Environmental Justice
Fall 2024


Tuesdays/Fridays 1:00 pm to 2:15 pm - HN1022 (Hunter North)
Undergraduate GEOG 38399
Graduate GEOG 70386

HUNTER COLLEGE
Department of Geography and Environmental Science

Instructor Information:
-Instructor: Enrique Lanz Oca
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-Guest Instructor: Ramiro Campos
Adjunct Lecturer
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Course Information:
Fulfills GenEd CORE
3-credit course

Office Hours: in-person
Tuesdays (11:30am - 12:30pm)
Room: 1032

Course Description:
We explore different cases of environmental justice around the world, but with a special focus on New York City. We examine a broad spectrum of cases that range from water pollution in Flint, Michigan, industrial disasters in Bhopal, India to oil spills in Newtown Creek, Brooklyn. Through this course we collect and analyze data, as well as elaborate possible solutions that could mitigate these episodes.

Detailed Description:
This course explores different cases of environmental justice around the world, but with a special focus on New York City. During the 1980s the sociologist Robert Bullard made a significant discovery when he was analyzing diverse communities in the fourth largest urban center in the United States, Houston (Texas). He observed how most of the hazardous facilities such landfills and petrochemical facilities were located close to African American and Latin American communities. Bullard called this process of marginalization of these groups "environmental racism." As we will see in the course, ecological disasters such as air pollution or industrial disasters do not equally impact every population or socio-economic group. Minorities, indigenous groups, and the poor are often exposed to the highest risks. We explore different cases of environmental justice around the world, but with a special focus on New York City. We examine a broad spectrum of cases that range from water pollution in Flint, Michigan, industrial disasters in Bhopal, India to oil spills in Newtown Creek, Brooklyn. Through this course we collect and analyze data, as well as elaborate possible solutions that could mitigate these episodes.

Course Objectives:
Upon completion of this course:

1. Students will learn the concept of environmental justice and how it can be visualized through a geographical and environmental perspective.
2. Students will complete a final group report. In order to achieve this, students will collect and analyze data to identify the selected community's main needs and priorities, as well as elaborate possible mitigation strategies for environmental justice concerns. (EPA's Environmental Justice Index (EJI), NYC Mayor's Office Environmental Justice NYC (EJNYC Plan) , expected to be released in 2023, NEPA, and other measures can be used as possible references).
3. Students will be able to evaluate the theoretical, historical and spatial dimensions of environmental justice issues using case studies on a local, regional, national and international scale.

Course-Specific Learning Outcomes:

1. Students will be able to recognize and explain the diverse human experiences of injustice applying geographic and environmental knowledge and skills to advance social justice and sustainability.
2. Students will gather, measure, synthesize and evaluate data from diverse sources using visual, analytical and statistical approaches to describe and interpret relationships, trends and make predictions about future changes.
3. Students will apply geographic methods to analyze the spatial dimensions of systemic environmental racism through technology such as GIS (Geographical Information Systems) mapping tool and devices such as noise and air quality meters.
4. Students will communicate effectively in the language of the discipline, incorporating written, oral and visual methods. Students will be prepared to become active, informed citizens ready to have an impact on society.

The attainment of these learning outcomes will be evaluated, especially through the writing assignments (e. g. reflection papers), group projects (report), fieldwork, and class participation.

Note: (for the graduate students): The attainment of these course-specific learning outcomes will be also evaluated through the writing assignments (e. g. reflection papers), group projects (report), fieldwork, presentations, and class participation. However, the writing assignments will be more extensive in terms of number of pages and references used as well as more academic orientation.

General Education Learning Outcomes:

Note: (for the graduate students): The attainment of these course-specific learning outcomes will be also evaluated through the writing assignments (reflection papers), group projects (report), fieldwork, presentations, and class participation. However, (1) the writing assignments will be more extensive in terms of number of pages and references used as well as more academic orientation.

1. This course is designed to introduce you to the concept of environmental justice, brief history and how the concept can be visualized through a geographical and environmental perspective.
2. You will review how some marginalized and indigenous communities are impacted by air, water, noise pollution, as well as flooding and heat on a local, regional, national, and international scale.
3. You will be guided in forming a collaborative report on a site specific environmental justice case in the New York City metropolitan area.

Modus Operandi of the Class:

A.The class will be **in person**. However, in case of an emergency, we may switch to virtual mode (using Zoom).

B . Organization of the Class:

Tuesdays: Theoretical	Fridays: Practical
Presentation and Discussion Section: This section consists in a revision of the main topics (e. g. air pollution and contamination of communities) of the class and discussion/ conversation. 1. Teachers' Introductory Presentation to the topic (1:00-1:10pm) 2. Students' Presentation (1:10-1:30pm). Each group present the main materials of that day's class. 3. Discussion (1:30-2:00pm): All of the students will comment on the presentation and discuss the class materials. 4. Conclusion (2:00-2:15pm)	**Group Work Report:** This space is focused on the design and construction of the main assignment of the semester. You can find some guidelines to achieve this assignment in Appendix 1.

