

**Lecture Schedule for: Climate Resilience and Adaptation:
Municipal Policy and Planning
ENVE, ENVS, EVST 3100
Fall 2019**

Section 1: Climate Change Issues and Trends, From Global to Local
Class Time: 3:30 to 4:45pm
Location: Floriculture Classroom

Required Book: *High Tide on Main Street: Rising Sea Level and The Coming Coastal Crisis* by John Englander

Special Assignments:

- **Attend a local municipal meeting and write a 3 page, double spaced paper on the issue(s), what was discussed, the outcome (if any) and your impressions of the meeting (Due Oct 29, 2019)**
- **Role Playing Exercise**
- **Cost of Sea Level Rise Exercise**

Note: When an assignment includes a paper, it should be typed using Times New Roman 12 point font

Instructors:

Juliana Barrett, PhD
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Course Description: Climate change is impacting every aspect of the world around us from rising seas to changing precipitation patterns. This class will be an interdisciplinary study of climate change focusing on the local, municipal scale: impacts, policy, vulnerability and adaptation. We will examine strategies such as vulnerability assessments that help local communities determine priorities for adaptation efforts, and we will discuss what those efforts might entail, as well as roadblocks to moving forward.

Course Learning Objectives:

- Analyze and assess climate change impacts at a regional, state and municipal scale
- Understand climate policy and programs at the federal, state and local levels
- Analyze and assess the relationship of land use to environmental health, and the land use decision making process in the region and the state
- Ability to conduct a vulnerability assessment. This will include the use of maps, imagery, and land use information

- Analyze climate related problems at the local level from interdisciplinary perspectives
- Gain an understanding and knowledge of how local government functions and how decisions are made.

Week 1 Aug 27/29 2019

READINGS for Week 1:

Anthropocene:

- [Anthropocene story map](https://story.maps.arcgis.com/apps/MapJournal/index.html?appid=d14f53dcaf7b4542a8c9110eeabccf1c)
<https://story.maps.arcgis.com/apps/MapJournal/index.html?appid=d14f53dcaf7b4542a8c9110eeabccf1c>

Produced by ESRI in collaboration with the Smithsonian Institution. Created September 8, 2014.

Visualizing climate change:

- [Earth Temperature Timeline](https://xkcd.com/1732/) (take it in, scroll slowly) (<https://xkcd.com/1732/>)
From xkcd
- U.S. Global Change Research Program.
<https://www.globalchange.gov/browse/indicators/catalog>
Explore climate change indicators on this website.

For Reference:

Terminology: U.S. EPA Glossary of Climate Change Terms [Climate Change Glossary](https://www3.epa.gov/climatechange/glossary.html#area)
(<https://www3.epa.gov/climatechange/glossary.html#area>)

Yale Climate Connections (current news article on climate change related mitigation and adaptation): <https://www.yaleclimateconnections.org>

Week 1 (Aug 27, 2019) Instructor Barrett/Hyde

- Introduction to class, topics and instructors
Description of goals and objectives for course
Description of spring semester independent study
Exam and schedule, written assignments including attending municipal meeting
Description of cost of sea level rise and role playing exercises
Description of reading assignments
- In class Exercise
- Terminology: mitigation, adaptation, resilience, etc.
- Natural and human induced climate changes in the context of the Anthropocene

Week 1 (Aug 29, 2019) Instructor Barrett

- Priority climate indicators for New England (air temp, water temp, precipitation, sea level rise, pH, etc.)
- Climate change trends

Assignment for Week 1 Due 9/03/19: Find a current news article on climate change. Provide article title/author/source. Summarize the article in a couple of sentences and specify the applicable climate indicators (from US Global Change Research Program website). Come up with 3 to 5 questions that this article leads you to ask. (2 pages, double spaced)

