Introduction

Welcome to Ecological Field Methods, 2021! Please note: you will be required to travel, you will get wet and/or dirty in this course, and we will be outside rain or shine. As seen in the calendar below, we will be meeting at off-campus field sites for nearly every class. Please inform me if you need any specific accommodations to access or visit these sites. Some classes may run a little late or early with required travel time. Students should not schedule meetings or classes either directly before or after our class time.

We are fortunate that this semester, the majority of our course will be offered on Governors Island! The only way to reach GI is via ferry (see schedule here). If you miss the ferry, you will miss a large portion of the class, so you must be on time. You will be receiving a staff ID badge for your trip on the ferry. We will be meeting on site most weeks, so please plan your time accordingly. We will also be exploring Jamaica Bay (Queens) and the Bronx River. Indoor spaces on Governors Island, as well as
some of our vendors may require proof of vaccination. I encourage you to download the Excelsior Pass. Please let me know if this is a concern. I’m excited to take this adventure with you!

Contact Information

For those of you who do not know me yet, I am Professor Katie Schneider Paolantonio. While you can feel free to call me any combination of those names, most students in this class call me Katie, and that is just fine by me. The best way to reach me is by email, ks146@nyu.edu. Feel free to email to schedule another time to chat.

About this Course

The prerequisite of EFM is Fundamentals of Ecology (BIOL/ENVST UA-63), which can be taken concurrently. The main objective of EFM is to provide you with the skills needed to design and implement field experiments, interpret data and present ecological research. Through exploration of local NYC habitats, you will gain experience in all parts of the scientific method. Examples of data collected include spatially referenced biological surveys and measurements of abiotic parameters. Ecological techniques will be nested within greater contexts of questions in biodiversity and community structure, invasion biology, urban ecology, habitat alteration and climate change. Scientific communication skills will be strengthened through written assignments and discussion of peer-reviewed scientific literature. A significant component of this class will be a group research project. While we will set aside time in class for this project, it will also require scheduled meetings outside of class time.

Required and Recommended Materials

For this course, I recommend that you purchase one Rite-in-the Rain or similar waterproof notebook (you can decide if you want the spiral bound or the looseleaf type). As many of these activities will be outside, I recommend that you acquire field (rubber-soled) boots, poncho/raingear, old pants, hats, bug spray, sunblock, gloves, an old backpack, etc. As we will be traveling to field sites (which may be remote or wet or during inclement weather), I advise you to seek out a secure location where you can store valuables (computers, ipads, etc.) while we are in the field (or do not bring them with you to class).

For species identification, you will be given the option to use smart phone apps, websites or texts. If you would like to purchase species identification books (not required), here are a few local and general books that I recommend (you are free to pick your own as well). Hopefully these are guides that you will keep and continue to use for years after this course so pick whichever works for you. If you choose
to buy them, all are available at discounted prices on websites such as Amazon. I also have class copies, or you could take similar books out of the library. You may also prefer to explore identification apps for your phone. We will talk more about this on the first day of class.


**Course Objectives**

By the end of this course, you should be able to: Use appropriate resources to identify and document records of birds, plants and invertebrates, Setup and Deploy passive bioacoustic monitoring devices, Analyze audio files for identifying birds and bats, Participate in community science projects, Investigate the impact of ecological disturbance on ecosystems and debate management solutions, Collect water samples from a boat and kayak, Quantify and classify microplastics from water, Analyze the impact of human activities on soil quality, Articulate the science behind composting, Describe methods of urban agriculture, Explore factors that influence river quality and the distribution of aquatic macroinvertebrates, Apply ecological techniques to extract and categorize leaf litter invertebrates, Choose appropriate ways to effectively analyze and present scientific data, and Communicate the intent, methods and results of scientific studies.

**Grade Breakdown**

The final grade for this course will be based on:

- Written assignments 150 pts
- Semester-long monitoring projects (iNaturalist, Phenology) 30 pts
- Team Project Mid-semester Report (Paper) 40 pts
- Team Presentation (independent grade) 20 pts
- Team Project Storymap (group grade) 60 pts

**Total** 300 pts

Letter grades will be determined as follows. If you earn the following points, your grade will be at least as indicated; instructor reserves the right to “curve” the lowest grade upwards as appropriate:
Above 279 = A, 270 – 279 = A-, 261 – 270 = B+, 249 - 261 = B, 240 - 249 = B-, 231- 240 = C+, 219 - 231 = C, 210 – 219 = C-, 201 – 210 = D+, 195 – 201 = D, Below 195 = F, INC = Incomplete, W = Withdrawal. This scale is subject to change based on overall course performance. If you receive an INC, you must resolve the INC before the end of the next semester or it will become an F. It is your responsibility to request an INC in writing before the end of the course.