Required Materials:

There will be no textbook. The course will include assigned materials that are available through articles, texts, chapters, films, and audios. These materials are available in the section "Course Materials" on Blackboard. Where indicated on the syllabus, materials will be found online.

Schedule of Topics and Assignments*

*Except for changes that substantially affect implementation of the evaluation statement, this syllabus is a guide for the course and is subject to revision by the instructor. Any changes will be announced in advance.

Course Assignments and Rubric:
Undergraduates

ASSIGNMENTS	% for the Final Grade	CHARACTERISTICS/ REQUIREMENTS
Environmental Assessment (Final Report)	**35%**	Each group will have to produce at least 30 pages (3-student group), 40 pages (4-student group) at at least 5 references.
Groups Walking Tour	**5%**	Each group will be responsible for presenting updates on their topic during a walking tour of the selected site.
Weekly Presentations	**20%**	Each group will be responsible for reviewing and presenting assigned reading materials every Tuesday.
Literature Review Document	**10%**	At least 5 References (Individual activity).
Presentations	**5%**	Each group will present their Group Report section in class.
Fieldwork Notebook	**5%**	See more details on Appendix 1.
Class Participation	**10%**	Students must continuously contribute to the learning environment.
***Eco*Credits Report/s**	**Extra-Credit**	Outdoor activities (e. g. tree planting) organized by the Greenbelt Society. Each activity represents a number of credits that will be added to the final grade. Activities will be announced.

Graduates

ASSIGNMENTS	% for the Final Grade	CHARACTERISTICS/ REQUIREMENTS
Environmental Assessment (Final Report)	**30%**	Each group will have to produce at least 30 pages (3-student group), 40 pages (4-student group) at at least 5 references.
Coordinator Group Work (Final COMPLETE Report)	**5%**	Graduate students will be responsible of the coordination of her/his/their group.
Abstract	**5%**	The Graduate students will be the main responsibles for writing the abstract of her/his/their respective Group Report.
Groups Walking Tour	**5%**	Each group will be responsible for presenting updates on their topic during a walking tour of the selected site.
Presentations	**5%**	Each group will present their Group Report section in class.
Weekly Presentations	**15%**	Each group will be responsible for reviewing and presenting assigned reading materials every Tuesday.
Literature Review Document	**10%**	At least 10 References (Individual activity).
Fieldwork Notebook	**5%**	See more details on Appendix 1.
Class Participation	**10%**	Students must continuously contribute to the learning environment.
***Eco*Credits Report/s**	**Extra-Credit**	Outdoor activities (e. g. tree planting) organized by the Greenbelt Society. Each activity represents a number of credits that will be added to the final grade. Activities will be announced.

Final letter grades will be assigned based on the CUNY grading policy that can be found in the online undergraduate catalog available at: http://catalog.hunter.cuny.edu/

Key points about these assignments:

1. You will receive feedback for the Final Report and Reflection Papers
2. You will have the opportunity to re-write the Proposal of the Final Research Paper.
3. **A complete description of the assignments is located in Appendix 1** at the end of the Syllabus.
4. You can find the due dates for all of the assignments in the Course Content and Calendar section of the syllabus (see below).

Course Policies:

Attendance:

I will take attendance at every class meeting. You should arrive in class on time and stay for the entire session. If you will miss class for any reason, you should discuss this with me ahead of time. You are responsible for any material you may miss. You are allowed five hours of absence, not five days. A low attendance could determine the distinction between an "F" or "WU" grade. Finally, the tardiness generates constant interruptions of the class. The continuous tardiness could generate a reduction of points for the final grade. **DO NOT BE LATE IN CLASS**.

Incompletes:

I do not give incompletes (IN) except under the most extraordinary and documented medical emergencies. No late assignments will be accepted. Without a valid medical excuse, you will receive a grade of zero (0) on any assignment missed. If, for a valid medical emergency, you do miss an assignment, you must contact me within 48 hours of the missed assignment and present acceptable documentary evidence for your absence. At the time of the request, you must also complete a Contract to Resolve an Incomplete Grade in consultation with me. We will agree on what needs to be completed and when it will be due and, if you meet the mutually agreed upon conditions, your course grade will be recomputed and a new grade, if appropriate, will be submitted. I will allow only one semester in which you can resolve the IN/FIN. After that time no request will be considered. The contract form is available in the Department of Geography office, HN 1006, during normal business hours or in OneStop on the 2nd floor of the North Building.

To receive a CR/NC you must have completed all course requirements and have requested the CR/NC option no later than the last scheduled lecture. That means all written assignments, quizzes, exams (including the final exam) must have been completed. If you choose this option, then all grades above 70% will be assigned CR and 69.9% and below will be assigned NC unless you choose the assigned D option for grades between 60 and 69.9. Finally, CR/CN is only available to undergraduate students. More information is available at http://www.hunter.cuny.edu/advising/how-to/file-credit-no-credit-cr-nc

Classroom Electronics Use:

I permit the use of laptops and tablets **ONLY** for the purpose of taking notes during lecture and discussion. All other personal electronics should be turned off or set to silent before entering the classroom. Absolutely no texting is allowed during class. Any use of electronics beyond their permitted use is a disruption to the class and will be treated accordingly.