Week 2 September 3/5

Readings for Week 2

Climate change impacts

- Dupigny-Giroux, L.A., E.L. Mccray, M.D. Lemcke-Stampone, G.A. Hodgkins, E.E. Lentz, K.E. Mills, E.D. Lane, R. Miller, D.Y. Hollinger, W.D. Solecki, G.A. Wellenius, P.E. Sheffield, A.B. MacDonald, and C. Caldwell, 2018: Northeast. In *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 669–742. doi: 10.7930/NCA4.2018.CH18

<https://nca2018.globalchange.gov/chapter/18/>

OPTIONAL/REFERENCE READING

- Jay, A., D.R. Reidmiller, C.W. Avery, D. Barrie, B.J. DeAngelo, A. Dave, M. Dzaugis, M. Kolian, K.L.M. Lewis, K. Reeves, and D. Winner, 2018: Overview. In *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 33–71. doi: 10.7930/NCA4.2018.CH1
https://nca2018.globalchange.gov/downloads/NCA4_Ch01_Overview.pdf
- Rice, A. “This is New York in the not-so-distant future?” *New York Magazine*. Sept 7, 2016. Accessed Aug 4, 2017.
<http://nymag.com/daily/intelligencer/2016/09/new-york-future-flooding-climate-change.html>
- Harrop, F. “Climate Change Has Minor Winners and Big Losers.” *The Day*. July 12, 2019. Accessed July 23, 2019. See [PDF](#)
- Green, Matthew. “Scientists amazed as Canadian permafrost thaws 70 years early.” *Reuters News*. June 23, 2019. Accessed July 17, 2019.
<https://www.msn.com/en-us/weather/topstories/scientists-amazed-as-canadian-permafrost-thaws-70-years-early/ar-AAD3Ubx?ocid=spartandhp>

Week 2 Sept 3, 2019 Instructor Hyde

- Climate change impacts

Week 2 Sept 5, 2019 Instructor Hyde

- Climate change impacts (continued)
- Role Playing Exercise – explain and pick roles

Assignment for Week 2 Due 09/10/19

Draft background and information for your character and position for the role playing exercise. This will be refined over the course of the semester. No written assignment for 9/10 – ask questions as they arise.

Be prepared to provide a one minute introduction of your character/position on September 12.

Week 3 September 10/12

Readings for Week 3

- *High Tide On Main Street: Rising Sea Level and the Coming Coastal Crisis* by John Englander

Read Chapters 1-10 (pages 3-101)

References/Optional Reading

- Beeler, C. "If Thwaites Glacier collapses, global coastlines could change forever." July 2, 2019. Accessed July 17, 2019.
<https://www.msn.com/en-us/weather/topstories/if-thwaites-glacier-collapses-global-coastlines-could-change-forever/ar-AADHFg5?ocid=spartandhp>

Visualizing sea level rise:

- (NASA) <https://sealevel.nasa.gov/multimedia/>;
Go to "Rising Seas, by Decade" and Sea Level Rise Accelerates Over Time"
- National Climate Assessment (2014) chapter on [sea level rise](#)

Week 3 Sept 10, 2019 Instructor Barrett

- Sea level rise trends and ecological/infrastructure impacts

Week 3 Sept 12, 2019 Instructor Barrett/Hyde

- Sea level rise (continued); environmental solutions (Gray to Green Continuum)
- Sea level rise viewers
- Role Playing Exercise Discussion – everyone will have one minute to introduce their role playing character and position. (consider forming alliances!)

Assignment for Week 3 Due 09/17/19

Find a current news article pertaining to sea level rise in the United States. Provide article title/author/source. Summarize the article in a paragraph. Explain in detail the impacts of

sea level rise. Discuss potential management options and your opinions on different adaptation strategies. Come up with 3 to 5 questions that this article leads you to ask. Write a 2 page, double spaced paper for this assignment.

