

CITIZEN SCIENCE

Dr. Toomey | Wed | 1:20-4:20PM

Frequently asked questions

When and where are your office hours?

My office is located on the 3rd floor of 1 Pace Plaza in the Environmental Studies and Science Department Suite (Y34). Sign up for office hours [at the link here](#).

Is this course in person or online?

This course will be in person with a significant fieldwork element that will satisfy the Civic Engagement requirement. The field site for this course is Sherman Creek along the Harlem River.

What are the policies for this course? For example, can I email you with questions?

See the "course policies" section at the end of this syllabus for detailed information about how to get in touch or any other questions you may have.



What is citizen science?

Citizen science refers to the direct participation of the public in the collection and interpretation of scientific data. Citizen science has become increasingly utilized for scientific research, credited for providing data across large scales, promoting environmental awareness and scientific literacy, and potentially empowering and engaging local people in scientific communication and decision-making.

This course will take a detailed look at how the relationship between science and society has evolved over time. It will examine the many different ways that people perceive and engage with science, particularly ecological science, through participatory research, boundary organizations, policies and laws. We will explore different ways that urban, suburban, and rural communities relate to and engage with science. These are issues that are laden with power dynamics and inequalities, and the course will deliberately seek to learn about the perspectives of women, minorities, and low-income communities who have spurred participatory science movements around the world.

Learning objectives

- Understand and appreciate the importance of the diverse history of major scientific contributions made by citizen scientists, especially individuals from Black, Indigenous and People of Color (BIPOC communities).+

- Learn about key issues in public perceptions of science in the context of the history of scientific literacy in society to help address societal challenges.+

- Understand the importance of participatory science in different settings, particularly in BIPOC communities where it has led to social and environmental justice engagement.

- Communicate effectively with multiple stakeholders in ways that lead toward collaborative environmental governance

+Starting in Fall 2022, Pace is adding an Antiracist Education attribute to the core curriculum requirements for all students. Antiracist Education is an ongoing process that entails naming, evaluating, analyzing, and imagining ways to change systems of racism. This class is part of the pilot year for this program, and you may be asked to participate in voluntary assessment activities throughout the course of the semester related to ARE.

Course assessment

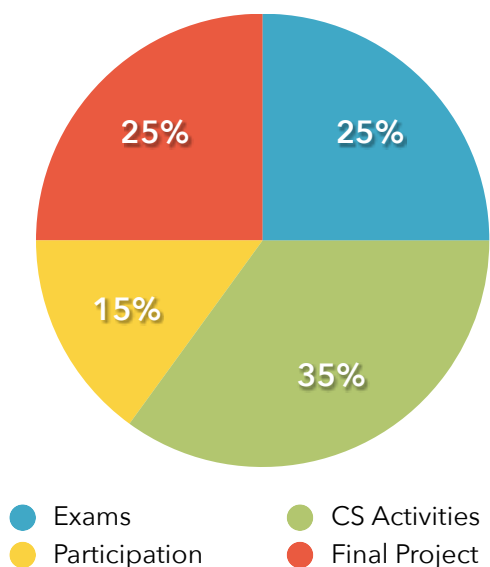
- Exams (25%) - there will be two exams over the semester. Each will test your knowledge of reading and lecture material covered.

Readings will include chapters from the course text, *The Rightful Place of Science: Citizen Science* by Darlene Cavalier and Eric B. Kennedy, as well as additional articles. See Classes for week-to-week readings.

- Citizen Science (CS) Activities (35%) - you will participate in a waterfront-based citizen science project along the Harlem River throughout the semester. Grades will be based on your participation in these activities and accurate completion of assignments.

- Professionalism and Participation (15%) - your engagement during class will be graded on a daily basis.

- Final Projects (25%) - the final two weeks of class will be spent on developing citizen science modules for Sherman Creek. More details on these projects will be discussed during Week 10.



See more on how grades will be determined and keep track of your grade averages on Classes using the Grade Center tools.

Tentative Course schedule (see Classes for specific dates and information)

Week	Topic	Citizen Science Research
1	Introductions - Disrupting how science gets done	Sample field day at East River
2	Intro to Sherman Creek	Field Day #1
3	Field work*	Field Day #2
4	Field work*	Field Day #3
5	Field work*	Field Day #4
6	Field work*	Field Day #5
7	Love canal and the EPA	Rain date for missed field day
8	Exoplanets and black holes	Analyze data
9	No Class - Conversion Day / Take home midterm	
10	Not your grandmother's biology class	Analyze data
11	Mapping discrimination	CS module intro discussion
12	Who is Katherine Johnson?	Develop ideas for CS modules
13	The "tyranny" of participation	Work on Final Projects
14	Final projects	Present Final Projects
15	Final exam	

*Note that field work and field days will be subject to cancellation due to weather or other unforeseen issues (e.g. COVID-related disruptions). If field work is cancelled we will hold regular class and move forward on content scheduled for later in the semester.