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 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. Being in college requires discipline, collegiality, and overall honesty. Although knowledge is an accumulation of ideas from different people and epochs that you can use, you have to do so under certain conditions. If you are going to use another's ideas you have to identify their names and works. If you don't, it is called 'plagiarism,' and that is illegal. Plagiarism is the presentation of someone else's ideas, words or artistic, scientific, or technical work as one's own. Using the idea or work of another is permissible only when the original author is identified. Paraphrasing and summarizing, as well as direct quotations, require citations of the original source. Plagiarism may be intentional or unintentional. Lack of dishonest intent does not necessarily absolve a student of responsibility for plagiarism. Students who are unsure how and when to provide documentation are advised to consult with their instructors.

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 educational 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 E1124, to secure necessary academic accommodations. For further information and assistance, please call: (212-772-4857)TTY or (212-650-3230). Students requiring special consideration during the exams must make arrangements with the Office of Accessibility and tell your instructor of the arrangements.

Hunter College Policy on Sexual Misconduct:

"In compliance with the CUNY Policy on Sexual Misconduct, Hunter College reaffirms 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 relationships. 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.

1. 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, or contacting the College's Public Safety Office (212-772-4444).
1. 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) or 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: Sexual Misconduct Policy (cuny.edu)

Collaboration with the Greenbelt Society

Our course works and participates in close collaboration with the Greenbelt Society, a group formed by a diverse group of professionals, faculty, alumni and students affiliated with the Department of Geography and Environmental Science at Hunter College in NYC. The outdoor activities are organized in collaboration with the Greenbelt as well as The NYC Parks Department and other organizations such as the American Littoral Society. Our mission is to provide a platform for members to actively participate in projects, events and other activities in environmental science and sustainable development. We seek to promote intellectual and professional development through discussion, interdisciplinary collaboration and external networks. You can participate or be a member of the group.

Instagram: https://www.instagram.com/greenbeltsociety/

CALENDAR AND CONTENTS

Week 1

August 30th (Thursday): Introduction to the Course
1. Introductions
2. Review of the Syllabus
4. Group Report Project (Phase 1): a. Forming of the Groups b. Thinking about the Research Topic

Week 2

Sept. 3rd (Tuesday): What is Environmental Justice?
1. Defining Environmental Justice and Environmental Racism
2. Origin and Main Characteristics of Environmental Justice
3. Bali Principles of Climate Change

Sept. 6th (Friday): Group Report Project (Phase 2):
1. Selecting a Research Topic 2
2. General View of the Proposal and the Final Report

Week 3

Sept. 10th (Tuesday): Environmental Justice and Public Institutions
1. What is the National Environmental Policy Act (NEPA)?
2. Justice40 Initiative
3. EJ Index
4. Is the Justice40 Initiative enough 'Just' ecologically speaking?

Sept. 13th (Friday): Group Report Project (Phase 3):
Visualizing the Literature Review and the Methodology/Materials

Week 4

Sept. 17th (Tuesday): Communities and Air Quality
1. What are Particulate Matter (PMs)?
2. Cases: a. The South of Bronx: The highest Asthma Rate in USA b. PMs, Inequality and US Racial-Ethnic Minorities

Sept. 20th (Friday): Group Report Project (Phase 4):
Intellectual Contribution

Week 5

Sept. 24th (Tuesday): Warehouses/Distribution Centers/Universities and Communities
1. Warehouses/Distribution Centers and the Subtle Impact in Neighborhoods
2. Universities and Gentrification: Columbia University and the Harlem

Sept. 27th (Friday): Group Report Project (Phase 5):
Figures and Tables

Week 6

Oct. 1st (Tuesday): Communities and Water Quality
1. Flint (Michigan): Water, Public Infrastructure, and Institutional Negligence
2. Barrancabermeja (Colombia) and the Water Crisis

Oct. 4th (Friday): NO CLASS

Week 7

Oct. 8th (Tuesday): Communities and Heat Vulnerability

1. What is a Heatwave?

2. The Urban Heat Island Effect

3. Trees and Heat Risk

4. Cases of Heat Risk and Communities:
   a. Richmond (VA): Redlining, Marginalization and Heat Vulnerability
   b. New York City communities and Heat Risk

Oct. 11th (Friday): NO CLASS

Week 8

Oct. 15th (Tuesday): NO CLASS Classes follow Monday Schedule

Oct. 18th (Friday): Group Report Project (Phase 6):

Week 9

Oct. 22nd (Tuesday): Urban Flooding and Communities

1. Visualizing the Urban Flood Process

2. Strategies/Mitigations against Urban Flood Risk

3. NYC's Poor Communities and Flood Risk

Oct. 25th (Friday): Group Report Project (Phase 7):
Due LITERATURE REVIEW

Week 10

Oct. 29th (Tuesday): Garbage, Waste Processes and Communities

1. Garbage and Its Main Treatments: Landfills, Incineration, and Recycling

2. Cases:
   a. Bangladesh's Ship Breakers
   b. Alabama and the Dumping/Landfill Hub of the North

Nov. 1st (Friday): Group Report Project (Phase 8):