Week 4 September 17/19

Readings for Week 4

High Tide On Main Street: Rising Sea Level and the Coming Coastal Crisis by John Englander

Read Chapters 11-17 (pp 105-194)

AND

Health and Climate Change:

- Read the online chapter summaries for the assessment reference below at:
<https://health2016.globalchange.gov/>
USGCRP, 2016: *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*. Crimmins, A., J. Balbus, J.L. Gamble, C.B. Beard, J.E. Bell, D. Dodgen, R.J. Eisen, N. Fann, M.D. Hawkins, S.C. Herring, L. Jantarasami, D.M. Mills, S. Saha, M.C. Sarofim, J. Trtanj, and L. Ziska, Eds. U.S. Global Change Research Program, Washington, DC, 312 pp.

Optional Readings

Scutti, S. "Flesh-eating bacteria in New Jersey reveal one possible effect of climate change, study says." CNN, June 18, 2019. Accessed July 22, 2019.

<https://www.cnn.com/2019/06/17/health/climate-change-flesh-eating-bacteria-study/index.html>

Chandra, Shekhar. "Are parts of India becoming too hot for humans?" CNN, July 4, 2019. Accessed July 22, 2019. <https://www.msn.com/en-us/news/world/are-parts-of-india-becoming-too-hot-for-humans/ar-AAD0Iqc?ocid=spartandhp>

Week 4 Sept 17, 2019 Instructor Hyde

- Responses to sea level rise (economic, political, social)
- Municipal responses to climate change challenges
- Response to sea level rise—retreat or defend.

Week 4 Sept 19, 2019 Instructor Barrett

- Environmental Health and Climate Change
- Cost of Sea Level Rise Assignment: Discussion/Rubric

Assignment for Week 4: Cost of Sea Level Rise Assignment: get together with your team and review the rubric. What first 3 steps will you take for this assignment? Type up steps with all team members names and hand in one write up per team. Due Sept 24, 2019

SECTION 2: Linking Climate Change Impacts to Policy

Week 5 September 24/26

Readings for Week 5

Land Use

- Meuse, M. "Land Use and Climate Change Could Increase Flood Frequency, Experts Say." CBC News. May 13, 2017. Accessed Aug 7, 2017.
<http://www.cbc.ca/news/canada/british-columbia/more-frequent-flooding-1.4113809>
- [Arnold, C. 2017. "As Connecticut Landscape Goes, So Goes the Sound." *Wrack Lines*. Spring/Summer 2017 \(Vol. 17, No. 1\)](#)
- Wilson, E., C. Arnold, J. Volin. Connecticut's Changing Landscape Story Map. UConn CLEAR. [Connecticut's Changing Landscape Story Map](#)

Flooding:

- Patterson, Thom. "How Houston's layout may have made its flooding worse." CNN. August 31, 2017. Accessed July 26, 2018.
<https://www.cnn.com/2017/08/31/us/houston-harvey-flooding-urban-planning/index.html>
- Scata, Joel. "The Nation's Approach to Managing Flood Risks Must Change." NRDC. Sept 13, 2017. Accessed Aug 6, 2018.
<https://www.nrdc.org/experts/joel-scata/nations-approach-managing-flood-risks-must-change>

Week 5 Sept 24, 2019 Instructors Arnold, Dietz

Land use trends and climate implications

- Connecticut's Changing Landscape results, stormwater, carbon sequestration, heat islands
- Precipitation, stormwater and flooding (*National to local scale*)

Week 5 Sept 26, 2019 Instructors Dietz, Arnold

- LID campus tour with a climate change focus

Assignment for Week 5: Role Playing Exercise Character Development Assignment (2 pages, double spaced) due 10/01/19

Week 6 October 1/3

Week 6 Readings

- Boyer, MA, Meinzer, M and Bilich A. (2016) "The Climate Adaptation Imperative: Local Choices Targeting Global Problems?" *Local Environment*, DOI: 10.1080/13549839.2016.1160372

<https://www.tandfonline.com/doi/full/10.1080/13549839.2016.1160372#aHR0cHM6Ly93d3cudGFuZGZvbmxpbmUuY29tL2RvaS9wZGYvMTAuMTA4MC8xMzU0OTgzOS4yMDE2LjExNjAzNzI/bmVIZEFjY2Vzcz10cnVlQEBAMA==>