1. Written Assignments (150 points)

- You will have a written assignment associated with each activity in this course. These assignments, which will be a combination of a pre-lab activity and a post-lab reflection, will be hyperlinked to this document and must be uploaded to your Google folder prior to class on each Friday. These assignments will be a combination of a pre-lab activity and a post-lab reflection. The pre-lab will include descriptions on the purpose of the activity, the methods used, and the data that you will collect. After collecting your data, you will be expected to analyze and interpret your results and discuss your findings. We will discuss these assignments at the beginning of the lecture on the day that they are due. As such, late assignments will NOT be accepted. To avoid last minute illness or stressors, please start these activities in advance (i.e. before Tuesday) so that you can get credit if something comes up. If you must miss class due to a personal emergency or medical issue, please upload your assignment prior to the start of class to get credit.

2. Semester-long monitoring (15 points each)

- There are two semester-long monitoring projects in this course. Both will require active investigation at least once per week. The iNaturalist project will challenge you to seek out species while we are on Governors Island. Each student should have at least 20 species recorded, but the student with the most observations will be recognized at our student Meet and Greet on Oct 29th. The phenology project will require that you monitor two trees (one on Governors Island and one in Washington Square Park). You must visit the GI trees as often as possible and the WSP trees once per week (each visit takes two minutes), but you may visit more often once you start to see change. Monitoring is complete once the last leaf has fallen. We will discuss more about both of these projects during the first two weeks of class.

3. Team Project (40 mid semester report, 20 presentation, 60 final storymap)

- There will be one team project in this course. Early in the semester, you will take ownership of one activity to investigate in more detail. You will have time during the course to work on this project and talk with myself and your classmates, but you will spend a significant amount of time outside of class meeting with your team to collaboratively write your report. You will be
expected to contribute equally to this assignment, and your contribution will be reflected in your grade.

This semester, we are not the only NYU class that will be exploring Governors Island. Interestingly, many of the activities that we will investigate involve similar questions that will be explored from different angles by your peers. As such, this team project will be embedded in a greater theme (Climate, Plastics, Urban Soils), that will be integrated into a larger story using a transdisciplinary approach. On Oct 29th, you will participate in a “meet and greet” to build a relationship with your peers and start the conversation about your theme. Your mid-semester report and story map will focus only on our activities in class, but your final group presentation will allow you to integrate our class into a larger context with your NYU peers.

Attendance

Attendance is integral to this course. Please come to each class on time, prepared, dressed accordingly, and planned to stay the entire time. When we are meeting at Governors Island, you will be expected to travel independently to the ferry and meet us on the Island on time. Two times during the semester we will take a charter bus/cars to the site. You are responsible to meet on campus at 7:35am. We will return early in the evening.

If you miss a class due to illness, you must meet with me over Zoom the following week (Monday or Tuesday) to discuss what you missed and go over what is needed for the next class. You will be required to complete an out of class activity designed to mirror the field experience (in content and duration) so that you can complete the homework assignment. As each class relates to the next, no extension can be granted for any material due the next class and it is in your best interest to get the makeup material quickly.

Safety

Remember to adhere to the most recent guidelines for protection against Covid 19 (NYU’s vaccination policy, social distancing, indoor masking). Please contact me directly if this is of concern.

In Ecological Field Methods, you will spend a significant amount of time outside investigating the world around you. During this course, let’s be open and honest about inclusion and diversity in ecology. This site from Cornell contains helpful resources, including recent publications about facilitating an inclusive environment for individuals undertaking fieldwork, and a link to a recording of a really engaging and important webinar. I encourage you to check them out if you have a chance.
Community Rules

EFM is a small (~10 - 12 person) course, and is one for us to really feel comfortable sharing ideas, conversations, and learning. I hope that through this course we will create a sense of community - a group of researchers interested in exploring the world around them, asking interesting questions while applying techniques that are both fundamental and technologically advanced, and that you all will feel safe and heard.

Policies

All students must adhere to the academic integrity policies of NYU.