Week 11

Nov. 5th (Tuesday): Communities and Industrial Facilities

1. Bhopal, India: The Largest Industrial Disaster

2. Waste Disposal and Hazards: The Love Canal Disaster, NY

3. Texas' "The One-Mile Rule"

Nov. 8th (Friday): Group Report Project (Phase 9):

Week 12

Nov. 12th (Tuesday): Energy and Communities

1. Power Stations Sites and Communities

2. The Urban Heat Island Effect

3. Oil Pipelines and Indigenous Groups: The Keystone Pipeline Project

4. The Navajo and the American Nuclear Experiment

Nov. 15th (Friday): Group Report Project (Phase 10):

Week 13

Nov. 19th (Tuesday): Sea Level Rise, Indigenous Communities, Adaptation/Relocation

1. The Village of Quinhagak (Alaska)

2. The Pacific Islanders

Nov. 22th (Friday): Group Report Project (Phase 11):

Week 14

Nov. 26th (Tuesday): Dams, Rivers, and Indigenous Struggles

1. The Elwha Klallam Tribe: Dams, Energy, Rivers, and Struggle

2. The Narmada River Dam and the Adivasis

Nov. 27th (Wednesday): Classes follow Friday Schedule

Group Report Project (Phase 12): Final Review for the Final Report

Nov. 29th (Friday): NO CLASS: THANKSGIVING

Dec. 1st (Sunday): Group Report Project (Phase 13):

FINAL REPORT SUBMISSIONS

Week 15

Dec. 3rd (Tuesday): Final Ecological Meditations

1. Is the Anthropocene Just an *Anthropocentric* Vision?

2. Bhutan's Constitution and Environmental Protection

3. Carl Sagan's "Blue Dot"
4. Iceland, Funerals, and Glaciers
5. Norway's Doomsday Vault and Seeds
6. Should Rivers have "Rights"?
Dec. 6th (Friday): Group Report Project (Phase 14):
Walking Tour of the Group/s

Week 16

Dec. 10th (Tuesday): Group Report Project (Phase 15):
SUBMISSION OF THE FINAL COMPLETE REPORT
Dec. 13th (Friday): EcoCredits
-Presentation of the *Eco*Credits Report Projects **-Due the Fieldwork Notebooks**

Week 17

Dec. 20th (Friday): Group Report Project (Phase 16): 11:30am - 1:30pm
Presentation of the Final Report Projects

Required Materials:

Week 1

Aug. 30 (Friday): Introduction to the Course

-Environmental Justice Areas (arcgis.com). Available at https://nycdohmh.maps.arcgis.com/apps/instant/lookup/index.html?appid=fc9a0dc8b7564148b4079d294498a3cf

-Environmental Protection Agency (EPA). "EJScreen. Available at https://ejscreen.epa.gov/mapper/

Week 2

Sept. 3 (Tuesday): What is Environmental Justice?

-Bullard, Robert. "Race, Class, and the Politics of Place." Chapter 2 in *Dumping in Dixie: Race, Class, and Environmental Quality*. Boulder: Westview Press, 1990.

-"Bali Principles of Climate Justice." Available at https://www.ejnet.org/ej/bali.pdf

-Holyfield, Ryan (n. d.). "Defining Environmental Justice and Environmental Racism."

-Rechtschaffen, Clifford, and Eileen Guana. Chapter 2: "What is Environmental Justice?" in *Environmental Justice: Law, Policy, and Regulation*. Durham, NC: Carolina Academic Press, 2002. Available at https://escholarship.org/content/qt4t4657hn/qt4t4657hn.pdf

-"The Principles of Environmental Justice." Available at https://www.ejnet.org/ej/principles.pdf

Further Reading

-U.S. Commission on Civil Rights. *Not in My Backyard: Executive Order 12,898 and Title VI as Tools for Achieving Environmental Justice*. 2003, pp. 13-28. Available at https://www.usccr.gov/files/pubs/envjust/ej0104.pdf

-Millman, Oliver (2018). "Robert Bullard: 'Environmental justice isn't just slang, it's real. The Guardian. Available at https://www.theguardian.com/commentisfree/2018/dec/20/robert-bullard-interview-environmental-justice-civil-rights-movement

Week 3

Sept. 10 (Tuesday): Environmental Justice and Public Institutions

-US EPA (n. d.). "Environmental Justice and National Environmental Policy Act." Available at https://www.epa.gov/environmentaljustice/environmental-justice-and-national-environmental-policy-act

-The White House (n. d.). "Justice40 Initiative | Environmental Justice." Available at https://www.whitehouse.gov/environmentaljustice/justice40/

-NY Times (2023). "Signature Biden Program Won't Fix Racial Gap in Air Quality."

Week 4

Sept. 17 (Tuesday): Communities and Air Quality

-NYC Health (2021). "Epi Data Brief: Disparities among Children with Asthma in New York City."

-Tessum, Christopher et al. (2021). "PM2.5 polluters disproportionately and systemically affect people of color in the United States." *Science Adv*.; 7: eabf4491 28 April.