- Cloudy with a Chance of Meatballs (https://www.youtube.com/watch?v=Kl_-0nlfNHA)

OPTIONAL READINGS:

- Boyer, M.A. (2013). *Global Climate Change and Local Action: Understanding the Connecticut Policy Trajectory*. *International Studies Perspectives* 14: 79-107. [Boyer-2013-International_Studies_Perspectives.pdf](#)
- Boyer, M.A. (2012). *Adapting to Climate Change: Mapping Connecticut's Coastal Responses to a Global Problem*. *Sea Grant Law and Policy Journal* 5(1): 15-40. [Boyer-2012 Adapting to Climate Change.pdf](#)
- Woodruff, S. C. and M. Stults. 2016. *Numerous strategies but limited implementation guidance in US local adaptation plans*. *Nature Climate Change* 6: 796-804. [Woodruff_Stults_nclimate3012.pdf](#)

Week 6 Oct 1, 2019 Instructor Boyer

- Climate policy: Roles/responsibilities at federal, state and local levels
- Politics of climate adaptation in Connecticut and the major players in the CT climate scene

Week 6 Oct 3, 2019

Cloudy with a Chance of Meatballs (https://www.youtube.com/watch?v=Kl_-0nlfNHA)

Class Discussion on video

PLEASE watch video BEFORE class on Oct 8.

Time to work on cost of SLR project

Hand out Midterm Review Sheet

Assignment: Prepare for Midterm Exam on Oct 10, 2018

Week 7 October 8/10

Readings for Week 7

Ethics and Climate Change

- Kirchhoff CJ, Lemos MC, Dessai S. 2013. Actionable knowledge for environmental decision making: Broadening the usability of climate science. *Annu. Rev. Environ. Resour.* **38**, 3.1-3.22. [Actionable knowledge for environmental decision making.pdf](#)

- Lacey J, Howden SM, et al. 2015. Informed adaptation: Ethical considerations for adaptation researchers and decision-makers. *Global Environmental Change* 32: 200-210 [Informed adaptation.pdf](#)

Week 7 Oct 8, 2018 Instructor Kirchhoff

- Ethics and climate change; ethical implications of adaptation policy
- Students as “boundary spanners”

Time for questions for Midterm Exam

Week 7 Oct 10, 2019

Midterm Exam

Assignment for Week 7: Work on Cost of Sea level Rise Project

Week 8 October 15/17

Readings for Week 8

- Herriges, D. "Houston isn't Flooded because of its Land Use Planning. August 30, 2017. *Strong Towns*. Accessed Sept 8, 2017. <https://www.strongtowns.org/journal/2017/8/30/houston-hurricane-harvey-land-use>
- Campoy, A. and D. Yanofsky. "Houston's flooding shows what happens when you ignore science and let developers run rampant." August 29, 2017. *Quartz*. Accessed Sept 8, 2017. <https://qz.com/1064364/hurricane-harvey-houstons-flooding-made-worse-by-unchecked-urban-development-and-wetland-destruction/>
- Smiley, D. “Mainland Miami ponders returning neighborhoods to nature in order to survive rising seas.” *Miami Herald*. June 9, 2017. Accessed August 4, 2017. <http://www.miamiherald.com/news/local/community/miami-dade/article155213369.html>
- Collins, D. “Could Coastal Mansions Become Eligible for Disaster Aid.” *Associated Press*. July 21, 2019. Accessed July 23, 2019. <https://www.apnews.com/153457894bb849e6b643ddb908371060>

Week 8 Oct 15, 2019 Instructor Hyde

- Land Use Planning in Connecticut
- Local Plans and Programs related to climate change, disaster preparedness (Natural Hazard Mitigation Plans; FEMA, NFIP, CRS)

Week 8 Oct 17, 2019 Instructor Hyde

- Land Use Planning, continued (climate migration/gentrification/real estate impacts)
- How the Climate Corps will assist towns (projects from previous students)
- Introduction to the pilot communities for Spring 2020

