian survey	Hacklebarney State Park	Chapter 10, pp. 210-217 **Project Proposal**
F	Oct. 19	Field Lab 7: Species-area & diversity	Cheesequake State Park	AS 3, Meet with Dr. Stanko
F	Oct. 27	Field Lab 8: Soil differences among microhabitats	Great Swamp NWR	FL 7, Chapter 7
F	Nov. 2	Student projects!	TBD	FL 8, Chapter 8
F	Nov. 9	Field Lab 9: Animal behavior	Bergen County Zoo	Chapter 10, pp. 191-201
F	Nov. 16	Field Lab 10: Survivorship curves	Jersey City and Harsimus Historical Cemetery	FL 9
F	Nov. 23 (Wed Sch.)	Paper/presentation workshop	on campus	**NO CLASS FRI 11/23**, **Paper Draft Due!**
F	Nov. 30	Succession	Sandy Hook NRA	FL 10

F	Dec. 7	**PRESENTATIONS**	on campus	**PRESENTATIONS**, **Final paper**
FINAL: TBD*	**FINAL EXAM WEEK: DECEMBER 15-21, 2018**			

*Travel plans will not be considered a valid conflict for the final exam. Do not schedule travel during the final exam period until after the NJIT final exam schedule has been posted