-US EPA (2023). "Particulate Matter (PM) Basics." Available at https://www.epa.gov/pm-pollution/particulate-matter-pm-basics

Week 5

Sept. 24 (Tuesday): Warehouses/Distribution Centers/Universities and Communities

-Coalition Against Gentrification (n. d.). "Columbia's West Harlem Expansion: A Look at the Issues." Available at https://coalitionagainstgentrification.files.wordpress.com/2014/01/scegbookletshort-edge.pdf

-Community and Environmental Defense Services (). "Preventing Warehouse & Distribution Center Impacts To Neighborhoods." Available at https://ceds.org/warehouses/

-*The Guardian* (2023). "Noise, Pollution, Danger: How Amazon Warehouses Upended a Sleepy New York City Neighborhood." Available at

https://www.theguardian.com/us-news/2023/may/16/amazon-warehouse-traffic-noise-brooklyn-red-hook

-The United Front Against Displacement (n. d.). "Stop Columbia's Gentrification of Harlem." Available at https://theunitedfrontagainstdisplacement.org/stop-columbias-gentrification-of-harlem/

https://coalitionagainstgentrification.files.wordpress.com/2014/01/scegbookletshort-edge.pdf

Further Materials

1. CR Consumer Reports (2023). "Do you live near a warehouse or delivery center?" Available at https://www.consumerreports.org/stories?questionnaireId=272

Week 6

Oct. 1 (Tuesday): Communities and Water Quality

-Callihan, Amanda (2017). "The Drinking Water Supply Crisis in Flint, Michigan: What It Exposes About Enforcement of Water Supply Law and Public Health in the United States." Tulane Environmental Law Journal, Vol. 29, No. 2 (Summer), pp. 303-321. (See Blackboard)

-Garcia Elena, Fatima (2019). "The Geography of Environmental Justice in Barrancabermeja: A Constructionist Approach for the Analysis of Social Justice Through the Cases of Environmental Justice and Water Pollution." ACME an International e-Journal for Critical Geographies, 18(3), 581-. Available online. (See Blackboard)

Further Materials:

-The Pacific Institute (n. d.). Chapter 3: Water and Environmental Justice in "A-Twenty-First U.S. Water Policy." Available at https://pacinst.org/wp-content/uploads/2013/02/water_and_environmental_justice_ch3.pdf

Week 7

Oct. 8 (Tuesday): Communities and Heat Vulnerability

-City of New York (2022). "2022 New York City Heat-Related Mortality Report." Available at https://nyccas.cityofnewyork.us/nyccas2022/report/1

-Irfan Umair (2023). "How heat waves form, and how climate change makes them worse." *Vox*. Available at https://www.vox.com/22538401/texas-heat-wave-weather-definition-record-temperature-climate-change

-NYC.Gov (2023). "Interactive Heat Vulnerability Index." Available at https://a816-dohbesp.nyc.gov/IndicatorPublic/beta/key-topics/climatehealth/hvi/

-Plumer, Brad and Popovich, Nadja (2020). "How Decades of Racist Housing Policy Left Neighborhoods Sweltering." *The New York Times* (August 24). Available at https://www.nytimes.com/interactive/2020/08/24/climate/racism-redlining-cities-global-warming.html

-Zitera, Carly D. (2019). "Scale-dependent interactions between tree canopy cover and impervious surfaces reduce daytime urban heat during summer." *PNAS* | April 9 | vol. 116 | no. 15 | 7575-7580 (See Blackboard)

Week 8:
NO CLASS

Week 9
Oct. 22 (Tuesday): Urban Flooding and Communities
-Gordon, Juanita (2023). "As East Harlem Waits for Infrastructure Projects to Mitigate Flood Risk, Residents Are Creating Their Own Solutions." *Inside Climate News.* Available at https://insideclimatenews.org/news/12072023/east-harlem-flooding-resiliency/
-Holpuch, Amanda (2021). New York floods: calls for action after 11 die in basement apartments." *The Guardian*. Available at https://www.theguardian.com/us-news/2021/sep/04/new-york-floods-11-die-basement-apartments
-New York City Comptroller (2022). "Bringing Basement Apartments Into the Light Establishing a NYC Basement Board to Provide Basic Rights, Responsibilities, and Protections for Basement Apartment Residents and Owners." Available at https://comptroller.nyc.gov/reports/bringing-basement-apartments-into-the-light/
-University of Maryland, College Park A. James Clark School of Engineering Center for Disaster Resilience Texas A&M University, Galveston Campus (2018). "The Growing Threat of urban Flooding." Available at https://cdr.umd.edu/sites/cdr.umd.edu/files/resource_documents/COMPRESSEDurban-flooding-report-online-compressed-0319.pdf

Week 10
Oct. 29 (Tuesday): Garbage, Waste Processes and Communities
-Chapter 12: "Waste Disposal" in Geohazards: Natural and Human by Nicholas K. Coch
-Gwin, Peter (2014). The Ship-Breakers. *National Geographic* (May). Available at https://www.nationalgeographic.com/magazine/2014/05/The-Ship-Breakers/
-Milman, Olive (2019). "'We're not a dump' - poor Alabama towns struggle under the stench of toxic landfills." *The Guardian* (April 15). Available at https://www.theguardian.com/us-news/2019/apr/15/were-not-a-dump-poor-alabama-towns-struggle-under-the-stench-of-toxic-landfills
-Milman, Olive (2019). "Environmental racism case: EPA rejects Alabama town's claim over toxic landfill." Available at

https://www.theguardian.com/us-news/2018/mar/06/environmental-racism-alabama-landfill-civil-rights