Class policies

Classes

All readings, details on assessment and other course information will be available digitally on Classes, as well as occasional class updates and a variety of external links and resources. Assigned readings will be available on Classes the week before they are expected to be read.

communicating with me

I prefer to communicate with my students face-to-face rather than over email. Please see me in my office or make an appointment for a virtual discussion (skype, phone) during my office hours. If you send an email, be aware that it will often take me up to two business days to review and respond to it. Please be professional and specific in your messages, and use the experience to practice how you would communicate with future employers.

Face Coverings and Social Distancing in Indoor and Outdoor Spaces

With the Delta variant of COVID-19 now dominant, New York City and Westchester are both designated as areas of “high community transmission.” Under current guidance from the Centers for Diseases Control and Prevention, Pace University is requiring face coverings to be worn indoors on all our campuses. Face coverings will also be required outdoors when we are doing our field work at Sherman Creek, to help prevent the spread of the virus beyond the Pace community.

laptops or cell phones in class

Out of respect for each other’s contributions during class, all cellphones and laptops will be shut off and stored out of sight (exceptions can be made in special cases – speak to me outside of class). Some weeks we will need to use laptops and/or cell phones - I will let students know about this ahead of time.



lateness and assignments

Make sure to be on time for class: lateness to class will significantly impact your in-class engagement grade, and being more than 15 minutes late to class is considered an absence. Late assignments will incur a 20% per day penalty, and assignments that are more than three days late will not be accepted unless written documentation is provided to support a justified excuse.

professional behavior

As your professor, I hold high expectations regarding professional behavior both for myself and for my students. This means showing respect by being punctual to class and meetings, using the appropriate form of address (I prefer that my students refer to me as Dr./Prof. Toomey, and my pronouns are She/Her), and communicating thoughtfully. This also means being honest - if you made a mistake or forgot something, tell me the truth - I commit to the same standards.

plagiarism and academic honesty

Plagiarism or cheating is unacceptable and will result in disciplinary actions such as, but not limited to, a failing grade in the assignment or the course, or suspension from the University. If you have questions or concerns about this or would like further clarification, please contact me directly or see the [Pace Academic Integrity Policy](#) in the online student handbook.

supporting an inclusive learning environment

The most productive learning environments are those in which all students feel like they belong and are an important part of the class. As your professor, I am fully committed to creating an inclusive learning environment where diverse perspectives are recognized, respected, and seen as a source of strength. To help accomplish this, 1) During the first week of class, I will invite everyone to introduce themselves with the name/ pronouns they would like others to address them with; 2) I have actively incorporated readings and lecture material to highlight perspectives that have not been included enough in the mainstream environmental movement, including those of people who identify as belonging to indigenous, Black, Latinx and other communities of color, as well as those of people with physical and/or learning differences; 3) Please let me know if something said or done in or outside the classroom, by either myself or other students, is particularly troubling or causes discomfort or offense. If you would prefer to discuss the issue with someone else, please consider reaching out to someone from one of the Student resources offices provided on the next page. You can also contact Pace's Chief Diversity Officer Tiffany Hamilton at (212) 346-1879, thamilton2@pace.edu or Executive Director of Institutional Equity and Title IX Coordinator Mr. Bernard Dufresne at (212) 346-1310, bdufresne@pace.edu.

Resources for students

accommodations for students with disabilities

The University's commitment to equal educational opportunities for students with disabilities includes providing reasonable accommodations for the needs of students with disabilities. To request an accommodation for a qualifying disability, a student must self-identify and register with the Coordinator of Disability Services for his or her campus. No one, including faculty, is authorized to evaluate the need and arrange for an accommodation except the Coordinator of Disability Services. Moreover, no one, including faculty, is authorized to contact the Coordinator of Disability Services on behalf of a student. For further information, please see Information for Students with Disabilities on the University's web site. To receive accommodation for any disability, students must contact the campus Counseling Center (Pace Plaza, (212) 346-1526; Westchester, (914) 773-3710) or at the link here.

the most important thing - self-care

Your academic success in this course and throughout your college career depends heavily on your personal health and well-being. Stress is a common part of the college experience, and it often can be compounded by unexpected life changes outside the classroom. Please feel free to talk with me about any difficulty you may be having that may impact your performance in this course as soon as it occurs and before it becomes unmanageable. It is also important for you to be aware that as a faculty member, I am a non-confidential resource. This means that if you share information with me about sex-based misconduct, I must report it to others with a need to know. I will disclose to as few individuals as possible, but as a non-confidential resource, I do not have the ability to promise that I will not tell others within the University about the information that has been shared with me. Please know there are a number of other support services on campus that stand ready to assist you. I strongly encourage you to contact them if needed.

