

Fall 2022

PGEOG 38367/PGEOG 70467- Field Ecology of NYC

Fridays 11:30 AM-2:20 PM

Field Trip Meeting Locations Will be Indicated Weekly

Instructor: Dr. Andrew Reinmann

Office Hours: Anytime, by appointment via Zoom

In-person options:

@ Hunter HN 1039, Fridays 10:30 – 11:30 AM

@ the CUNY Advanced Science Research Center (i.e., location of my primary office) via appointment

Email: AReinmann@gc.cuny.edu (Best method of contact) When emailing, you should include the course number in the subject heading and be sure to sign your name as it appears in CUNYfirst. Every attempt will be made to respond to emails in a timely manner. In general, emails received between 9 a.m. and 5 p.m. on normal workdays will be responded to on the same day, but emails received after 5 p.m. may not receive a response until the following day.

Course Overview

In this course you will be introduced to field ecology using the environs of NYC as our classroom to learn about (1) the region's natural history and how humans have altered it while (2) also exploring fundamental ecological concepts and processes. Despite the strong hand humans have had in shaping the landscape of NYC in recent centuries, nature still abounds and through field trips (most weeks) supplemented with lectures and readings we will familiarize ourselves with the city's anthropogenic and remnant "natural" ecosystems. You will get hands-on experience identifying plant species and will learn to use field guides and sensorial skills such as sight, smell, and touch to aid in the identification process. You will also learn to measure ecosystem composition and structure and learn about state-of-the-art instruments used to measure ecosystem processes. Collectively, the coursework and assignments for this class will be geared towards enhancing understanding and appreciation of the ecosystems around us and fostering a new relationship with the natural world (and each other), while advancing the ability to develop field experiments to answer ecological questions and write scientific papers. This course will include traditional lectures, but we will spend most of our time outdoors exploring local parks and green spaces, honing our natural history skills, being inquisitive, and measuring ecosystem structure and function. **NOTE: Pending available funding and COVID-19 limitations, this course will include an overnight trip to Black Rock Forest (tentatively October 22-23). All are strongly encouraged to attend; all students will be responsible for the material covered.** If you have any questions please contact me, Professor Andy Reinmann. To the extent possible, accommodations will be made to make this course accessible to students of all physical levels. If you have any concerns about the extent to which a physical limitation might impede participation in the course, I encourage you to contact me.

Expected Learning Outcomes

1. Working knowledge of fundamental concepts in ecology
2. Identification of local plants and animals
3. Identification of ecosystem types
4. Working knowledge of “ecosystem forensics”
5. Performance of vegetation surveys of an ecosystem
6. Performance of data analysis and interpretation of ecological data

Prerequisites

Students must have passed at least one 100-level science course, or have permission from the instructor. **Familiarity with Microsoft Word, Excel, and Powerpoint is assumed (contact Professor Reinmann before enrolling in the course if do not have working knowledge of these programs)**. Because of the nature of this course, you must be comfortable being outside for several hours at a time and it is strongly recommended that you **come to each class with water, a notebook, and appropriate shoes and clothing**. With the exception of dangerous conditions, **field trips will occur rain or shine**. Contact the instructor with any questions.

Required Texts

Sanderson EW. 2009. *Manhatta: a natural history of New York City*, [ISBN 978-1-4197-0748-3], Harry N. Abrams, Inc. **(Textbook will be on reserve in the Hunter Library)**

Del Tredici, P. 2010. *Wild urban plants of the Northeast: a field guide*, [ISBN 978-0-8014-7458-3], Cornell University Press. **(Textbook will be on reserve in the Hunter Library)**

***Note: We will be using this book during many of our field trips**

Barnard ES and Calvanese N. 2016. *Central Park Trees and Landscapes: a Guide to New York City's Masterpiece* [ISBN 9780231152877]

***Note: We will be using this book during many of our field trips**

Kimmerer, Robin. 2013. *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants*, [ISBN 978-1-57131-356-0], Milkweed Editions. **(Electronic version is available for download through the library)**

Wheater CP, Bell JR and Cook PA. 2011. *Practical field ecology: a project guide*, [ISBN: 978-0-470-69428-2], Wiley. **(Electronic version is available for download through the library)**

Classroom Policies

You are expected to turn in all relevant assignments and complete each reading prior to the start of class. Except when relevant to coursework, no electronic devices (e.g., phones, tablets, laptops, etc.) are to be used in class.