Week 11

Nov. 5 (Tuesday): Communities and Industrial Facilities

-Mandavilli, Apoorva (2018). "The World's Worst Industrial Disaster Is Still Unfolding." *The Atlantic* (July 10). Available at https://www.theatlantic.com/science/archive/2018/07/the-worlds-worst-industrial-disaster-is-still-unfolding/560726/

-*The New York Times*"The Love Canal Disaster: Toxic Waste in the Neighborhood - Retro Report." [video]. Available at https://www.youtube.com/watch?v=Kjobz14i8kM

-"The One-Mile Rule: Texas' Unwritten and Arbitrary Policy Protects Polluters from Citizen Complaints."

Further Materials:

-Grist (2016). "Love Canal: The toxic suburb that helped launch the modern environmental movement. Heather Smith." Available at https://grist.org/justice/love-canal-the-toxic-suburb-that-helped-launch-the-modern-environmental-movement/

-*The Guardian* (2023). "In 'Cancer Alley', US chemical giants mount campaign against grassroots organizers." Available at https://www.theguardian.com/environment/2023/may/04/cancer-alley-louisiana-environment-oil-industry-opposition

Week 12

Nov. 12 (Tuesday): Energy and Communities

-Barreto, Juan Declet and Rosenberg, Andrew (2022). "Environmental justice and power plant emissions in the Regional Greenhouse Gas Initiative states." PLOS ONE (July 20). Available at https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0271026 (See Blackboard)

-Buckley, Cara and Wilson, Michael (2012). "In New York's Public Housing, Fear Creeps in with the Dark." NY Times (Nov. 2) (See Blackboard)

-"Not Just Keystone XL: The Indigenous Fight for Environmental Justice." *Journal of Environmental and Energy Law* (Sept. 30, 2021). Available at https://studentorgs.kentlaw.iit.edu/ckjeel/2021/09/30/not-just-keystone-xl-the-indigenous-fight-for-environmental-justice/

-Spanne, Autumne. "Uranium Pervades homes near Navajo Nation." *HighCountryNews* (August 27, 2017). Available at https://www.hcn.org/articles/pollution-epa-budget-cuts-threaten-to-slow-uranium-cleanup-at-navajo-nation

Week 13

Nov. 19 (Tuesday): Sea Level Rise, Indigenous Communities, Relocation/Adaptation

-McNamara, Karen et al. (2022). "The role of Vanua in climate-related voluntary immobility in Fiji." Front. Clim., 23 (December). Available at doi: 10.3389/fclim.2022.1034765 (See Blackboard)

-Montlake, Simon (2012). "Will climate change force this Alaska village to relocate? The christian Science Monitor. Available at https://www.csmonitor.com/Environment/2019/0701/Will-climate-change-force-this-Alaska-village-to-relocate

-The City of Quinhagak: Mitigation Planning Team (2012). "City of Quinhagak Hazard Mitigation Plan." See sections from 5-9 to 5-26 (Erosion, Flood and Permafrost) and Section 7 (Mitigation)

Further Materials:

1. Gardiner, Beth (2020). "Ocean Justice: Where Social Equity and the Climate Fight Intersect." *Yale Environment 360*. Available at https://e360.yale.edu/features/ocean-justice-where-social-equity-and-the-climate-fight-intersect

Week 14

Nov. 26 (Tuesday): Dams, Rivers, and Indigenous Struggles

-Armstrong, Franny (2004). "Drowned Out." [Film]. Available at

https://www.youtube.com/watch?v=ICnSsK-ZHTg

-Lundahl, Robert (2013). "Unconquering the Last Frontier." [Film]. Available at the Hunter College Library.

Nov. 29 (Friday): NO CLASS (THANKSGIVING)

Week 15

Dec. 3 (Tuesday); Final Ecological Meditations

-National Geographic (2023). "Anthropocene." Available at https://education.nationalgeographic.org/resource/anthropocene/

-PBS (2023). Global Seed Vault becomes more important as climate changes" [video]. Available at https://www.pbs.org/video/doomsday-vault-1680643128/

-Sagan, Carl (n. d.). "Carl Sagan's Pale Blue Dot Official" [video]. Available at https://education.nationalgeographic.org/resource/anthropocene/

-TED (2016). "This Country isn't just carbon neutral-it's carbon negative." [Video]. Available online.