Counseling Center <https://www.pace.edu/counseling>

Dean for Students Office <https://www.pace.edu/student-affairs/contact-us>

Health Care Unit <https://chp.pace.edu/university-health-care-uhc>

Office of Multicultural Affairs & Diversity <https://www.pace.edu/multicultural-affairs>

Sexual Assault Prevention & Education <https://www.pace.edu/sexual-wellness>

Link to Report Incidents of Bias <https://pace.guardianconduct.com/incident-reporting>

Advising Center for Exploring Majors <https://www.pace.edu/academic-advising>

International Student / Scholars <https://www.pace.edu/iss>

Professor: Dr. Monica Palta

Contact information: mpalta@pace.edu

Phone: (212) 346-1873

Office hours (by appointment only): By appointment Tuesday and Thursday (2:00–4:00 PM).

Meeting days and times: Wednesdays 1:20–4:20 pm, and additional meeting times as needed.

Modality: Weekly 1.5 – 3 hour long meetings – in person or online synchronous. Please be aware that modalities may change due to revisions in Pace policies/government guidelines.

Location: Online and outdoors.

Pace University COVID-19 Safety:

CDC guidelines and University policy require proper face covering use in all classrooms, conference rooms, hallways, elevators, and other common areas. Face coverings are required even if you are more than 6 feet from another individual in a common indoor area. We must work together to protect others and ourselves from the transmission of COVID-19. Any student entering class without a face covering will be asked to: a) don a face covering or b) go to Security to obtain a face covering if the student does not have one. Students who do neither of these things will be asked to leave class and they will be marked absent for the session. Students are expected to be familiar with the current COVID-19 regulations, which are posted on the [Return to Campus](#) website. See also [up-to-date policies and announcements](#) and more information about [Pace University's response to COVID-19](#).

Course delivery format / modality:

This course will be taught both **in person** and **web assisted**. We will have weekly whole-class meetings either in person and/or online.

Course description

In this course, we will be conducting group research assessing various ecological and biogeochemical aspects of the Sherman Creek parks, a series of waterfront parks in northern Manhattan along the Harlem River. Although you will be developing more detailed questions and hypotheses with my help, the main research question we will be investigating will be "how does waterfront infrastructure and design influence the provision of ecosystem services?". To address this question, we will be quantifying the provision of various ecosystem services (e.g., carbon sequestration, nutrient removal, biodiverse plant communities) in and along various types of waterfront infrastructure (reinforced banks, forested areas, open marsh) through use of field surveys and lab analysis of field-collected samples. We will also be developing field protocols and a white paper (i.e., research report) that park managers and K-12 educators at local schools can use to continue monitoring and evaluating the area after our study has concluded. This course will be working in coordination with ENV 297S (Citizen Science); the students in ENV 297S will be conducting a social assessment of the same sites and developing social assessment protocols for use by K-12 educators and managers.

This Capstone Research course fulfills a major requirement for Environmental Studies and Science majors. In this course, you will plan and carry out a **collaborative** research project that addresses an outstanding issue in Environmental Studies and Science. You will work closely with the course instructor(s), who will serve as mentor(s) throughout the project. Near the end of the term, you will prepare a final report and presentation that effectively disseminate your research findings to key stakeholders.

Class materials

Course readings:

During the semester, we will read peer reviewed articles and technical reports. The readings will be shared our Microsoft Teams collaborative workspace.

Learning Objectives

Upon successful completion of this course, a student should be able to:

- Summarize the current understanding of a scientific issue.
- Identify knowledge gaps and develop research questions to address these gaps.
- Develop data collection and curation plans.
- Collect data in field settings and troubleshoot research projects.
- Analyze, visualize, and interpret data.
- Place scientific findings in the context of the broader field of knowledge.
- Present findings through both written and verbal *communication* to a variety of stakeholders.

Program Learning Objectives

This course covers the following BS Environmental Science program-level learning objectives:

- Communicate complex scientific findings and exchange knowledge regarding multi-faceted environmental issues with a broad spectrum of audiences
- Contextualize research on solving environmental challenges that includes economic, social, and political factors
- Understand and critique the current state of knowledge on environmental issues and identify important knowledge gaps that need further investigation

This course covers the following BA Environmental Studies program-level learning objectives:

- Communicate and exchange knowledge on the concepts behind environmental problems and policy solutions, based on scientific findings, with probable stakeholders such as policymakers, practitioners, and community members
- Employ interdisciplinary and transdisciplinary thinking in order to analyze effective environmental policy choices for industry, government, and non-governmental institutions

Grading Policy

Grades for this course will be based on class participation and the delivery of a final presentation and a final report. Each of these major assignments is broken down into smaller assignments. Rubrics will be provided for each of these assessments.

