

**Ecological Field Methods**  
**Fridays 1:00 – 5:20 pm, Central King Building 328**

**Biology 475**  
**Fall 2025**

**Instructor: Dr. Kathleen Farley**  
**Email: [kef5@njit.edu](mailto:kef5@njit.edu) (still being activated)**

**Course website: <http://canvas.njit.edu>**  
**Office Hours: email for appointment**



Sandy Hook National Park  
(C) Friends of Sandy Hook



Teaneck Creek Park  
(c) David Ike



Hutchinson Memorial Forest  
(c) Myla F.J. Aronson

**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. We'll also explore the naturalist writings of various authors as we explore our region

**During this class, you are strongly encouraged to keep a nature/field journal:** This is a log of what you observe as you are on our trips - or explore nature in other classes or outside of class. This is your own personal record of observations that will help you complete the field labs and projects - as well as become a better scientist. Decide what medium is best for you - a notebook with lines, a sketchbook, a google document, a blogging website - the choice is yours - but choose a format that will aid you in recording observations. See "Beginning Your Nature Journal" in Canvas to get started.

**Prerequisite:** R 120:280 (Ecology) OR R 120:370 (Plant Ecology) AND/OR permission of the instructor.

**Text:** McMillan, V. E. 2020. Writing papers in the biological sciences. 6<sup>th</sup> ed. Bedford/St. Martin's, Boston, Massachusetts, USA. (Previous editions OK.)

**App:** Download and make an account on the iNaturalist app:  
<https://www.inaturalist.org/>

**Field recording tools:** It is recommended that you bring a



Photo credit: Maria Stanko

camera (phone camera ok) and a small notebook to class each week!

**Additional readings:** Labs will be posted on the course website (<http://canvas.njit.edu>).

Students are required to read the posted lab description prior to attending class.

**Learning outcomes:** Students are able to....

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



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**Accessibility Statement:** Please let me know if you are eligible for accommodations or support services. If you are in need of accommodations for a disability, please contact the Office of Accessibility

Resources & Services (OARS) to discuss your specific needs: <https://www.njit.edu/accessibility>

Participation	30	<b>Grading:</b> Grades will be
3 Field Quizzes (5 points each)	15	assigned based on the
7 Field Lab Homework Assignments (15 points each)	105	percentage (rounded to a
1 iNaturalist Assignment	25	whole number) of points you
10 Writing Assignments (5 points each)	50	earn out of the total possible,
1 Research Project Proposal	15	following the standard grade
1 Oral Presentation (30 points)	30	scale (90%+ A, 85-89% B+,
1 Research Paper (50 points)	50	80-84% B, 75-79% C+, 70-74%
1 Final Exam or Alternative Project (50 points)	50	C, 60-69% D, <60% F).
	<u>50</u>	Please note that the number
	370	of assignments and article
		summaries is estimated and
		may vary slightly.

**How to turn in assignments:**

1. Writing assignments: upload to Canvas via the link for the assignment.
2. Field Lab analysis assignments: Upload two files to Canvas via the links:
  - a. Your Excel file with your completed analysis.
  - b. A document with answers to the questions in the assignment, including a figure if part of the assignment. Remember that all figures must have labeled axes and a figure caption!
3. Vlog Entries: Upload each video

**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 repellent or sunscreen if you wish, and always bring water! We will follow NJIT's requirements for indoor mask-wearing in the vans and any other indoor space on all field trips.



Photo credit: Maria Stanko

**Attendance, lateness, make-ups, and class policies:**

- You must ensure Canvas access during the first week of class. Be sure you check the email address associated with your Canvas profile regularly.
- Absences will only be excused for valid reasons, documented via the Dean of Students Office. In case of an emergency or absence, notify me prior to the trip.
- Quizzes will be given at random to ensure students come to class prepared.
- BE ON TIME TO LAB. If you are not there when the van leaves, you will be counted as absent.
- You may NOT travel independently to the field site without permission in advance.
- Make-up exams and quizzes will be possible only with 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.