-*The Guardian* (2018). "Iceland holds funeral for first glacier lost to climate change.". Available at https://www.theguardian.com/world/2019/aug/19/iceland-holds-funeral-for-first-glacier-lost-to-climate-change

-*The Guardian* (2021). "Should rivers have the same rights as people?" Available at https://www.theguardian.com/environment/2021/jul/25/rivers-around-the-world-rivers-are-gaining-the-same-legal-rights-as-people

Appendix 1: A Detailed Description of the Assignments

Description of Scaffolding Process of High-Stakes Assignments

All high-stakes assignments are scaffolded in the following manner. These scaffolding processes are indicated also in the Course Content and Calendar section (see below):

The Final Research Paper and Proposal

The completion of this project will be implemented through various steps and revisions:

Step 1: The students begin to select a list of potential research topics (e. g. nuclear energy pollution or oil spills) for the final project.

Step 2: Choosing a final research topic.

Step 3: Construction of research question/s connected to the topic and how to collect scientific data.

Step 4: Elaboration of the first draft of the Proposal

Step 5: Feedback and revision of the proposal.

These first five steps are implemented through commentaries posted by email as well as in brief conversations in class, as indicated in the section Course Content and Calendar.

Step 6: First draft of the final report. All students who wish to have revisions of their final report should meet with the instructor (email or Zoom) to see where and how the final paper could be improved.

Step 7: Presentation of the Final Report.

Possible references could be**...**

-Writing Environmental Assessment and Impact Statement.**”** Available at https://www.energy.gov/sites/default/files/nepapub/nepa_documents/RedDont/G-DOE-envtl_style.pdf Environmental Impact Statement (EIS) Format And Content Process

-US Department of the Interior (Bureau of Ocean Energy Management (BOEM) (n. d.). **“**Environmental Impact Statement (EIS) Format And Content Process.**”** Available at https://www.boem.gov/environment/environmental-assessment/environmental-impact-statement-eis-format-and-content-process

1. Final Group Report:

The principal objective of the entire class is the elaboration of a Final Report that analyzes the main environmental justice issues of Flushing-Chinatown in Queens, NYC (see Figure 1). As the largest Chinatown community in NYC, this community is suffering a broad spectrum of impacts that range from air and noise pollution, the intense air traffic of La Guardia Airport to sea level rise and heat vulnerability. In this assignment the students will participate together in the analysis of this case. In order to complete this Report, we will divide the class in various groups. Each group, which will be composed of 3-4 students (at least one student will be a graduate student), will be focused on a specific impact that that particular community is currently experiencing. Thus, for example, group 1 will study air pollution, group 2 heat vulnerability, etc (see Figure 2). Each group will elaborate a report of that particular topic following the guidelines (sample of the structure) shown below. These two group reports will be integrated into the **Final Complete Report** at the end of the semester. In order to coordinate these group activities, each graduate student from every group will form part of a Coordinator Group (see Figure 2).

Main tasks:

1. Coordinate the internal group operations and transmit them to the other groups
2. Complete the common sections for the Final Report: Introduction, Literature Review, Methodology, Intellectual Contribution, and Conclusion.
3. Elaborate the Abstract of the Final Report
4. Meet with the instructors during the semester (giving updates)

Figure 1. Flushing-Chinatown (Google Maps, 2024)

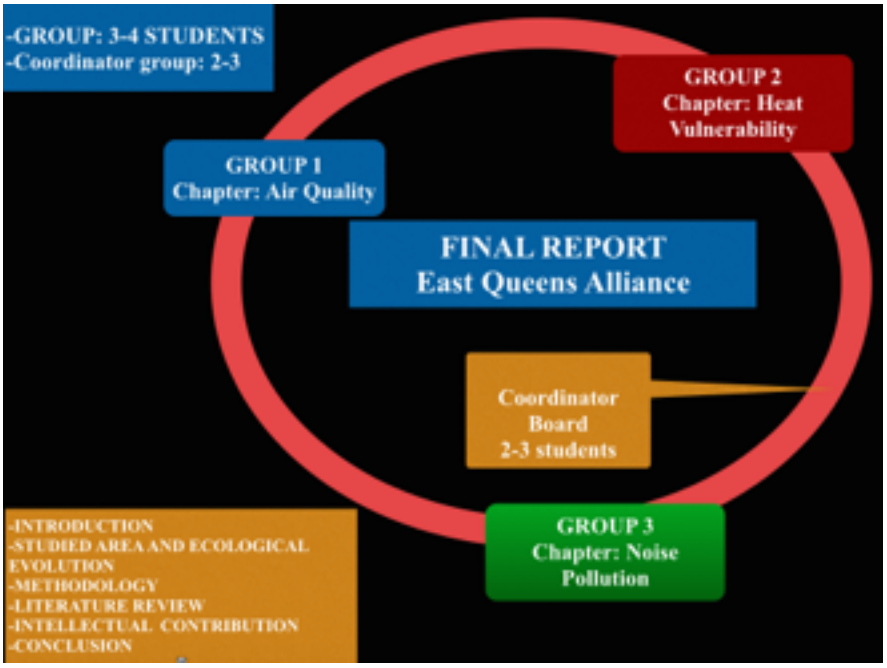

Figure 2. Organization of the Final Report Activities

Structure of the Group Reports:

-Introduction
-Studied Area and Ecological/Historical Evolution of the area
-Identification of the main Problem/s (air pollution)
-Consequences
-Potential Mitigation/Solutions/Strategies
-Methodology
-Intellectual Significance
-Bibliography

2. Abstract for the Final Report (for Graduates):

Section that described shortly, precisely, and efficiently the main components of a paper: background of the topic, research focus, thesis, and methods. Most of the abstracts have around 250 words and are composed by three sections:

-Title
-Main Text
-Key words: between three and four words that reflect precisely the main key points of the investigation.