- Presentation (35%)
 - Elevator pitch - 5%
 - Draft presentation - 10%
 - Final presentation – 20%
- Final report (45%)
 - Drafts - 15%
 - Self-assessment – 5%
 - Peer review - 5%
 - Final version - 20%
- Class participation (20%)
 - Leadership in activities - 5%
 - Attendance (unless excused) - 5%
 - Prepared for field work - 5%
 - Submitted, well documented data sheets - 5%

Pace University's grading scale (%) is as follows:

A = 90-100

B = 80-89.99

C = 70-79.99

D = 60-69.99

F = 0-59.99

Course Policies

Attendance

Attendance and punctuality are required. Excused absences will be considered, but must be discussed with Prof. Palta. Unexcused absences and/or consistent lateness will negatively impact a student's final assessment and could result in failure.

Technology in the Classroom

Use of computers and tablets may be necessary to complete some in-class assignments. However, I expect you to be respectful and professional, and not to be “surfing the internet” during class. All computers, tablets, phones, etc. should be closed and put away when not needed for course work.

Academic integrity

All members of the Pace community are expected to behave with honesty and integrity. Students will be held to the standards outlined in the policy in the Student Handbook (quoted below) and the [Academic Integrity Code](#):

Students are required to be honest and ethical in satisfying their academic assignments and requirements. Academic integrity requires that, except as may be authorized by the instructor, a student must demonstrate independent intellectual and academic achievements. Therefore, when a student uses or relies upon an idea or material obtained from another source, proper credit or attribution must be given. A failure to give credit or attribution to ideas or material obtained from an outside source is plagiarism. Plagiarism is strictly forbidden. Every student is responsible for giving the proper credit or attribution for any quotation, idea, data, or other material obtained from another source that is presented (whether orally or in writing) in the student's papers, reports, submissions, examinations, presentations and the like.

Individual schools and programs may have adopted additional standards of academic integrity. Therefore, students are responsible for familiarizing themselves with the academic integrity policies of the University as well as of the individual schools and programs in which they are enrolled. A student who fails to comply with the standards of academic integrity is subject to disciplinary actions such as, but not limited to, a reduction in the grade for the assignment or the course, a failing grade in the assignment or the course, suspension and/or dismissal from the University.

Learning Centers

The [Learning Center](#) uses an array of programs and a holistic approach to assist students with academic skills and content knowledge. We are dedicated to developing independent learners by creating purposeful interactions with trained, well-qualified peer and professional staff.

[Accommodations for students with disabilities](#)

The University's commitment to equal educational opportunities for students with disabilities includes providing reasonable accommodations for the needs of students with disabilities. To request an accommodation for a qualifying disability, a student must self-identify and register with the Coordinator of Disability Services for his or her campus. No one, including faculty, is authorized to evaluate the need and arrange for an accommodation except the Coordinator of Disability Services. Moreover, no one, including faculty, is authorized to contact the Coordinator of Disability Services on behalf of a student. For further information, please see Information for Students with Disabilities on the University's web site.

To receive accommodation for any disability, students must contact the campus Counseling Center (Pace Plaza, 212-346-1526; Westchester, 914-773-3710).

Course schedule

Week	Monday of Week	Topics/Activity	Group Assignment Due
1	Sept 6	Introduction to Topic	
2	Sept 13	Initial visit to field site, planning field work (scoping)	
3	Sept 20	Rain date – meet with NYRP	
4	Sept 27	Field work (social assessment)	**Weekend Day Oct 2
5	Oct 4	Field work (ecological assessment development)	**Weekend Day Oct 9
6	Oct 11	Field work (social assessment)	1 st Draft Ecological Protocols
7	Oct 18	Field work (ecological assessment testing)	2 nd Draft Ecological Protocols
8	Oct 25	Data Analysis	Initial report figures (graphs and tables)
9	Nov 1	Data Analysis	Finalized graphs and tables
10	Nov 8	Protocol Development for Modules	3 rd Draft Ecological Protocols
11	Nov 15	Finalize Modules	Finalized Modules
11	Nov 22	Data Interpretation	White Paper Outline
12	Nov 29	Data Interpretation	White Paper Rough Draft
13	Dec 6	Final Report Discussion	White Paper Final Draft
14	Dec 13	Final Presentation Practice	Draft Presentation
15	Dec 20	Final Presentations and Discussion	Final White Paper Self-assessment and Peer review

**As necessary/subject to change