Academic accommodations are available to any student with a chronic, psychological, visual, mobility, learning disability, or who is deaf or hard of hearing. Students should please register with the Moses Center for Students with Disabilities at 212-998-4980 http://www.nyu.edu/csd.
## Tentative Calendar

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
<th>Location</th>
<th>HW Due</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>09/03/2021</td>
<td>Intro to each other, the course, apps, equipment, choose groups</td>
<td>NYU Silver 604 and together travel to GI</td>
<td>none</td>
<td>9 - 1</td>
</tr>
<tr>
<td>09/10/2021</td>
<td>Jamaica Bay OR Plant Diversity/Phenology (if raining)</td>
<td>Jamaica Bay, Queens</td>
<td>Pre-lab (Jamaica)</td>
<td>Transport leaves NYU @8am (arrive at 7:40 to pick up gear!), Depart Queens @ 3pm</td>
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<tr>
<td>09/17/2021</td>
<td>Plant Diversity and Phenology OR Jamaica Bay raindate</td>
<td>WSP and Governors</td>
<td>Jamaica Bay HW - Use data sheet from Rachael Download: Nature's Notebook App to your phone</td>
<td>Meet @WSP 9am, travel as a class to GI. Depart GI 1:40 or 2:20pm.</td>
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<tr>
<td>09/24/2021</td>
<td>Microplastics and Water Quality - Tugboat on the Hudson River</td>
<td>Hudson River by boat</td>
<td>Plant Diversity HW Start entering phenology</td>
<td>Meet under the FDR at Pier 16 @ 9:30. Depart from the site @12:30pm.</td>
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<tr>
<td>10/01/2021</td>
<td>Microplastics and Water Quality - Kayaking on Governors Island Sorting and Characterizing MPs</td>
<td>Governors</td>
<td>Microplastics HW part 1</td>
<td>Take 8:30 Ferry to meet at GI @9:30. Depart Governors @ 3:40pm.</td>
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<tr>
<td>10/08/2021</td>
<td>Bird Diversity</td>
<td>Governors</td>
<td>Pre-lab (Birds)</td>
<td>Take 8:30 Ferry to meet at GI @9am for microplastics, bird lecture/lunch, Bird walk 1 - 3 pm</td>
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<tr>
<td>Date</td>
<td>Event</td>
<td>Location</td>
<td>HW/HW Due Date</td>
<td>Notes</td>
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<td>10/15/2021</td>
<td>Urban Agriculture Grow NYC</td>
<td>Governors</td>
<td>Microplastics HW part 2</td>
<td><strong>Take 8am Ferry to meet at GI - program is 9 - 2</strong></td>
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<tr>
<td>10/22/2021</td>
<td>Soil Ecology and Zero Waste, Nutrient Cycling, Decomposition Earth Matter</td>
<td>Governors</td>
<td>Pre-lab (Soil)</td>
<td><strong>Take 8:00 Ferry to meet at GI - Program is 9 - 12</strong></td>
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<td>10/29/2021</td>
<td>NYU @ GI - Meet and Greet</td>
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<td>Soil HW</td>
<td><strong>TBD</strong></td>
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<td>11/05/2021</td>
<td>Bronx River OR Bat Detection, Microplastics w/Raman Microscopy</td>
<td>Bronx or NYU</td>
<td>ProjectMid Semester Report Due</td>
<td>Transport leaves NYU @8am, Depart Bronx @ 3pm</td>
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<td>11/06/2021</td>
<td>Volunteer Event - Outdoor Educators</td>
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<td>11/12/2021</td>
<td>Bronx River OR Bat Detection, Microplastics w/Raman Microscopy</td>
<td>Bronx or NYU</td>
<td>Bronx HW or Bat HW</td>
<td>9am - 11am OR Bronx Trip</td>
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<td>11/19/2021</td>
<td>Riparian Invertebrates - Tullgren Funnels</td>
<td>WSP - Silver 604</td>
<td>Bronx HW or Bat HW</td>
<td>9am - 2pm</td>
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<td>11/26/2021</td>
<td>THANKSGIVING - NO CLASS</td>
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<td>12/03/2021</td>
<td>Crisis Counseling/Individual Group Meetings/StoryMap Training</td>
<td>Zoom or NYU TBD</td>
<td>Tullgren HW</td>
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<tr>
<td>12/10/2021</td>
<td>Final Presentations/Course Wrap Up</td>
<td>Zoom or NYU TBD</td>
<td>Project Final Due</td>
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