You can find some guidelines in this link https://writingcenter.gmu.edu/guides/writinganabstract.

Sample: Abstract for the American Association of Geographers Conference (AAG): "Climate Change Denial and the Tragedy of North America's Dams"

With approximately 90,000 big dams, the United States has more dams than nearly any other country. It is commonly recognized that these dams, largely built between the 1930s and the 1960s, are in a state of disrepair; in fact, 80 percent of U.S. dams will reach their life span by 2020. This condition is exasperated by unprecedented changes in climatic patterns. Climate change is accelerating dam vulnerability and boosting the risk of collapse. In California, the Oroville dam, the tallest dam in the United States, nearly collapsed due to the unusual amount of winter precipitation in 2017. In Puerto Rico, the Guajataca Dam, hit hard by hurricane Maria, also nearly collapsed in 2018. And in March 14, 2019, the Spencer Dam did collapse, making it the first dam ever to be destroyed by ice chunks. Despite the undeniable influence of the weather, some entities still reject climate change as a factor threatening dam infrastructure, asserting that the managerial negligence of public institutions and the aging status of dams are the only causes of this decay. This paper exposes how two main ideologies have contributed to the current rejection of climate as a factor in dams' vulnerability. First, the engineering profession still produces engineers who are taught to observe nature mechanically, without recognizing the changing ecological scenario. Second, some conservative agencies, in an effort to convince the public that public institutions and infrastructures do not and cannot function, erase climatic influence from their descriptions.
Keywords: Dams, climate change, engineering, and conservatism

3. Walking Tour:

Each group will organize a tour of its topic in situ. All of the groups will go to the area at the same time.

4. Oral Presentations:

4.1. Class Materials (Tuesdays):

a. Each group will present the class materials every Tuesday.
b. Each presentation will take around 30 minutes.
c. Every group will present at least 3 times for the semester.
d. Graduate students present additional materials (further materials) with a focus based upon the discipline of the other graduate student.

4.2. Presentations of the Final Group Reports:

a. Each group will present its particular Group Report.
b. You can use programs such as PowerPoint or others to present your research paper.

c. Each presentation should be at least around 20 minutes long.

5. Literature Review:

At least 5 References for undergraduate and 10 for Graduate (Individual activity). Document that reviews some of the main scholars' works focused on your research topic.

6. Class Participation and *Eco*Credits

This course has two types of participation: indoor and outdoor participation.

a. Class Participation (Indoor):

Class participation is fundamental for your success in this class and includes class presentation and discussion, group activities, data collection excursions, and attendance. You need to study the "Materials" every week (check each class in the syllabus) in order to prepare for the class.

b. *Eco*Credits: (Outdoor): Extra-Credit

Our course in collaboration with the Greenbelt Society, and institutions such as NYC Parks and the American Littoral Society will be organizing diverse outdoor activities such as coastal clean-ups and tree planting during this semester. Every activity represents a number of credits called *Eco*Credits. The bigger the number of outdoor activities, the bigger the amount of *Eco*Credits or extra-credit will be.

Students will have to report each of the activities. How? Just a brief description of what you did, where, when, and how (see below the Report sample). The objective of these activities is not just learn about environmental issues, but also contribute to mitigate and restore sensitive ecological areas as well as elaborate solutions for those particular scenarios. The students will become not only direct observers, but also active participants in the resolution of ecological issues. Some examples:

1. Coastal Clean-Ups
2. Ecological Restoration of coastal areas, marshes and rivers: planting coastal-marsh species such as Spartina or removing invasive species.
3. Clean-ups and maintenance of green infrastructure such as bioswales.

4. You may consider activities organized by yourself or collaborating with other institutions. Examples:

a. How to expand or start your food-waste for compost in your home.
b. How to reduce the amount of energy in your home
c. Or just participating in clean-ups by yourself.

Sample of a Eco-Credit REPORT

Name:	
Last Name:	
Type of Zone:	(e. g. urban, rural, suburb, marsh, etc.)
Location of the Activity:	(e. g. neighborhood, county, state)
Area/Surface of the site:	(e. g. 400 sq. feet)
Date/Time	
Type of Activity	(e. g. coastal clean-up, coastal restoration, bioswales cleaning, etc)
General Description of the Activity	If you participated in a costal clean-up activity, include data/information about the institution that organized this operation, what you did, how much plastic you collected. You could include photos or maps. ~1 page

7. Fieldwork Notebook:

You will complete a notebook where you will practice how to take notes, drawing, painting, and other fieldwork activities. You will collect information from class and outdoor. The notebook is a fundamental tool for any geographer or environmental scientists. At the end of the semester (see Calendar) the teacher will review your notebook in class. See below two samples from Feliz Rodriguez de la Fuente's "Cuadernos de Campo." See two samples below.