- Cost of Sea Level Rise project check-in – break into groups and discuss project and any issues; class discussion

Assignment for Week 8: Work on Cost of Sea level Rise Project; Status report due 10/22/19

Week 9 October 22/24

Week 9 Readings

- Roche, D. Environmental Law Institute Climate Change and Sustainability Blog. Changing Maps, Changing Coastal Laws & Policies. September 8, 2016. accessed September 29, 2017. <https://www.eli.org/vibrant-environment-blog/changing-maps-changing-coastal-laws-policies-0>
- Thompson, O., J. Bingaman, and R. Porter. 2019. “Responding to Nuisance Flooding of Coastal Highways: Responses for Municipalities”. UConn Climate Adaptation Academy Fact Sheet #5. https://seagrant.uconn.edu/wp-content/uploads/sites/1985/2019/01/CoastalHighwaysFS5_FINAL.pdf

OPTIONAL READINGS

Connecticut Legal Fact sheets:

- Takings and Coastal Management [Takings fact sheet_FINALkb.pdf](#)
- Property and Permitting Boundaries at the Shorelines [Beach Nourishment and Property Lines fact sheet_FINALkb.pdf](#)
- Governmental Tort Liability for Disclosure of Flood Hazard Information [Government Liability fact sheet_FINALkb.pdf](#)
- Flood and Erosion Control Structures [Flood and Erosion Control Fact Sheet_FINALkb.pdf](#)

Week 9 Oct 22, 2019 Instructor Attorney Marjorie Shansky

- Legal aspects of climate adaptation in Connecticut

Week 9 Oct 24, 2019 –Instructor Hyde to facilitate Connecticut Municipal Panel

Assignment for Week 9:

Attend a local municipal meeting and write a 2 page, double spaced paper on the issue, what was discussed, the outcome (if any) and your impressions of the meeting Due Oct 29, 2019

Week 10 October 29/31

Week 10 Readings

Cuite, C.L., R. L. Shwom, W.K. Hallman, R.E. Morss and J. L. Demuth. 2017. Improving Coastal Storm Evacuation Messages. *Weather, Climate and Society* Vol. 9 (2) 155-170. Pdf: <https://journals.ametsoc.org/doi/pdf/10.1175/WCAS-D-16-0076.1>

- Marlon, J.R., Rosenthal, S., Feinberg, G., Pal, S. and Leiserowitz, A. (2015). Hurricane Attitudes of Coastal Connecticut Residents: A Segmentation Analysis. June 29, 2015. Yale University. New Haven, CT: Yale Project on Climate Change Communication.
<http://climatecommunication.yale.edu/publications/coastal-ct-hurricane-segments/>
- Montano, S. and A. Savitt. 2018. The Cost of Flood Insurance Is A Price Worth Paying. CITYLAB. Accessed August 6, 2018.
https://www.citylab.com/environment/2018/08/the-cost-of-flood-insurance-is-a-price-worth-paying/566363/?utm_source=nl_link4_080118&silverid=MzIwMzcyOTIxNzczS0&utm_source=citylab-daily&silverid=MzIwMzcyOTIxNzczS0

Week 10 Oct 29, 2019 Instructor Diane Ifkovic
NFIP/Flood Maps

Week 10 Oct 31, 2019 Instructor Balcom

- Coastal Storm/Flood Disaster and Emergency Preparedness (Coastal Storm Awareness Program)

Assignment for Week 10

Write two page, double spaced essay on: What were your reactions and take-aways from Week 10 lectures? What are your thoughts on hurricanes and evacuation? Under what circumstances would you evacuate or not evacuate your residence? Due 11/05/19

Week 11 November 5/7

Readings for Week 11:

Please read through the following 2 documents; one is the Natural Hazard Mitigation Plan for Old Lyme, CT and the other is the Coastal Resilience Report that was recently developed for Stonington, CT