Attendance

Hands-on learning is the primary focus of this course. Therefore, field trips will be the source of much of the information you will be expected to learn. If you miss a class, it is your responsibility to meet with other students in the class to get caught up. Further, **you**

need to be on time for all field trips otherwise you might not be able to find the group once we start walking.

Grades

Grades are based on one field exam, one final exam, two field reports, one natural history presentation, a field notebook, one research report, and class participation.

Additional requirements for graduate students:

- *Different exam and assignment formats and grading criteria*
- *Half of the class participation grade will be based on a brief field ecology lesson to the rest of the class that will occur during one of our field trips*

Note: For ALL students, assignments that are turned in late will be penalized as follows: <24 hours = -5%; 24-48 hours = -15%; -5% for each day late after that (e.g., 48-72 hrs late = -20%, 72-96 hrs late = -25%, etc.).

Exams	35%
Field	10%
Final	25%
Field Reports	15%
Field Notebook	10%
Presentation	15%
Research Report	15%
Class Participation	10%

*****NOTE: The exact point distribution might change a little if we are unable to do the Black Rock Forest Field trip. I will make an announcement about this and update the syllabus as soon as I know.*****

Lectures/Field Trips

Class will meet once per week. Classes with a formal lecture format will meet via Zoom (see link above and on Blackboard). The exact meeting location for each field trip will be indicated on a map that will be posted to Blackboard ahead of time. Please note that the schedule of field trips on the syllabus is tentative and might change because of inclement weather and other events beyond my control; details for each field trip will be given ahead of time. **Your copy of Del Tredici (2010) and Barnard and Calvanese (2016) will be required on most field trips.**

Weekend Field Trip

In addition to our weekly meeting, we hope to hold a field trip to Black Rock Forest (<http://blackrockforest.org/>) in Cornwall, NY. The exact details will depend on Hunter College COVID-19 policies. I will provide information about this as I get it. This field trip will provide you with the opportunity to contrast the ecosystems we explore in NYC with a rural forest ecosystem and learn about the studies being conducted at this research forest. Further, during this field trip you will learn different field ecology research techniques and collect data that will be used for your Research Report. **The tentative date of this field trip October 22-23.** Transportation, lodging, dinner and breakfast will be covered. Any student with concerns or questions about the field trip or is unsure they will be able to attend should meet with me **before September 23rd.**

Exams

The field exam is based on the content of field trips with an emphasis on vegetation and ecosystem identification. The final exam is comprehensive and will be based on field trips, lectures, readings, and natural history presentations given by each of you. Because the field exam will take place while on a field trip, tardiness may prevent you from being able to take the exam. The final will likely be administered via Blackboard. A missed exam will be graded as a zero and make-up exams will **ONLY** be available in the case of a documented unavoidable circumstance that results in an excused absence.

Field Reports

Field reports are short written reports that are generally based on questions given to you at the start of each field trip. They may also require you to take photographs and/or visit Central Park or parks near your home outside of class time. While students can work together during class, reports are expected to be done independently and submitted to Blackboard before the start of class on their respective due dates.

Field Notebook

I want you to find a place in a park near your house, Central Park, or another park that is convenient for you and visit that same place once a week between the weeks of September 12th and November 7th (i.e., 8 entries over 8 weeks). During each visit, with notebook in hand, you should sit in the same spot for 30-60 minutes and observe your surroundings. During your time there each week, consider the following questions:

1. What ecosystem(s) are you observing?
2. What trees and other plants are nearby? Each week, you will need to include a sketch of a leaf of a new tree/herbaceous plant that you have identified. This sketch should include indication of key features that you would use to identify this species.
3. What animals do you see? This can include mammals, birds, reptiles, amphibians, and insects.
4. How are people interacting with this place?
5. How have things changed since the last time you visited?
6. How do you feel being there?

With your answers to these questions in mind, write 1-2 paragraphs in your field notebook. Feel free to include drawings and any other thoughts you have while you are there. Your grade will largely be based on the extent to which you integrate questions 1-5. I would like you to approach this as something of a creative writing exercise and not simply a list of answers to these questions. Feel free to integrate question 6 into your writings, but this is not mandatory. As part of this assignment, ***I strongly encourage you to put your phone and other electronic devices away.*** You should have a notebook entry for each date you are there and the date should be indicated before the entry. You also need to conclude this assignment with ½ to 1 page of text that describes your overall experience with this project. Some questions that I would like you to consider are:

1. Did you enjoy this “forced” experience?
2. Did this assignment improve your awareness and understanding of the natural world and ecology of NYC? If so, how?

