Hunter College

Department of Geography and Environmental Science

GEOL 105 Introduction to Environmental Studies

Summer session II 7 weeks 2022

Instructor: Jingyu Wang

Online course: 7/6-8/16/2022

MOI: online-asynchronous

Time: online-asynchronous

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Course description:

This is an introduction to Environmental Science. This course focuses on environmental pollution: water pollution, air pollution, soil pollution, solid and hazardous waste pollution; topics of global environmental ecosystems, sustainability, climate change, food and agriculture, soil degradation, fossil fuel combustion, renewable energy, sea level rise, plastic in the ocean, pesticide and toxicology. Case studies are presented to pair with lectures focused on environmental issues in New York City (NYC). For example: air pollution and asthma in the South Bronx, NYC drinking water quality, food desert in the Bronx, combined sewer overflow (CSO) impact on water pollution in the Harlem River, water pollution in NYC, climate change in summer 2021 impact on water pollution and air pollution in NYC, polychlorinated biphenyls (PCBs) in the Hudson River and Stripped Bass consumption safety, reduce/reuse/recycle in NYC. Invited speaker Dr. Patrick Alexander will

give a talk on climate change and Greenland ice sheet melting. Dr. Glen Harrison will give a talk on the status of spent nuclear fuel in the United States. Student will learn what is environmental science and environmental pollution and be able to use case studies and guest speakers' talk to develop a final presentation and final paper.

Learning outcomes:

By the end of semester, you will be able to

Understand environment science, environmental ecosystems, environmental pollutions and sustainability.

Describe air pollution, water pollution, soil pollution, and solid waste pollutions in NYC and worldwide.

Understand NYC drinking water is world-renowned for its quality and why.

Understand major water pollution sources in NYC waterways.

Use case studies learned from class to develop an individual final project, including a final presentation and a final paper

Course format: This course will be taught as online asynchronous course using Zoom. I will teach on zoom and post recording on blackboard. I will give case studies and have discussions in class. There will be writing assignments and discussion associated with case studies, and use case studies to develop a final presentation and write a final paper.

Required textbook:

Environmental Science working with the Earth by Tyler Miller, 16th edition.

ISBN-10: 1-337-56961-5

ISBN-13: 978-1-337-56961-3

http://hunter.textbookx.com/institutional/index.php?action=browse#books/2449216/

Recommend readings:

New York Times, Tuesday Science Section.

https://www.nytimes.com/section/science

National Geographic Magazine

https://www.nationalgeographic.com/

NYC DEP

https://www1.nyc.gov/site/dep/water/drinking-water.page

US EPA

https://www.epa.gov/

Riverkeeper: NYC clean water advocate

https://www.riverkeeper.org/

Course grading:

Final presentation:	20 %
Final paper:	20 %
Class discussion:	10 %
Midterm:	15 %
Final:	15 %
Case studies/labs:	20 %

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. Plagiarism, dishonesty, or cheating in any portion of the work required for this course will be punished to the full extent allowed according to Hunter College regulations. Academic dishonesty is simply not acceptable. Helping other students on use of the software is, however, encouraged.

ADA Policy

In compliance with the ADA and with Section 504 of the Rehabilitation Act, Hunter College is committed to ensuring educational access and accommodations for all its registered students. Hunter College's students with disabilities and medical conditions are encouraged to register with the Office of AccessABILITY for assistance and accommodation. For information and appointment contact the Office of AccessABILITY located in Room E1214 or call (212) 772-4857 /or VRS (646) 755-3129.Special accommodations for persons with disabilities are provided upon request. Please see the instructor if you feel the need for them.

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) of 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-withlinks.pdf

Syllabus

Lecture

week	Topic
1	Course introduction
	Ch1The environment and sustainability Case study: DDT impact on the environment
	Ch3 Ecosystems: What are they and how do they work
	Ch3 continues

	Case study: trophic cascades Yellowstone-reintroduction grey wolves
2	Ch6 The human population and urbanization
	Ch6 continues
	Ch10 Food production and the environment
	Ch10 Case study: food desert in the Bronx
	Ch10 Case study: soil erosion and desertification in Mongolia
3	Ch11 Water resources and water pollution
	Ch11 Case study: CSOs impact on water quality and environmental ecosystems in the Harlem River Lab1 NYC water pollution
4	Ch11 Case study: NYC drinking water quality
	Lab2 NYC drinking water
	Lab3 CSOs in the Harlem River
	Midterm
5	Ch15 Air pollution: climate change and ozone depletion
	Ch15 air pollution continues Case study: asthma in the South Bronx Lab4: pathogens in CSOs in NYC waters
	Ch15 Case study: air pollution in China and India Case study: sea level rise in Maldives Case study: Greenland ice sheet melting
	Ch15 climate change continues Case study: climate change in summer 2021 impact on water pollution and air pollution in NYC Invited speaker Dr. Patrick Alexander: Climate change and the Greenland ice sheet
6	Ch13 Energy resources
	Ch13 continues Invited speaker Dr. Glen Harrison: the status of spent nuclear fuel in the United States Case study: solar panel and wind turbine in NYC

	Case study: hydraulic fracturing impact on groundwater pollution
	Ch14 Environment hazards and human health Case study: epidemiology and coronavirus pandemic in NYC
	Ch14 continues Case study: polychlorinated biphenyls (PCBs) in the Hudson River estuary and striped bass consumption safety
	Ch16 Solid and hazardous waste
	Ch16 Case study: reduce, reuse, recycle in NYC Case study: hazardous waste disposal on CUNY campus
7	Final presentation 1
	Final presentation 2
	Final presentation 3 and final review
	Final exam

Demonstration labs

week	labs
3	Lab1: Water pollution in the Harlem River-riverkeeper's data on Willis Ave Bridge and Washington Ave Bridge
4	Lab2: NYC drinking water quality, why NYC has the best drinking water in the world
4	Lab3: CSOs in the Harlem River ammonia, phosphate, and compared to riverkeeper's data on enterococcus and turbidity
5	Lab4: fecal coliform, E.Coli., enterococcus in the CSOs in the Harlem River, the Hudson River and the East River