- Old Lyme, CT Natural Hazards Mitigation Plan Update 2014. Prepared by the Lower Connecticut River Valley Council of Governments [pdf](http://www.rivercog.org/NHMP/NHMP_FINAL_AdoptedOL082114.pdf)
(http://www.rivercog.org/NHMP/NHMP_FINAL_AdoptedOL082114.pdf)
- Town of Stonington, CT Coastal Resilience Report, August 2017 [pdf](https://www.documentcloud.org/documents/5113638-Stonington-Final-Coastal-Resilience-Plan-9-7-17.html)
(<https://www.documentcloud.org/documents/5113638-Stonington-Final-Coastal-Resilience-Plan-9-7-17.html>)
- Read through the five steps to resilience: NOAA's Climate Change and Extreme Weather Vulnerability Framework:
<https://toolkit.climate.gov/steps-to-resilience/explore-hazards>

Week 11 Nov 5, 2019 Instructor Hyde/Barrett

- Sustainable CT
- Community Rating System
- MS4
- Role Playing exercise – class time for character development and discussion
- Cost of Sea Level Rise Exercise – class time for discussion

Week 11 Nov 7, 2019 Instructor Hyde/Barrett

- Vulnerability assessments/Resilience Plans (What are they and how to do an assessment?)

Assignment for Week 11: Role playing exercise: Write a 3 page, double spaced paper on your character's position for role playing exercise **for those testifying** explaining why you are taking this position. Research background information for your position. Due 11/12/19

Week 12 November 12/14

Week 12 Nov 12, 2019 Instructor Hyde/Barrett

- Role playing exercise

Week 12 Nov 14, 2019 Instructor Hyde/Barrett

- Role playing exercise

Assignment for Week 12: Role playing exercise: Write a 3 page, double spaced paper/article for role playing exercise **for press and town council members**. Research background information for your position. Due Nov 19, 2019

Week 13 November 19/21

Week 13 Nov 19, 2019 Instructor Hyde/Barrett

- Role playing exercise and roundtable debrief

Week 13 Nov 21, 2019

Paul Gagnon (UConn Center for Career Development) – Consulting 101/Career counseling

Class time to work on cost of SLR project

Assignment for Week 13: Work on Cost of Sea Level Rise project

Group presentations and papers on Cost of Sea Level Rise project due at Final Exam time

THANKSGIVING BREAK

Week 14 December 3/5

Week 14 Dec 3, 2019 Instructor Hyde/Barrett

- Group Presentations on Cost of Sea Level Rise project

Week 14 Dec 5, 2019 Instructor Hyde/Barrett

- Group Presentations on Cost of Sea Level Rise project

Group papers on Cost of Sea Level Rise project due at Final Exam time

SYLLABUS SUBJECT TO CHANGE



GRADING POLICY

Assessments:

Midterm Exam (in class)	20%
Cost of Sea Level Rise Exercise	25%
Writing assignments*	50%
Discussion Participation	5%
TOTAL	100%

*Writing Assignments include:

- 1) Town Meeting write up (20 points)
- 2) Role playing character development paper (20 points)
- 3) Role playing public hearing paper/article (30 points)
- 4) Mini writing assignments (10 points each)

≥ 92%	A
89 – 91.9	A-
86 – 88.9	B+
82 – 86.9	B
79 – 81.9	B-
76 – 78.9	C+
72 – 75.9	C
69 – 71.9	C-
66 – 68.9	D+
62 – 65.9	D
59 – 61.9	D-
≤ 59	F

Please see <https://provost.uconn.edu/faculty-and-staff-resources/syllabi-references/> for References pertaining to the Syllabus including:

- [Absences from Final Examinations](#)
- [Class Attendance](#)
- [Credit Hour](#)
- [People with Disabilities, Policy Statement](#)
- [Discrimination, Harassment and Related Interpersonal Violence, Policy Against](#)
- [The Student Code](#)
- [Academic Misconduct Procedures for Instructors](#)