3. Did it change the way you think about or relate to the non-human component of the natural world? If so, how?
4. Are there things you learned from this experience (e.g., about yourself, about nature, etc.) that might influence how you might lead your life or think about the world more broadly?
5. Has this exercise in listening and observing influenced how you might approach conducting scientific research? How about how you interact with other people?

Most importantly, I want your report to be an honest representation of your experience. This is not an assignment you can do at the end, just before the due date. This period of time includes a lot of changes and I will likely be able to detect false information, which will impact your grade. If you foresee having trouble with this assignment, please talk to me ASAP. Please be sure to include the name of the park or location you went to and a map with “your spot” indicated on it (a Google Map or similar is fine).

Natural History Presentation

Over the course of the semester, you are expected to use the interactive Mannahatta Project website (<https://welikia.org/>) to learn about a neighborhood in Manhattan. You will research what the natural history of that neighborhood was prior to European settlement, how the Lenape people may have used and interacted with this landscape, and how the natural history and ways in which people interact with the landscape have since changed. I expect you to **use the Mannahatta website as a starting point** to gather your information, but then dive into the peer-reviewed scientific literature to learn more about some of the organisms that called this neighborhood home prior to European settlement and those that currently call it home. Based on your research, you will conduct an 8-minute PowerPoint presentation to the class at the end of the semester. In addition, you will need to prepare an abstract (300-word limit) describing the content of your presentation. I want everyone to research a different neighborhood in Manhattan and I will post a list of suggested neighborhoods to Blackboard. You have until October 3rd to submit the Natural History Project Approval form (posted on Blackboard). For this approval form, you will need to indicate the (1) neighborhood, (2) 2 pre-settlement organisms you will research, and (3) 2 current-day organisms you will research. You will not be given credit for this presentation if I did not sign off on the approval form. You will also be required to turn in the slides used for your presentation. You need to use at least 5 peer-reviewed scientific papers as sources of information for your presentation (see format below). In addition to these 5 papers, you may use reliable websites for information (e.g., government agencies, universities, etc.), but double check with me before you use a website as many can be unreliable. **A more detailed description of this project will be posted to Blackboard.**

Research Report

During our trip to Black Rock Forest, we will collect data on forest structure that you will analyze, use to create figures depicting your results, and write a report following the format of a scientific paper that will include Introduction, Methods, Results, and Discussion sections. You will work in groups in the field and have the option of analyzing the data and writing the report either individually or in a group of 2-3 students. If the group approach is chosen, you should write the report as a group and you should each submit the same report to Blackboard. Everyone in the group will be given the same grade. For your report, you

need to use at least 8 peer-reviewed scientific papers as sources of information for the Introduction and Discussion sections. Graduate students will be expected to conduct a more extensive suite of analyses and include at least 16 peer-reviewed papers. **NOTE: This assignment, as described here, depends on our ability to do a field trip to Black Rock Forest. If that is not possible, I will revise the assignment. That said, the essence of the assignment will remain intact.**

Required citation format:

Internally:

One author: "The sky is blue (Smith, 1997)."

More than 2 authors: "The sky is blue (Smith et al., 1997)."

Literature cited section:

One author:

Smith AS. 1997. Detailed study of sky color. *Journal of Obvious Things* 3: 122-126. (note that the volume AND page numbers are included and that the journal title is in italics)

Multiple authors:

Smith AS, Rogers LM, White SD. 1997. Detailed study of sky color. *Journal of Obvious Things* 3: 122-126.

Syllabus Change Policy

Except for changes that substantially affect implementation of the evaluation (i.e., grading) statement, this syllabus is a guide for the course and is subject to change with advance notice. Any changes to the syllabus will be posted to Blackboard and the instructor will bring changes to the students' attention in class.

Incomplete Policy

I do not give Incomplete (INC) as a final course grade except under extreme and documented circumstances. In order to receive an INC you must be doing passing work at the time of the final exam. Undergraduate students must notify me within 48 hours of the scheduled final exam and also make arrangements with me to complete a Contract to Resolve an Incomplete Grade in which we will establish a deadline for completing missed work and/or examinations. This contract must be completed **prior to final grade submissions**. Graduate students must request the INC within 48 hours of the scheduled final exam. In either case if I do not hear from you within the specified time period I will average your grades and record them.

Hunter College Policy on Academic Integrity

Hunter College regards acts of academic dishonesty (e.g., plagiarism, cheating on examinations, obtaining unfair advantage, and falsification of records and official documents) as serious offenses against the values of intellectual honesty. The College is committed to enforcing the CUNY Policy on Academic Integrity and will pursue cases of academic dishonesty according to the Hunter College Academic Integrity Procedures.