**Bonus Assignments (new):**

NJIT/Rutgers Bioblitz Week: Join students and faculty in identifying organizations from September 14-20, 2025 on either NJIT or Rutgers-Newark campuses. Must join the project to receive bonus (6pts). Observations can also go towards the iNaturalist project due at the end of the semester. Minimum of 6 unique observations in at least 2 taxa required.

<https://www.inaturalist.org/projects/2025-rutgers-newark-njit-13th-annual-bioblitz>

**Schedule:** Please note that the schedule is the proposed schedule – the order of topics and locations is likely to deviate somewhat from this schedule. Check Canvas often – the exact schedule for each week will be posted by Thursday each week.

Date	Topic	Location	Reading/ Assignments Due (before class)				
			FL	Ch	Prompt	Project	Vlog
Week 1 Sept. 5	Course Basics, Field Lab 1: Statistics and variation	Teaneck Creek Park		Intro, Ch 1			
Week 2 Sept. 12	Field Lab 2: Pollination	Rutgers Gardens	FL 1	Ch 2	WA 1		
<b>Bonus Assignment:</b> Sept 14-20 Participate in NJIT/Rutgers Bioblitz Week. See below.							
Week 3 Sept. 19	Field Lab 3: Tree height and identification	Branch Brook Park	FL 2	Ch 3	WA 2		VE 1
Week 4 Sept. 26	Field Lab 4: Species-area & diversity	Cheesequake State Park	FL 3	Ch 4			VE 2
Week 5 Oct. 3	Field Lab 5: Hawk Migration Monitoring	Montclair Hawk Watch	FL 4		WA 4		VE 3
Week 6 Oct. 10	Field Lab 6: Aquatic sampling	Ken Lockwood WMA		Ch 6	WA 5	Proposal	
Week 7 Oct. 17	Field Lab 7:	R-UN Bird Observatory		Ch 10: 201-217	WA 6	Meet w/ Dr. Farley	VE 4
Week 8 Oct. 24	Student projects!	Teaneck Creek Park	FL 7	Ch 7	WA 7		VE 5
Week 9 Oct. 31	Field Lab 8: Tree demography & herbivory	Lorrimer Sanctuary		Ch 8			VE 6
Week 10 Nov. 7	Field Lab 9: Soil differences among microhabitats	Great Swamp Outdoor Ed. Center	FL 8		WA 9	Data & Analysis	VE 7
Week 11 Nov. 14	Field Lab 10: Urban Ecology	Meadowlands	FL 9		WA 10	Paper Draft	
Week 12 Nov. 21	Paper Draft Meetings	Online – schedule meetings		Ch10: 191-201			VE 8
Week 13 Nov. 26	Field Lab 11: Dune Succession (Wednes)!	Sandy Hook Gateway NRA			WA 12		VE 9
Week 14 Dec. 5	Presentations	Location TBD			WA 13	iNaturalist assignment, Presentation, Final paper	
Dec. 14-20	Final Exam TBD*						VE #10

\*Do not schedule travel during the final exam period until after the NJIT final exam schedule has been posted here: <https://www.njit.edu/registrar/exams/>



**Academic Dishonesty:** Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at:

<http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf>.

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at [dos@njit.edu](mailto:dos@njit.edu).

**Generative AI:** This course expects students to work without artificial intelligence (AI) assistance unless specifically stated in the directions of an assignment. For assignments in which AI use is permitted, the AI must be cited as shown within the NJIT Library AI citation page (<https://researchguides.njit.edu/AI>). If you have any questions or concerns about AI technology use in this class, please reach out to your instructor prior to submitting any assignments.

**Writing Intensive/Honors:** This NJIT Honors course fulfills the Rutgers writing intensive requirement. Scientific writing is emphasized throughout the semester through reading of scientific books and memoirs, composition of weekly writing assignments, keeping of a field/nature notebook, and the development and writing of a scientific paper describing your own research project. Writing assignments associated with this goal include:

- a. Writing Assignments – For writing assignments, you will read an excerpt written by a scientist about the world around us. You'll draw connections between the excerpt and the class content. You may be asked to explore different writing styles with each.
- 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 provide critical comments on your writing as you work on your final paper. A complete draft of the paper is due prior to the final due date. I will provide 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 to your grade.