Hunter College Policy on Sexual Misconduct

In compliance with the CUNY Policy on Sexual Misconduct, Hunter College affirms the prohibition of any sexual misconduct, which includes sexual violence, sexual harassment, and gender-based harassment retaliation against students, employees, or visitors, as well as certain intimate relationship. Students who have experienced any form of sexual violence on or off campus (including CUNY-sponsored trips and events) are entitled to the rights outlined in the Bill of Rights for Hunter College.

- a. **Sexual Violence:** Students are strongly encouraged to immediately report the incident by calling 911, contacting NYPD Special Victims Division Hotline (646-610-7272) or their local police precinct, on contacting the College's Public Safety Office (212-772-4444)
- b. **All Other Forms of Sexual Misconduct:** Students are also encouraged to contact the College's Title IX Campus Coordinator, Dean John Rose (jtrose@hunter.cuny.edu or 212-650-3262) and Colleen Barry (colleen.barry@hunter.cuny.edu or 212-772-4534) and seek complimentary services through the Counseling and Wellness Services Office, Hunter East 1123.

CUNY Policy on Sexual Misconduct Link:

<http://www.cuny.edu/about/administration/offices/la/Policy-on-Sexual-Misconduct-12-1-14-with-links.pdf>

Hunter College ADA Policy

In compliance with the American Disability Act of 1990 (ADA) and with Section 504 of the Rehabilitation Act of 1973, Hunter College is committed to ensuring education parity and accommodations for all students with documented disabilities and/or medical conditions. It is recommended that all students with documented disabilities (Emotional, Medical, Physical, and/or Learning) consult the Office of AccessABILITY, located in Room E1214B, to secure necessary accommodations. For further information and assistance, please call: (212) 772-4857 or (212) 650-3230.

Continue to next page for semester schedule.

PGEOG 38367/PGEOG 70467- Field Ecology of NYC Tentative Schedule for Fall 2022

* Indicates Field Trip; **Blue font** = dates of exams and due dates of assignments

Week	Date	Assignment	Topic	Readings
Section I: Learning Ecosystems				
1	Aug 26		Overview of the discipline of field ecology and NYC Ecosystems	Del Tredici p. 1-26; Sanderson Ch. 1; Kimmerer p. 3-10
3	Sept 9*		Ecosystem and Plant ID; Ecological Succession* (Central Pk @ 1:15)	Sanderson Ch. 5; Barnard and Calvanese 14-23; Kimmerer p. 39-47
4	Sept 16*		Forests, Young and Old [Growth]* (Inwood Hill Pk @ 1:40)	Pregitzer et al. 2018; Wirth et al. p. 11-33
5	Sept 23*		Wildlife ID and Observation*; Plant ID Review (Cent Pk @ 1:15)	Wheater Ch. 4 (p. 95-108, p. 200-234)
Section II: Studying and Understanding Ecosystems				
6	Sept 30*	Nat History Proj. Topic Approval Form Due 5 pm	Exam 1: Vegetation and Ecosystem Identification* (Cent Pk @ 1:15); Ecosystem Structure and Function	Wheater et al. Ch. 1 & 2; Kimmerer 128-140
7	Oct 7*		Ecosystem Structure and Processes	Wheater et al. Ch. 3; Battles Online Reading
8	Oct 14		NO CLASS	
8	Oct 22-23*		BLACK ROCK FOREST FIELD TRIP	Archetti et al. 2009 Schuster et al. 2008
9	Oct 21*		Phenology* (Central Pk @ 1:20)	Archetti et al. 2009
11	Oct 28*		Ecosystem Restoration* (Highbridge Pk @ 1:40)	Sanderson Ch. 6; Wheater et al. Ch. 3
12	Nov 4		Guest Lecture	Adirondack Life Article
13	Nov 11	Field Notebook Due	Our Changing Ecosystems* (Location TBD); How to Write a Scientific Paper	Kimmerer 141-155; Wheater et al. 6 (p. 305-321); TBD
Section III: Natural History Reports				
13	Nov 18	Abstracts and Slides due by 5pm on Thursday, Nov 17	Natural History Presentations	
14	Dec 2		Natural History Presentations	
15	Dec 9	Research Report Due midnight 12/16	Mannahatta	Sanderson Ch. 3 & 7
16	Dec 16		Final Exam (Covers Entire Semester)	

NOTE: Readings will be posted on the 'Reading List' on Blackboard. The schedule of readings is tentative, with changes possible depending on timing of each topic